

Final Report to Canadian Population Health Initiative

DEVELOPMENT AND APPLICATION OF COMMUNITY HEALTH INDICATORS

Submitted by: Genuine Progress Index Atlantic (GPI Atlantic)

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1. Executive Summary

The key outcomes of this CPHI research program are:

1. Extensive consultations were held with more than 40 community groups in two Nova Scotia communities – rural Kings County and Glace Bay in industrial Cape Breton – to select community-level indicators of population health and wellbeing.
2. An extensive and detailed 2-3 hour survey on a wide range of population health determinants and health outcomes was created, tested, and administered to more than 3,600 respondents in both communities. Survey design and testing were in consultation with Statistics Canada's Social Survey Methods Division. The sample size allows for two cross tabulations (e.g. gender and age) with a 95% confidence level and a margin of error of +/- 3%. The response rate was 82% in Glace Bay and more than 70% in Kings County.
3. The data were entered, cleaned, and processed to create a remarkable new database that now constitutes the most detailed set of community-level data on population health available in Canada. That database is now available to researchers throughout Canada and allows correlations to be drawn between health status, health outcomes and a wide range of health determinants. New research on relationships between voluntary work and health, between time use and health, and other issues is being conducted using this database.
4. In consultation with academics and community partners, data access guidelines have been put in place that can serve as a template for community-based population health research throughout Canada. The data access guidelines are available at http://discovery.uccb.ns.ca/glacebay_gpi/dataaccess.html and are reproduced as Appendices 21 and 22 of this report.
5. The data have been and are continuing to be analyzed, with results presented in written reports, PowerPoint presentations, community workshops, a newsletter recently distributed to all Glace Bay households, meetings with policy actors, and other formats. Research has been undertaken on employment and health, tobacco use, peace and security as a determinant of health and wellbeing, the health of caregivers, and other issues. A key focus is on policy implications of the results and on working with community leaders to use the data to improve community health and wellbeing.
6. Community groups are involved and participating in every aspect of this CPHI research program, including all the steps, processes, and outcomes listed above, to assess the hypothesis that community empowerment and community capacity building are key ingredients in improving population health. Two community-based societies have been established to sustain and continue the project.
7. This CPHI program has spawned several important new research projects and activities that are currently ongoing, as described in more detail in this report, including further

work on the relationships between employment and health, and between voluntary work and health.

Key research results to date include the following. (Please see section 6 of this final report and the Appendices for more detail):

1. The research on employment and health confirms other studies indicating significant correlations between unemployment and poor health. Within each community, the unemployed generally had worse health status than the employed, and discouraged workers had poorer physical and mental health even than the unemployed. The survey results also point to a relationship between job insecurity (such as threat of layoff) and poor health. Glace Bay, with substantially higher unemployment rates than Kings County, also reported higher rates of activity limitation, disability, and some chronic diseases, but not poorer self-reported health or stress. It is hypothesized that stronger social supports and social networks in Glace Bay may ameliorate some of the potentially adverse health impacts that may result from lower socio-economic status.
2. Kings County respondents were much more likely to report high stress than their counterparts in Glace Bay. Interestingly, the highest and lowest income groups reported the highest stress levels, although for different reasons. High income earners were more likely to report stress due to overwork – too many demands and too long hours, while low-income earners were stressed by poverty and inadequate resources. The results point to the value of exploring European experiments in re-distribution of work hours. Unemployment and shift work were associated with lower levels of life satisfaction, though not with stress.
3. Glace Bay residents have much higher rates of smoking and nicotine addiction than those in Kings County. Confirming other studies, the unemployed in both locations registered far higher rates of smoking than those with jobs. With the exception of community college graduates, who registered very high rates of smoking, tobacco use was generally inversely related to educational attainment. However, smoking was highly correlated with stress. Confirming earlier National Population Health Survey results, there appears to be a gradient, with higher rates of stress associated with greater propensity to smoke. A separate study of teenage smoking found teenage girls much more likely to smoke than teenage boys, and also to have started smoking at younger ages. Among daily smokers, however, young women smoked fewer cigarettes than young men.
4. Caregivers generally reported poorer physical and mental health than non-caregivers, registering lower levels of self-reported health, more activity limitations, higher stress rates, more time pressures, poorer mental health, elevated levels of feeling nervous, worthless, and unhappy, and higher rates of medication use including anti-depressants. However, they were generally not more likely to use health care services than non-caregivers, except that they consulted mental health practitioners more often. It is hypothesized that time pressures and stresses, as well as responsibilities for those under their care, may discourage caregivers from visiting physicians even when they feel sick.

The results point to an urgent need for both financial and social supports for unpaid caregivers.

5. Despite their higher socio-economic status, Kings County residents were nearly twice as likely to be victims of crime than their counterparts in Glace Bay, casting some doubt on the conventional wisdom that low income and high unemployment are more likely to produce crime and victimization. It is hypothesized that higher levels of social support and stronger social networks in Glace Bay may ameliorate some of the potentially negative health and justice consequences of adverse economic circumstances and conditions.
6. Interestingly, attitudes towards the justice system seemed more determined by gender and education than by income, employment, and economic circumstances. Higher levels of education were significantly associated with attitudes favouring tight gun control, legalisation of marijuana, and feeling that the justice system is not fair to all. Women were significantly more likely than men to favour tight gun control, to oppose the legalization of marijuana, and to think the justice system is fair to all. Significant correlations on these issues were far less likely to occur according to income, employment, and economic status.
7. Research was also conducted on the relationship between voluntary work and health, on the core values of respondents, and on their use of time as revealed by a two-day time diary included in the survey. Results of these analyses are summarized in this report, and explained in more detail in the Appendices. Analysis was also conducted on open-ended questions answered by respondents, indicating issues they considered important to their wellbeing, and on hypotheses generated by the respondents themselves in these open-ended questions. Issues emphasized by respondents as being of key importance in determining community wellbeing were (in order of frequency mentioned): decent jobs, good health care, clean water, aesthetic quality, meaningful activities for youth, and safety from crime.

As its most important recommendation, the research team requests CPHI to publicize the existence of this remarkable new database to population health researchers nationwide. The database represents an unparalleled opportunity for researchers to investigate the determinants of health at the community level, and is unique in providing detailed information on a wide variety of health determinants from the same respondents. The team feels that it has worked very hard to plant the seed and to nurture and grow the tree in the form of this community health survey and database, and it now looks to population health researchers nationwide to help harvest the fruit.

2. Expanded Summary

This CPHI-funded research program to develop and apply community population health indicators was funded for the period April, 2001 – August, 2004, but the program is still very much alive, functioning, and expanding, and its impact and penetration are growing with each year. While the original stated goals and tasks of the program were largely accomplished, this

remarkable continuity and sustainability is actually the program's key achievement, with the most important accomplishments extending far beyond the original proposal to CPHI.

The CPHI funding has enabled the program to plant strong and deep roots that have spawned a number of important, ongoing research projects whose results will continue to manifest in the coming months and years. It also gave birth to two community-based non-profit organizations in the two target communities, comprised of academics and community leaders, whose mandate it is to maintain the community health indicators. It has spawned an active website and community newsletter, and has advised a number of other Canadian initiatives seeking to construct community-level indicators of wellbeing and progress. It is also intended to refresh the data for the two target communities in future years to update the indicators and to assess progress over time. Participating academics are also interested in the potential for longitudinal studies in the two communities.

While these and many other current and future activities are beyond the scope of the original CPHI-funded research program, they are its direct result and consequence, and would not now be taking place without the CPHI funding. In sum, this is a "final" report in name only for the purposes of this particular research grant, but is more accurately a "progress" report for a program that is ongoing and continuing.

With CPHI funding, we designed and administered extensive Community Genuine Progress Index (GPI) surveys to 3,600 respondents in two Nova Scotia communities – rural Kings County, a relatively prosperous and growing agricultural region with low unemployment rates, and Glace Bay in industrial Cape Breton, where the decline of traditional industries (coal, steel, fishing) has produced very high unemployment rates and out-migration. The survey design was done in close consultation with Statistics Canada's Social Survey Methods Division, and the survey was carefully tested and revised based on analysis of responses during the testing phase.

The surveys were aimed at establishing benchmark indicators of community health, and of the social and economic determinants of health. These indicators, in turn, can enable communities to track their progress over time, and to evaluate the success or failure of projects intended to improve health. The survey data should also allow researchers to assess why some communities are healthier than others, and to recommend actions that can improve health at the community level.

Indirectly, the survey data can also empower communities to improve their wellbeing by enabling them to learn about themselves and understand themselves better. Extensive data on health and health determinants are not generally available at the local level. Even the expanded Statistics Canada Community Health Survey data are only available at the health region level, which is generally a far larger unit than that at which most Canadians define their "communities." The Community GPI data in Glace Bay and Kings County provide first-time data on many health determinants at the local level. In fact, it is no exaggeration to say that Glace Bay and Kings County now have more detailed information available about their health and wellbeing than any other communities in Canada.

Survey questions included sections on health status, health outcomes, risk behaviours and conditions, disease and disability, utilization of health services, children's health, and a wide range of social and economic determinants of health, including employment characteristics, income, social supports, crime, educational attainment, voluntary work, values, and other factors that can be correlated with the specific health questions. While Statistics Canada conducts separate surveys on many of these issues (e.g. Labour Force Survey, General Social Survey, Canadian Community Health Survey), the Community GPI surveys the same respondents on a very wide range of social and economic factors that can then be well correlated with the health data. The full survey is available at the bottom of the page at:

<http://www.gpiatlantic.org/community.shtml>. The idea was that such detailed local information could help identify problems, inform policy, and empower a community to act to improve its health and wellbeing. The full database of all the community GPI survey results on a wide range of health indicators and health determinants, along with appropriate data access guidelines, is now available to researchers throughout Canada.

It should be noted that the CPHI research program and the activities it has spawned, including data collection, data entry, data analysis, data access, dissemination, and interaction with policy actors, have been conducted with the direct participation of community members, and both communities now officially “own” the project and have a real stake in it. For example, a community GPI newsletter, summarizing key results and delivered to all Glace Bay households in July, 2004, was entirely written, designed, produced, printed, and distributed by local program participants in Cape Breton. In light of “the increasing body of evidence that greater control over one's life correlates with improved health and well-being” (Frank 1995)¹, this community participation itself may be an important factor in improving community health and wellbeing in Glace Bay and Kings County.

The outcomes of this CPHI-funded research program to date provide strong evidence that the goal of using indicators to influence policy at the community level can indeed be achieved:

- First, we have found that good local evidence can bring together in the same room key players who do not always communicate – both within the health community and in the larger community. For example, we presented the tobacco use results to local physicians, district and community health board members, addictions counsellors, policy makers, the local high school principal, school board members, and community and youth leaders.
- Secondly, the survey provided a means for the community to be heard by key policy actors. Knowledge can indeed be empowering.
- Thirdly, we have seen several examples where survey results and community recommendations were immediately translated into practical action designed to improve community health and wellbeing. For example, the community meeting at which tobacco results were presented determined that most local schools were not using Nova Scotia's exemplary “Smoke-Free for Life” curriculum. The meeting appointed representatives to approach local school principals, who were most responsive to adopting and enhancing school-based smoking prevention curricula. Unlike the more Byzantine policy processes at the provincial and federal levels, where connections between evidence and policy

¹ Frank, J.W. (1995), “Why Population Health?”, *Canadian Journal of Public Health* 86: 162-164, page 164.

action are often difficult to discern, there appear to be fewer barriers to effective action and policy change at the local level, when strong local evidence is available.

This dynamic process continues to this day, with considerable ongoing research that will yield results in the months and years ahead. Research currently under way, using the Community GPI survey results produced by this CPHI research program, includes:

- An analysis of the relationship between voluntary work and health, funded by the Canadian Volunteer Initiative (preliminary results appended to this report, with final results due in 2005);
- An analysis of the impact of employment characteristics on health, funded for 2004-05 by Health Canada's Health Impact of Economic Change research project; and
- An analysis of Kings County employment and income results, funded by HRDC, Kings County, with results due in the fall of 2004.

These new research projects were spawned by the original CPHI-funded research program, and other initiatives based on the Community GPI surveys are planned.

Research and activities to date, outlined in detail in this report and in the appendices, include:

- Analysis of the tobacco results by Mark Raymond, Ph.D (SMU), Peter MacIntyre, Ph.D, (UCCB), and Glyn Bissix, Ph.D, (Acadia), and presentation to several community meetings;
- Analysis of the unpaid care-giving results by Deborah Kiceniuk (PHRU, Dalhousie) and presentation to two community meetings including care-givers;
- Preliminary analysis of the relationship between employment and health results by Mike Pennock, research director, PHRU, Dalhousie, and presentation to two community meetings;
- Analysis of the time use results, and of the health of discouraged workers by Andrew Harvey, Ph.D (SMU);
- Analysis of the peace and security results by Peter MacIntyre, Ph.D, (UCCB) and presentation to two community meetings;
- Analysis of the Glace Bay employment results by Sean Rogers, Ph.D, Economics Department, Dalhousie University, and presentation to Glace Bay community meeting;
- Special analysis of the youth smoking results by Glyn Bissix, Ph.D, and presentation to Community Health Board meetings in Kings County;
- Analysis of the core values questions, and of the open-ended survey answers by Peter MacIntyre, Ph.D, and presentation to community meeting.
- Creation of a Glace Bay GPI website: http://discovery.uccb.ns.ca/glacebay_gpi/, which summarizes results to date and which provides a forum for feedback and discussion among community members. We intend to use this website as a template for a similar, linked website in Kings County.
- Creation of a detailed community-level database on population health and health determinants that is now available to researchers from throughout Canada.
- Creation of detailed data access guidelines, based on extensive consultations with researchers, academic institutions, and community leaders, that can now provide a template for community-based research throughout Canada and beyond. (Data access

guidelines are attached to this report and are available at the Glace Bay GPI website at http://discovery.uccb.ns.ca/glacebay_gpi/)

- Formation of two stand-alone Community GPI non-profit societies – the Glace Bay GPI Society, and the Kings County GPI Society – which now officially “own” the project and are responsible for its maintenance and continuity. The societies each have a Board of Directors and include academics from the University College of Cape Breton and Acadia University, who are conducting the research and data analysis, and community leaders.
- Writing and distribution of a community GPI newspaper (attached) summarizing key results from the Glace Bay GPI survey, and delivered in July, 2004, to all 7,400 Glace Bay households. That newspaper, in turn, has spurred new community dialogues, feedback, and interest, and is a template for a potential similar publication in Kings County.

The research to date has confirmed many of the established links between unemployment, low income, and poor health outcomes. But it has also produced important new evidence on which there has been less prior research. For example, preliminary links have been established between job security and health and between voluntary work and health; and the survey results indicate that the excessive burden of many caregivers may produce adverse health outcomes. Some of the most interesting results to date concern stress, which a meta-analysis in *The American Journal of Health Promotion* has identified as the costliest of all disease risk factors.² The Community GPI results indicate that stress levels are highest at the low and high ends of the income scale, and lowest among middle-income groups, forming a U-shaped curve. Not surprisingly, the results also show different reasons for this stress – with time stress the key ingredient for high-income earners and financial stress the key ingredient for low-income earners.

Further work is now under way, under the direction of Dr. Sean Rogers of Dalhousie University, to verify and explore these and other important results in greater depth, based on further analysis of the Glace Bay and Kings County data using a wide range of statistical methods. Preliminary results are presented in the reports, presentations, and papers attached as appendices to this report, but the program partners have decided to postpone formal publication of results until Dr. Rogers completes his more detailed statistical analysis in early 2005.

In addition to the research and other activities described above, the CPHI-funded research program in Glace Bay and Kings has spawned numerous other actions, inquiries, and presentations. It has recently given birth to a Community GPI in the north end of Halifax, run by the Human Resources Development Association of Halifax and funded by HRDC, with the survey adapted from the Glace Bay and Kings GPI surveys. The Glace Bay GPI project directors have now twice provided hands-on training to the new Halifax Inner City survey team. A team from the University of Saskatchewan has studied the CPHI-funded research program in Glace Bay and Kings, and conducted a site visit, with a view to assessing its applicability to rural communities in Saskatchewan.

² Goetzal, Ron (ed), “The Financial Impact of Health Promotion,” *American Journal of Health Promotion* 15 (5), May/June, 2001.

There have been numerous presentations on the Glace Bay and Kings GPI projects, including to ACOA, the Nova Scotia Inter-departmental Committee on Community Economic Development, Health Canada, the Rural Secretariat, the Policy Research Initiative conference in Ottawa, and others. In several cases, the CPHI program team has provided advice to other agencies seeking to construct community-level indicators of wellbeing, progress, and development. The Federation of Canadian Municipalities (FCM) recently held consultations with the Kings County GPI team, and the Town of Wolfville in Kings County is including indicators of community wellbeing and progress based on the Community GPI in an application it is making to the FCM.

In sum, the CPHI-funded research program now has its own dynamic and momentum. Academics in both communities (Kings County and Glace Bay) are now securing their own funding for continued analysis of the results and for presentation of these results to the communities. They are also planning follow-up surveys that will assess progress on key indicators since the administration of the original CPHI-funded survey in 2001-02. There is no doubt, therefore, that the CPHI funding has leveraged remarkable additional resources, and ensured the long-term sustainability of this program. Both communities feel ready at this time to train other communities interested in constructing local indicators of community health and wellbeing for their own jurisdictions, and have already provided such advice.

In the next two sections below, we outline in summary form the research program goals and objectives, the activities conducted, and the methods used in attempting to achieve our goals. In succeeding sections, we then provide more detailed background and context for the program, descriptions of key challenges faced, a brief analysis of engagement with the policy arena, and conclusions and recommendations resulting from the program. As appendices we attach samples of the research conducted to date including short papers and presentations, and sample descriptions of some community workshops at which results were presented, including feedback from workshop participants.

Both the GPI Kings County and Glace Bay actors, and our GPI Atlantic researchers and partners see this CPHI-funded research program as a tremendous learning experience for all involved. No one makes the claim that the program has been flawless, and this report contains a section on lessons learned. In fact, we hope that these lessons will enable other communities interested in developing community population health indicators to avoid some of the mistakes we made. For example, we were able to advise the new Halifax Inner City GPI project on how it could drastically reduce the size of its survey to include only the questions we found most useful and meaningful, from the 2.5 hour survey we administered in Glace Bay and Kings to a much more manageable 45-minute survey in Halifax.

As noted, the most important outcome of the CPHI research program is that it has not ended. On the contrary, the CPHI funding has stimulated such momentum that the program continues strongly at this time and will clearly continue into the foreseeable future. In fact, the CPHI funding has leveraged considerable additional energy and resources that will bear fruit in the coming months and years. In short, as noted above, while this is a final report for official reporting purposes, this should by no means be treated as a “final” report in actual fact, but simply as a progress report for a research program that is ongoing. Succeeding sections of this report describe both the history of this CPHI research program, and future anticipated directions.

Because this program is somewhat unique among research initiatives in focussing on active community participation in indicator development and health improvement, this report does not quite follow the standard reporting format for CPHI reports. We feel that this report, in the form presented, can better convey the key program outcomes and their implications for community-based research and its influence on health policy than formats more appropriate for traditional academic research.

We have made every effort to maintain the methodological rigour of the research, including Statistics Canada supervision of the original survey design and its testing; close adherence to all survey administration protocols and to the guidelines prescribed by the Dalhousie University Ethics Review Committee; careful database design, data cleaning and data processing by the Population Health Research Unit at Dalhousie University and by the Time Use Research Program at St. Mary's University; professional development of data access guidelines; and the data analysis process itself. But we have emphasized the importance of researcher-community relations, community involvement in the research process, and the use of results by community actors to influence health policy. In this report, therefore, we focus in some detail on the community workshops at which results were presented, and on the uptake and use of those results by community groups. We trust that the format of this report will be satisfactory to CPHI.

3. Key program goals, activities, outcomes, and impacts

Kings County, Nova Scotia, is a relatively prosperous rural community, with low unemployment rates, steady population growth, and steady economic growth. By contrast, in the last 12 years, the community of Glace Bay has suffered the loss of key industries – particularly the closure of the last coalmines, the collapse of the Atlantic ground-fish stocks, and the closure of Sydney Steel in neighbouring Sydney. The effects have included high unemployment, underemployment, out-migration, economic insecurity, and a sense of neglect and abandonment – all of which are potential threats to community health and wellbeing.

The contrast between the two communities has yielded and will continue to yield important information on the social and economic determinants of health and wellbeing, and can help researchers assess why some communities are healthier than others. However, the program also has a policy goal that goes beyond the pure research objectives. GPI Atlantic's Community GPI surveys in Kings County and Glace Bay are intended to assess whether communities can be positively empowered by providing accurate information on key social and economic determinants of health and wellbeing. It was hypothesized that this knowledge, in turn, could help empower community members to understand their situation better and to mobilize citizens to influence policy makers, improve their health and wellbeing, and strengthen their communities.

This CPHI-funded research program therefore aims to strengthen the capacity of Kings County and Glace Bay residents and community leaders to take actions on their own behalf to improve the health and wellbeing of their communities and to influence policy makers to that end. In sum, the development and application of community-level indicators of population health was not intended as a purely academic exercise, although the research findings can be extraordinarily

useful in their own right, but was intended as a potential instrument of policy action and change. To that end, the program continuously challenges academic researchers to present results to community groups, community leaders, and policy actors in language and forms that these audiences can easily understand, use and apply, without detracting from the academic rigour of the analysis.

This purpose, and the potential relationship between research and policy at the community level, is well summarized in the basic strategies of community capacity building outlined by Dodd and Boyd:

“Strategies for community capacity building involve increasing the community’s knowledge, skills and abilities in some of the following ways:

- *the ability to generate and use various types of information to help identify needs, understand and communicate issues, and assess impacts of policy and interventions;*
- *ability to identify the most salient information and present it in the most useful format for policy makers;*
- *the ability to use various approaches simultaneously to influence policy (for example, generating information through community-based research ...”³*

“Strategies for building system capacities include:

- *facilitation skills to support collaborative processes for working across sectors and outside of traditional government silos.*
- *a willingness to integrate more traditional forms of expertise (such as epidemiological studies) with qualitative and quantitative community-based research.”⁴*

This CPHI-funded research program therefore uses the rich and extensive Community GPI database to:

- 1) Increase awareness and understanding among Kings County and Glace Bay residents of key determinants of community health and wellbeing;
- 2) Promote dialogue and partnerships between residents, community leaders, researchers, service providers, and policy makers to identify community needs and priorities, including concerns of residents about social and economic factors that could affect their health and wellbeing;
- 3) Empower Kings County and Glace Bay residents to act and influence policy makers to improve their health and wellbeing, by anchoring their concerns in reliable information not previously available.

The program also aims to build longer-term systems capacity by demonstrating the utility of community-based research to create healthier communities. It aims to use workshops and facilitation skills to bring together community groups and leaders, who might otherwise not communicate or work together, to consider the Community GPI results, and to recommend evidence-based policy actions that emerge from the results.

³ Julie Devon Dodd and Michelle Hébert Boyd, *Capacity Building: Linking Community Experience to Public Policy*, 2000, Population and Public Health Branch, Atlantic Region, Health Canada.

⁴ Ibid.

One example where Community GPI survey results were translated directly into action occurred when UCCB academics, the head of the Cape Breton Wellness Centre, and community leaders met with victim services counsellors, police representatives, and justice officials to consider the peace and security results of the survey. A brief introduction explained to the attendees that CIHI and Statistics Canada now acknowledge security and freedom from crime as a key determinant of population health and publish results on crime rates among their core Health Indicators.

In the ensuing discussion on survey results results, Chief Miles Burke, head of the Cape Breton Regional Police Services in Glace Bay expressed particular interest in the fact that, in the GPI survey, Glace Bay residents had identified vandalism as an issue of key concern and one of the major problems in their community. Chief Burke noted that the police generally respond to assaults, thefts, break-ins, and other such crimes, but that vandalism is generally below or not on their radar screen. He was so interested in learning about this community concern that he promised to discuss it at the very next meeting of his staff and officers, and to begin to direct resources and attention to this problem, which the community had identified in the GPI survey.

This simple example captures the practical value of this CPHI-funded research program and its impact at the community level in translating good information into action and policy. It also illustrates the *potential* for good information and community level indicators to help create healthier communities in Canada. A similar example was given earlier, in which the Community GPI tobacco results led to an immediate local initiative to persuade school principles to adopt and enhance school-based smoking prevention curricula in local schools.

One of the most important things to emphasize here is that the **results** of this CPHI-funded research program are as much in the **process** of developing the community indicators as in the actual survey outcomes and policy actions. For example, the survey design process itself produced many highly dynamic and creative discussions on the social and economic determinants of health that performed an important educational function.

One meeting with the CEO and top staff of the Western Valley District Health Authority in Kings County, for example, elicited a strong commitment to use the Kings County Community GPI results and data to strengthen the health authority's commitment to public health and to a determinants of health approach to improving population health in Kings County. We have been very fortunate to have, as a core member of our CPHI program team, the health authority's Chief Medical Officer, Dr. Richard Gould, who has played a vital role in engaging the professional health community in Kings County in the program.

This research program and the process of developing community population health indicators began with extensive community consultations envisioning and describing the type of healthy community that residents wanted to leave their children, and then developing indicators that would allow them to measure their progress towards these goals. Community groups then played an active role in the construction of the actual questionnaire, the administration of the questionnaire; the entry of the data into a database designed by our key program partner, the Population Health Research Unit (PHRU) at Dalhousie University; and in the reporting of results to community groups. PHRU staff conducted the cleaning and processing of the data.

All these steps in the research program are described in more detail in the sections below. Here it is noteworthy that more than 40 community groups were actively engaged in the indicator selection and survey design and administration phases, so that their participation has been a key ingredient in the program from its inception. One of the major program challenges described below has been maintaining a balance between the expertise required to ensure methodological rigour and academic integrity on the one hand, and the participatory quality required to ensure community interest, stake and buy-in to the program from the start.

4. Sustainability, program partnerships, and tools developed

One key intention and action of this research program was to use facilitated workshops to raise awareness and understanding of key social and economic determinants of health and wellbeing, and to bring community leaders together with policy actors in order to translate this understanding into action. The workshops were intended to focus on relationships between specified social, economic, and behavioural determinants of community health and wellbeing and actual health outcomes (such as health status, chronic disease, health service utilization, and medication use), and thereby to deepen the recognition that effective action to prevent disease and to improve community health and wellbeing must account for root social causes like unemployment, poverty, and low educational attainment.

However, early discussions with key community leaders in both communities indicated that a prior step was necessary. GPI Atlantic is based in Halifax, and it quickly became clear that effective participation and action by Kings County and Glace Bay community members would require a full and genuine sense of *ownership* of this project among local residents and community leaders. In fact, it was always GPI Atlantic's intention and understanding that the Community GPI belonged to the local community. But in actual fact, this formal transfer did not take place until the end of 2003, and it has now become one of the key project outcomes. The original survey design and administration, data entry, data processing and data cleaning were all done under the direction of GPI Atlantic, the Population Health Research Unit at Dalhousie University, and the Time Use Research Program at St. Mary's University in Halifax. GPI Atlantic and its academic partners had applied for and allocated the funding, hired the staff, and directed activities, as required by our responsibility to the Canadian Population Health Initiative. In other words, GPI Atlantic and its academic partners were ultimately responsible for the successful completion of the CPHI-funded program, and could not readily devolve legal responsibility for the program to community groups until we had complete certainty that the program goals would be successfully completed.

But a key question that GPI Atlantic, PHRU, and other academic partners have discussed with partnering community groups, particularly in the last two years, is – what happens to the project when the CPHI-funded phase of the program is complete? In particular - who really *owns* the program and the data and who has access to the data? Who will maintain and refresh the indicators over time and can the program evolve into ongoing community-based Kings County and Glace Bay initiatives? These questions are particularly important for the following reason: The purpose of the CPHI research program was to develop community health indicators that in turn can signify trends over time and report on progress towards community health and

wellbeing goals. By definition, this requires a longer-term time frame than the 3-year CPHI research program. However, the CPHI research program contained no provision for refreshing the data through new surveys once the CPHI-funded phase was complete, although it is clear that a one-time snapshot is certainly not sufficient for the proper application of indicators that require ongoing measurement and assessment over time. Thus, our original application to CPHI contained a commitment to ensure “the sustainability” of the indicator process over time. The question was *how* to do so most effectively.

GPI Atlantic, PHRU, other academic partners, and community groups all agreed that the governance issue was actually primary. If we could ensure genuine and formal ownership of the program by the Kings County and Glace Bay communities, the take-up and use of the indicators and participation in their maintenance would likely be much more effective and genuine than if GPI Atlantic and PHRU ownership were maintained. We therefore set up independent Kings County and Glace Bay GPI Societies, locally governed and directed, to own and run the two programs. This happened at the end of 2003. Since that time, GPI Atlantic’s role and PHRU’s role have been as advisers and technical consultants, available to the communities as they need us.

Meetings were held in both communities towards the end of 2003 to create the new societies formally, to establish an executive and Board of Directors, and to take over ownership of the programs. The Glace Bay meeting, for example, was held at the Savoy Theatre in Glace Bay, and was attended by about 30 local residents and community leaders. Dr. Peter MacIntyre, Glace Bay resident and UCCB professor, was elected President; Mel Clarke, chair of the Community Health Board in Glace Bay, was elected Vice-President; Stacey Lewis, executive director of the Cape Breton Wellness Centre, was elected Secretary; Ken MacDonald, Glace Bay resident and member of Board of Directors of the Nova Scotia Citizens for Community Development Society, was elected Treasurer; Patricia MacKinnon, Glace Bay resident, and Deborah Prince, Glace Bay resident, were elected to the Executive. Ms MacKinnon and Ms Prince were the former co-directors of the Glace Bay GPI program during the data collection and data entry phases. Details on the formation of both the Kings County and Glace Bay GPI Societies are attached as Appendices.

Ownership of the data was formally transferred from GPI Atlantic to the GPI Kings and Glace Bay Societies, which also govern data access to ensure that confidentiality of respondents is protected. These 2003 meetings setting up the Kings County and Glace Bay GPI Societies laid a firm ground and foundation for all that has followed since, and ensure the long-term sustainability of the programs. This important step is described in more detail below. In sum, the most important partnerships developed in the course of this CPHI research program were with community groups that developed a stake in the indicators developed through this program and have now assumed the project’s ongoing direction and leadership. We regard this as one of the CPHI program’s most significant accomplishments.

A second key set of partnerships has been with the academic communities in both Kings County and industrial Cape Breton – Acadia University in Kings County, and the University College of Cape Breton in Cape Breton. In other words, the academic locus has shifted from Halifax, where the Population Health Research Unit at Dalhousie University and the Time Use Research

Program at St. Mary's University initially played the lead roles in the CPHI research program, to the universities that are located within the two target communities. This evolving partnership with Acadia University and UCCB is essential to the success of the program, as these community-based academics now conduct the ongoing data analysis and prepare the materials for presentation to the community groups. A series of excellent meetings and presentations was therefore held in 2003 with academics from many departments and disciplines at both Acadia University and UCCB to inform them of the project and gradually to transfer responsibility for data analysis from the Halifax universities to them. Discussions included use of the data for class projects at both Acadia University and UCCB, and students from both those institutions have become increasingly involved as research assistants to academics involved in the data analysis.

A key challenge for these academics has been to present the results in ways that can be easily communicated to and understood by community groups. Effective leadership of this data analysis process is now in the hands of Dr. Glyn Bissix and Dr. Rene Murphy at Acadia University and Dr. Peter MacIntyre at UCCB, all three of whom are able to combine research expertise with genuine community leadership. We feel very fortunate to have these excellent academics at the helm in both communities.

A third set of partnerships has been with the local community health boards and public health officials, with the local business community, and with policy actors and government officials. At the very beginning of the CPHI research program, we made immediate contact with the community health boards and public health officials in both communities through presentations, meetings, and direct involvement in the program. Thus the chair of the Eastern Cape Breton Community Health Board, located in Glace Bay, has been an advisory board member for the Glace Bay indicator project from its inception, and is now vice-president of the GPI Glace Bay Society. Excellent meetings were also held with leading representatives of the Cape Breton District Regional Health Authority, and public health officials have participated in several workshops analyzing results from the Glace Bay GPI survey. Several presentations were also made to the community health boards in Kings County and to the CEO and top management at the Valley District Health Authority both on the program as a whole and on research results as they have emerged, and the central Kings Community Health Board in particular has actively participated in the program in all its phases. As noted, we have been fortunate to have the Chief Medical Officer for the Valley Health Authority, Dr. Richard Gould, as one of our key partners in the CPHI program, and he has been an ongoing conduit for communications with regional health authority personnel. These individuals, along with other policy actors and officials, and local business leaders to whom we have also made presentations through Rotary Clubs, the Chamber of Commerce and other organizations, have the capacity to translate the survey results into positive action to prevent disease, and improve community health and wellbeing. For this reason, we have placed a high priority on these partnerships and on communication with these key local actors, and we have invited them and involved them in ongoing workshops at which survey results are presented, discussed, and analyzed for their implications for policy action.

In addition to the survey instruments, partnerships, community ownership, and workshops described above, we have recently developed some additional tools aimed at disseminating the survey and program results more widely. Workshop participants in 2002 and 2003 raised the issue that small workshops involving public health officials and community leaders, however

useful for the participants, were not reaching the vast majority of Kings County and Glace Bay residents, and could not mobilize the community at large. Participants felt strongly that no effective translation into policy action would occur unless the awareness of Kings County and Glace Bay residents at large – including those who never attend meetings – were raised.

Two solutions have been found to this dilemma. In 2003, a Web site was developed by the Glace Bay GPI Society, under the direction of Dr. Peter MacIntyre of UCCB and his students, on which all results are now posted. Please visit this excellent Web site at:

http://discovery.uccb.ns.ca/glacebay_gpi/. The Kings GPI Society plans to replicate this Web site in Kings County and to establish links both with the Glace Bay GPI Web site and with the GPI Atlantic Web site. In fact, work is now under way under the direction of Glenn McMullen of Kings County HRDC, and a local participant and supporter of the Kings County GPI from its inception, to develop a Kings GPI Web site along the lines of its Glace Bay counterpart. We expect this Kings GPI Web site to be up and running in the fall of this year. The Glace Bay GPI Web site is further described in Section 6 below.

The second solution was recently implemented in the form of a community-wide newsletter that was distributed to every household in Glace Bay in July, 2004. Again, we hope that this outreach effort, too, will be replicated in Kings County. The four-page colour tabloid-style Glace Bay GPI newsletter, summarizing key indicator results to date, was written, prepared, edited, printed, and distributed entirely by Cape Bretoners – a testimony of the degree to which ownership of the project has devolved to the community level. The newsletter can be viewed at <http://www.gpiatlantic.org/glacebaynewsletter.pdf>.

The newsletter not only summarizes key survey results but also explains the community wellbeing indicator program at large and its long-term goals and purposes. A Sydney-based journalist, Norma Jean MacPhee, was engaged to take the survey results and turn them into a language and style that all Glace Bay residents could easily understand. The tabloid was illustrated with photographs taken by members of the GPI Glace Bay Society.

Finally, a fourth set of partnerships, and one of the most significant successes of the CPHI research program has been with other funding agencies. For example, the newsletter described above was funded by Health Canada's Atlantic Region Population and Public Health Branch, and additional research in the next year on the Community GPI survey results will be funded by Health Canada's Health Impact of Economic Change research program, by the Canadian Volunteer Initiative, and by HRDC. Again, workshops will be continue to be held as new results emerge from this ongoing analysis of the data.

As well, HRDC in Glace Bay helped us train data entry personnel, all of whom were previously unemployed and many of whom had never used a computer. These workers entered all the data – amounting to something like four million entries! They also acquired skills in data management and data cleaning and processing. The CPHI funding may be said to have established this program and got it started. But this initial funding and the activities it supported have managed to leverage funding from other sources, which in turn has made the program sustainable over time. We can confidently say that the program and the community indicators of health and wellbeing

now stand firmly on their own feet in both communities, and that the CPHI funding provided the initial foundation that has made this possible.

Perhaps most importantly, everyone feels that – from a long-term perspective – the program in both communities has really only just begun and all participants are determined to continue using the Community GPI database to examine the determinants of community health and wellbeing in Kings County and Glace Bay, to engage policy makers in ongoing discussions to deepen awareness of the social determinants of health, and to affect the policy arena in ways that can improve health and wellbeing in both communities. Beyond these local outcomes, we have now established a unique community-based database on health determinants and population health that is available to researchers from throughout Canada, and the two communities provide models in indicator development that can be replicated and adapted by other communities. We hope that CPHI will help publicize the existence of this new database to Canadian researchers and encourage them to use it to further understanding of the multiple pathways between health determinants and health outcomes.

Finally, there has been one other key outcome of the CPHI research program that must be mentioned here. Other communities have expressed tremendous interest in the Kings County and Glace Bay experiments. There is interest in adapting the Kings County and Glace Bay surveys to community development projects in the Halifax Inner City, and researchers from the University of Saskatchewan visited us to assess the applicability of the Kings County and Glace Bay health and wellbeing indicators to rural communities in Saskatchewan. In fact, that interest became the basis of a research proposal prepared by University of Saskatchewan academics for SSHRC's Community-University Research Alliance program.

5. Program background, context, and chronology

It is at the level of local community that "the rubber really hits the road" in terms of quality of life. Communities may know viscerally if their wellbeing is generally improving or not, if job security is growing or not, if people in need are being cared for, if the quality of their air and water are improving or getting worse. But sufficient hard data are not available at the community level to provide clear answers, to assess whether communities are making genuine progress, or to guide local and municipal policy makers in practical ways to prevent the causes of preventable illness, and to make their communities healthier and more secure. Communities do know that the economic growth measures conventionally used to assess how well off they are don't tell the whole story. And they yearn for community development strategies that address the issues that matter to them.

Indeed, since the launch of the Nova Scotia Genuine Progress Index in 1997, the strongest interest in indicators of health and wellbeing has been expressed by local communities that are urgently looking for ways to assess their wellbeing accurately, and to measure their progress genuinely.

With funding from the Canadian Population Health Initiative, GPI Atlantic therefore undertook to develop practical indicators of health and wellbeing at the community level. After due

consideration, Kings County and Glace Bay were selected as pilot programs, both because of the interest and enthusiasm expressed by community groups and government agencies in those areas, and because of the socio-economic-demographic contrast between the two communities. The survey instrument, community consultation process, indicator selection, results, policy applications, and lessons learned were intended to provide useful information for communities throughout Canada that were interested in developing their own measures of health, wellbeing and progress.

After extensive consultations with more than 40 community groups, community-level indicators of health and wellbeing were selected that reflected key concerns and interests. These consultations revolved around three basic questions: “What do you see as the key factors that determine the health and wellbeing of this community; what kind of community do you want to see 10, 15, 20 years from now; and how can we measure our progress in achieving those goals?” We asked community groups to define what a healthy community meant to them, and how they would know if they were achieving that goal. Having selected indicators, community groups then participated in the survey and question design.

The questionnaire included many questions directly on health status, health behaviours, and health outcomes, and many others on the social and economic determinants of health and wellbeing, like employment and job characteristics, income, social supports, voluntary work and care-giving, education, time use, and other key issues.

Following the community consultation, indicator selection, and questionnaire construction process, Statistics Canada surveys were examined to ensure that questions were framed in such a way that results would be comparable to provincial and national data. As a result, the Kings County and Glace Bay surveys constructed and administered in this CPHI research program contain many questions that match those in Statistics Canada’s National Population Health Surveys, General Social Surveys, Labour Force Surveys, national volunteer surveys, and other survey instruments, to allow valid comparison of community indicator results with national and provincial averages.

Statistics Canada’s Social Survey Methods Division was extensively consulted on survey methods, design, sample size, and formatting, and provided expert assistance to ensure that results would be statistically valid. The surveys were carefully tested in Kings County and in Glace Bay, and revised in light of survey responses, again with Statistics Canada assistance, to ensure that phrasing was unambiguous and that results would be meaningful.

In 2002, the Community GPI survey was administered to 1,900 residents of Kings County and 1,700 residents of Glace Bay. All respondents signed carefully developed consent forms approved as part of Dalhousie University’s Ethics Review process. Considering that the survey covered a very wide range of wellbeing indicators, took an average of two hours to complete, and was completely voluntary, there was a remarkably good response – 70% in Kings County and 82% in Glace Bay. The 3,600 completed surveys represent that response rate and provide a large enough sample size to allow two statistically valid cross-tabulations for all responses. Results can be broken down by sex, age, marital status, education level, income, employment status, and a wide range of other socio-economic and demographic variables. For up to two

cross-tabulations, there is a 95% confidence level with a margin of error of plus or minus 3% – providing a very high level of statistical validity.

In 2002-2003, data were entered into a unique new database designed by Dalhousie University's Population Health Research Unit (PHRU) and Saint Mary's University's Time Use Research Program. Data were carefully cleaned and processed, and the database was redesigned as necessary to allow the results to be properly analyzed and for different elements of the survey to be correlated with each other. This was not an easy process and we encountered unexpected difficulties at this stage. In fact, at a certain point, PHRU decided to re-design the database, which necessitated re-entering all the results entered to that point. Despite these developmental challenges and difficulties, we are very pleased with the final results and we believe the new database will be a remarkably valuable tool for population health researchers throughout the country.

In early 2003, after extensive on-site consultations with university researchers and community groups, a set of data access guidelines was developed to balance the complete confidentiality ensured to respondents and ready access to the data by researchers. WE believe these data access guidelines can provide a useful template for CPHI in its future support of community-based research and for researchers across the country. By the middle of 2003, research teams had been developed at four universities – Acadia University in Kings County, UCCB in industrial Cape Breton, Dalhousie University, and Saint Mary's University. This entire process was coordinated and managed by GPI Atlantic, and GPI Atlantic researchers participated in all steps of the process.

One noteworthy aspect of the process was the active participation of community groups at every step. Community groups and individuals from the communities helped select the indicators and design the questionnaire. More than 20 residents each from Glace Bay and Kings County were trained and then administered the survey. Counting their supervisors, 46 Glace Bay and Kings County residents were employed at the height of the survey administration process. Residents of Glace Bay, many of whom had never used a computer before, were then trained in data entry and data processing, and entered all the survey data. All entries were double-checked by community members under the careful supervision of trained staff.

Three Glace Bay residents with real leadership potential (including two wives of out-of-work coal miners), were trained to direct the survey administration and data entry, and these two women were sent on a week-long leadership training course. All three of these leaders are represented on the Executive Committee of the newly formed Glace Bay GPI Society described above, which arose as a direct result of this CPHI research program.

By mid-2003, Canada's most detailed community-level population health indicators were ready for analysis. There is no doubt at all that Glace Bay and Kings County, Nova Scotia, now have more information available about themselves than any comparable communities anywhere in the country. This knowledge has the capacity to empower both communities to understand themselves and the determinants of their health better, to analyze their strengths and weaknesses, and to take concrete and practical action to improve their health and wellbeing.

Perhaps most importantly from a research perspective, there have not previously been surveys at the community level, including by Statistics Canada, that examine such a broad range of issues *within the same survey administered to the same respondents*. This allows first-time unique correlations between different aspects of community health and wellbeing and their social determinants, so that integrated assessments can be made, and policies devised that take into account a more complete range of social and economic factors than is normally considered.

The next key steps in this CPHI research program were: (1) to analyze the results; and (2) to report those results effectively to the communities. *Then*, we assumed, community groups and local policy makers could begin to identify appropriate actions and policy responses, and to identify the most important indicators they would use as annual benchmarks of progress. In other words, this stage represents the capacity building stage. This is the stage at which the longer-term research program can be transformed from a largely technical data gathering, data entry, data cleaning, and data analysis process conducted mostly by experts into a tool for community action and improvement used directly by citizens. This transition – presenting results to community groups in such a way that they can be used to improve community health and wellbeing – began in 2003 and continues at the present.

The results we now have are detailed baseline data. But, as noted above, indicators of progress are intended to be long-term tools designed to measure progress towards agreed community goals on a regular basis. The questionnaire content is consistent with understanding about the determinants of population health and wellbeing, and includes not only direct questions on health status, health behaviours, paid and disability, chronic conditions, medication use, and health service utilization, but also questions on livelihood security, employment, income, education, social support, volunteer work, time use, and other key determinants of health. Once community groups have digested the results of this survey in the coming months and year, they will select key indicators of progress on all these issues.

Since mid-2003, the most important developmental steps undertaken were the reporting of results to the Kings County and Glace Bay communities, and the creation of workshops that would assist community leaders and policy actors to understand and digest the results effectively, and to turn those results into action. In the next section, a very brief summary of some key research conducted in the last year and a half is presented, along with some results. For more research results, please visit the Glace Bay GPI Web site at:

http://discovery.uccb.ns.ca/glacebay_gpi/ and see the research papers and presentations attached as appendices to this report.

6. Research results and presentation of results to communities

Analysing the data in the Community GPI survey, completing transfer of the data to the two communities, reporting results to key community members and policy actors, and completing assembly of the infrastructure to carry this process forward have been the prime emphasis of the program activities since mid-2003. To this end, key results, reports, and PowerPoint slides summarizing results have been presented to community groups, local agencies and interest groups. These first reports mark a highly positive start to the process of mining the data for

fundamental research on community health and wellbeing, for research that can assist in practical policy development and program improvement, and for information that can help mobilize effective community action to prevent disease and improve community health and wellbeing.

The following specific actions on the Community GPI research agenda have been accomplished in the last year and a half. It should be noted that the enthusiasm of both researchers and community groups has allowed new research to be undertaken beyond that specified in GPI Atlantic's original agreement with the Canadian Population Health Initiative, ensuring that this work will continue into the months ahead. The last section of this report specifies these ongoing research projects that are based on the Community GPI database that was created in this CPHI research program.

The full, completed GPI Community Health Indicators database is now available on site to university researchers and community groups, interest groups and agencies in both Glace Bay (through UCCB) and Kings County (Acadia University). Data access is through newly created local Societies in each region responsible to work with the community and to administer the data-access guidelines and ethical use procedures. These data-access guidelines can serve universities and communities throughout Canada as a template for community-based research. The guidelines are now actively being used in this program. As community capacity building strategies to prevent disease and improve community health and wellbeing frequently encourage community-based research, we feel that these Community GPI data access guidelines, controlled and administered at the community level, could prove useful for other CPHI research programs and projects that rely on community-based research. The data access guidelines can be accessed on the GPI Glace Bay Web site, by going to:

http://discovery.uccb.ns.ca/glacebay_gpi/dataaccess.html.

In-depth research to date, based on the community health survey results, has focussed on four major areas of inquiry – employment, job security and health; tobacco use; care-giving and health; and personal security. Papers and PowerPoint presentations on these results are appended to this report and summarized here. Results were also analyzed and presented in four additional areas: core community values; time use and health; the health of discouraged workers; and analysis of open-ended survey questions in which participants were asked to identify issues of key importance to their wellbeing. Key results and papers on these subjects are also appended. As well, three additional research projects are now under way based on the community health survey data: volunteerism and health (preliminary results attached to this report); ecological footprints are being calculated for the two communities by an environmental science professor at Acadia University (results expected in December, 2004); and further in-depth research has begun on the employment-health nexus (expected completion in 2005).

This section summarizes key results from this research to date, with the lead researchers and authors listed in parentheses after each topic area. References are not footnoted in this summary but are available in the full papers that are attached as appendices to this report.

6.1 Employment and Health

(Michael Pennock, Research Director, Population Health Research Unit, Dalhousie University)

The purpose of this paper was to examine the relationship between health and employment in two non-urban areas of Nova Scotia - Glace Bay and Kings County. These two areas represent contrasting profiles of rural communities. Glace Bay is located in Cape Breton Island and has a history of economic insecurity and population decline. Heavily invested in the mining industry, the area has recently suffered a major economic setback with the closing of area coal mining operations. Kings County is one of the more affluent rural areas in Nova Scotia with a strong agricultural base, as well as active logging, fishing, manufacturing and service industries. The unemployment rate in Glace Bay is traditionally twice as high as the corresponding rate in Kings County and average incomes are seventy to eighty percent lower. The contrasting economic circumstances of these two areas provide an opportunity to examine the relationship between employment and health within two different community contexts.

This paper utilized the results of this survey to conduct a preliminary examination of three issues:

- The relationship between health status and labour force activity
- The role of employment-related stress
- The relationship between stress and income.

Background: Job Insecurity and Health

A variety of studies have examined the relationship between job insecurity and health. There have been fairly consistent findings which support a positive relationship between job insecurity, stress, and a number of disease-related symptoms (Catalano 1991, Dominighetti, D'Avanzo and Bisig 2000).

Of particular importance are a number of longitudinal studies, which examined the effects of job insecurity over time in groups of workers. A fourteen-month study among auto workers reported increased incidence of symptoms for a variety of physical problems which appeared to be accumulative over time. The longer the exposure to the stress of job insecurity, the more pronounced the effects. The authors concluded that job insecurity acted as a chronic stressor with effects that increased in potency over time (Heaney, Israel and House 1994). However, the accumulative effects of job insecurity were not found in a Finnish study, which reported an increase and leveling of symptomatology over time (Kinnunen et al. 1999).

A more recent two-year study of job insecurity in the British civil service examined the effects of both increased and decreased job security on health. Adverse effects on self-reported health and minor psychiatric morbidities were associated with job insecurity. These effects were not entirely negated by a removal of the threat. The study also found that the effects tended to increase with the chronicity of the stressor (Ferrie, Shipley, Marmot, Martikainen, Stansfeld, Davey Smith (2000).

Background: Unemployment and Health

The relationship between unemployment and health is complex and has been studied extensively since the early findings of Brenner (1977 and 1979), which found positive relationships between mortality and unemployment in national data over periods of as much as forty years. These studies have been criticized for their interpretation of the association as causal in nature (Smith 1987, Shortt 1996).

Since Brenner's studies, however, a number of longitudinal studies using linked administrative data have supported the notion of a causal relationship between unemployment and mortality at a national level in Britain (Moser et al 1987), Denmark (Iverson et al 1987) and Finland (Martikainen and Volkonen 1996). A recent review of the literature concluded that there is convincing evidence that unemployment contributes to ill-health in the population, even after controlling for the effects of socio-economic status, poverty, and health behaviours. It noted the co-existence of a health-section effect, whereby persons with health problems may have a higher probability of becoming unemployed. (Mathers, C. and Scholfield, D. 1998).

A variety of cross-sectional studies have reported strong relationships between unemployment and stress (Smith 1987, Shortt, S., Linn et al. 1985, Frese and Mohr 1987.) Of particular relevance to the current study were the results of a British study, which found lower levels of distress among unemployed men from areas of chronically high unemployment, when compared to unemployed men in areas of lower unemployment (Jackson and Warr 1987).

Results

The series of analyses based on the Glace Bay and Kings County survey results yielded a variety of interesting results that will contribute to the understanding of the dynamics of work and health. The opportunity to address these issues in two rural communities with very different employment contexts has yielded valuable insights into the employment-health nexus.

Somewhat unexpectedly, the traditional economic problems of Glace Bay, relative to Kings County, did not express itself in lower self-reported health status or higher stress levels. There was some indication of more frequent health problems in Glace Bay (activity limitations, disabilities and some chronic diseases) but these differences were not reflected in lower ratings of self-reported health status. Based on the outcomes of the peace and security results (see below), it is surmised here that higher levels of social supports in Glace Bay ameliorated some of the potentially adverse health impacts of poor employment conditions by comparison with Kings County, which has better employment conditions but apparently lower levels of social support and cohesion.

Important differences did arise, however, with respect to specific labour force activity groups. Most notably, there was a significantly higher proportion of employed persons with poor or fair health in Kings County than in Glace Bay. In addition, a substantially higher proportion of persons with poor/fair health were employed in Kings County. It appeared, therefore, that the "employment advantage" of residing in Kings County was particularly strong among persons

who rated their health as poor or fair. This effect did not appear to be due to problems of physical disability among persons of poor health.

The study confirmed the results of a number of other studies concerning the relationship between poor health status and unemployment. Unemployed persons in both Glace Bay and Kings County were more likely to report poor or fair health than employed persons.

The relationship between work and stress emerged as more complex. When asked to rate the level of stress in their lives, the Kings County respondents were significantly more likely to report that their lives were somewhat or very stressful than the Glace Bay group, despite the superior economic circumstances of the Kings County respondents. The elevated stress levels were predominantly apparent in both employed and unemployed respondents in Kings County. These results suggested that the higher rates of stress in Kings County were due to both higher levels of job stress and a higher level of stress associated with unemployment.

A series of subsequent analyses confirmed the tentative conclusions pertaining to job stresses. Employed Kings County respondents were significantly more likely to report stresses related to excess demands, excess hours, too little autonomy, interpersonal problems and other sources. Glace-Bay respondents were significantly more likely to report stresses related to the threat of layoffs and the potential for accidents/injuries on the job. Overall, Kings County residents reported more job-related stress than Glace-Bay respondents, and levels of job-stress were strongly related to reported levels of life-stress.

Unemployment or shift work was not strongly related to stress but both emerged as important predictors of life-satisfaction, while the job-related stress factors were not related to satisfaction. These results strongly suggest that different employment-related factors affect life-stress and life-satisfaction. Whereas stress was predicted by job-related problems such as too many demands and too many hours, life-satisfaction was not. By contrast, working shifts or being unemployed did not appear to predict life-stress but arose as important predictors of life-satisfaction. Job stressors such as “too many demands” were not predictive of life-satisfaction. In fact, the results may indicate that people who like their jobs (and thus have higher levels of life satisfaction) also overwork and thus experience high stress. This possible relationship requires further investigation.

The analysis also identified a complex relationship between income and stress within these two communities. In both groups, the relationship was U-shaped, with the highest levels of reported stress occurring at the lowest and highest income groups and the lowest level of stress reported in the middle-income group. The higher levels of stress in Kings County were only apparent in the middle and higher income groups. There was no significant difference between Glace Bay and Kings County in the reported life-stress of persons with a household income of less than twenty thousand dollars.

To some extent, the income-stress distribution at the upper end of the income spectrum appeared to be attributable to job stresses. Significant differences arose between the income groups with respect to demands, hours and interpersonal relationships, with the middle and higher income groups reporting higher levels of stress. There were no significant differences in autonomy, risk,

fear of lay-offs or “other.” In each of the significant stressors, the higher income group reported somewhat higher rates of stress than the middle group, but the most pronounced difference between the groups was in “working too many hours,” – with each increase in income related to a significant increase in stress due to apparent overwork.

The results might account for the upper half of the U-shaped relationship between stress and income. In other words, as income increases, the demands and pressures of work also increase. If this were the only factor at work, the relationship between stress and income would be linear in nature, with lower income persons experiencing the least stress. In reality, their reported levels of stress are as high as the upper income respondents but the sources of this stress do not appear to be related to work demands. Clearly, there is a variety of other poverty-related stresses which are operating at the lower end of the income spectrum.

In light of the serious demonstrated health consequences of stress, the results indicate a need to consider the trade-offs that occur when people work longer hours to earn more money. They also demonstrate the need to consider new policy options that have been successfully tried in Europe – like a redistribution of work hours that can reduce the hours of the over-worked while making more hours available to the unemployed and underemployed.

Further research needs are also indicated by the results. This analysis represents the first systematic use of the rich, new population health indicators database for Glace Bay and Kings County. Further investigation, currently being undertaken by Dr. Sean Rogers, Dalhousie University, will examine issues like:

- the relationship between job stress, life stress, life satisfaction and health outcomes;
- the health status of the *underemployed*, particularly involuntary part-time workers;
- the health status of the unemployed when the official definition of unemployment is expanded to include discouraged workers and others who want a job but have not looked for one in the previous four weeks (preliminary work in this area has been undertaken by Dr. Andrew Harvey, St. Mary’s University, with results attached to this report);
- the relationship between actual hours of work (including paid and unpaid overtime) and health outcomes, to determine whether short and/or long hours are associated with stress and health status;
- whether those who are currently overworked want to reduce their work hours in order to alleviate stress;
- the relationship between unemployment, overwork, job stress and other employment characteristics on the one hand and health behaviours on the other. For example, as several studies have correlated smoking with stress, it will be interesting to investigate the degree to which those working long work hours and experiencing high levels of work demand manifest unhealthier lifestyle behaviours.
- the degree to which intervening variables, like strong social supports and social networks, may ameliorate potentially adverse health outcomes due to high unemployment and job insecurity in Glace Bay.
- the degree to which unpaid care-giving obligations exacerbate life or work stress, and impact life satisfaction and health outcomes. (Analysis on unpaid care-giving and health was conducted by Deborah Kiceniuk, PHRU, Dalhousie University, with results appended to this

report. However her results have not yet been correlated with the employment data presented here in order to assess total work burden).

- the degree to which voluntary community commitments exacerbate life or work stress, and impact life satisfaction and health outcomes. (Research in this area is currently under way by Dr. Peter MacIntyre, UCCB).

Data on these and many other employment characteristics, unpaid work activities, and work schedules, as well as a wide range of health behaviours, health outcomes, and other variables, are all contained in the new community health indicators database for Glace Bay and Kings County. In fact, this initial analysis and the many provocative hypotheses that flow from it indicate the extraordinary value and remarkable utility of this new community-level data source in elucidating the pathways between key social determinants of health and particular health outcomes. It is hoped that CPHI will help make the existence of this database known to population health researchers throughout the country in order to encourage their use of the data for further research into the determinants of population health.

The database is unique in that the same respondents answered questions on a wide range of employment characteristics, health outcomes, and other aspects of wellbeing at the community level – thus allowing careful investigation of correlations that are more elusive in surveys that focus more exclusively on either labour force activity, health, or other issues in isolation. Because Statistics Canada sample sizes are generally insufficient to provide this level of detail at the community level, this is the first community-level survey in Canada that allows for in-depth investigation of these relationships.

In addition, it is hoped that this and future analyses will provoke consideration of policy implications and new policy options at the community level. For example, if the unemployed and those in fear of layoff both have poorer health status, this indicates that a very substantial portion of the Glace Bay population (more than 30%) may be at significant health risk. If discouraged workers and involuntary part-timers are found to manifest similar results and are added to the calculation, the percentage could be even higher. This would seem to indicate that both job creation and enhanced job security are potentially important investments in population health that could avoid substantial future health costs.

As well, the U-shaped income-stress curve, indicating higher stress among both the poor and rich than among middle-income groups, has important implications for the potential role of greater income equity in improving health outcomes. Policies, such as those in the Netherlands, which have sought to redistribute work hours by reducing the hours of the overworked and making the additional hours available to the unemployed and underemployed, may be highly relevant here. Such policies have not been as prominent on North American policy agendas as in Europe, but the results demonstrated here indicate that they may be worthy of consideration.

6.2 Tobacco Use

(Mark Raymond, Ph.D, Economics Department, St. Mary's University; and Peter MacIntyre, Ph.D, Psychology Department, UCCB)

This report examined the similarities and differences between Glace Bay and Kings County with regard to cigarette smoking, with particular focus on the relationships between cigarette smoking and variables such as employment, income, and education levels. The study found significant differences in the incidence of cigarette smoking between respondents in Glace Bay and Kings County. The analysis also found that employment status is significantly correlated with cigarette smoking, and that higher levels of education are correlated with lower smoking rates.

Dr. Raymond's analysis built on an initial examination of results by Dr. Peter MacIntyre of UCCB. Results on tobacco use were presented by Dr. MacIntyre to Glace Bay community groups, including community health boards, public health officials, addictions counsellors, local doctors, school representatives, and others. In Kings County, an additional report on Youth and Teenage Smoking in Kings County (also appended to this final CPHI report) was prepared by Dr. Glyn Bissix and Liesel Carlsson, Acadia University, and presented to community groups, health and school officials, and community health board representatives in Wolfville on October 14, 2003. These initiatives led to tobacco reduction activities in both communities, particularly among teenagers, including approaches to local school principals to adopt the exemplary Smoke-Free for Life smoking prevention curriculum.

Dr. Raymond's full report with tables and charts, from which the following key results are summarized, is appended to this report. Dr. Raymond's key conclusions are as follows:

There was a significant difference in the incidence of cigarette smoking between respondents in Glace Bay and Kings County, with far higher rates of tobacco use in Glace Bay than in Kings County. This was also the case for cigarette smoking in the home – a key indicator of exposure to second-hand smoke among children and spouses of smokers. It is therefore likely that a far higher proportion of Glace Bay children are exposed to second-hand smoke in the home than in Kings County.

Despite a smaller percentage of respondents who reported ever being a cigarette smoker in Glace Bay, respondents there reported a significantly shorter period of time between waking up and having their first cigarette when compared to respondents from Kings County. It would seem, therefore, that a higher percentage of respondents have "tried" smoking in Kings County, but that respondents in Glace Bay face higher addiction rates. Although we were not able to analyse the addiction aspect of cigarette smoking further in this study, the information gleaned from the time elapsed from waking up until the first cigarette is viewed in Statistics Canada analyses as a proxy for addiction level.

Of particular interest in this study was the relationship between employment status and cigarette smoking. Respondents who were unemployed were much more likely to be daily smokers than respondents who were employed, students, homemakers or retired. This remained true for both regions in our study when each was examined independently, although the relative magnitude was greater in Glace Bay.

When we controlled for further issues, such as location, gender, age, household earnings and education we still noted a significant relationship between employment status and cigarette smoking. A significant correlation exists between being unemployed and cigarette smoking. These findings confirm the results of other studies.

Another interesting result was the relationship between education levels and cigarette smoking. After controlling for location, gender, age, household income, and employment status we noted a significant negative relationship between highest education level and cigarette smoking. The higher the education level, the less likely a respondent was to report being a cigarette smoker. These results are also in line with those of other studies.

Respondents recording their lives as very stressful or somewhat stressful were significantly more likely to be daily or occasional cigarette smokers. This was recorded after accounting for location, gender, age, household income, education level and employment status. These results, too, confirm earlier findings from Statistics Canada's National Population Health Surveys.

Caution is required in interpreting a significant relationship with causation. In particular, we suggest that another external factor might be linked and indeed join, cigarette smoking, employment status, and life stress measures. For example, it is possible that "culture of smoking" is an intervening variable affecting results: Are people more likely to smoke if "everyone" around them smokes? This is an important avenue for further analysis.

Interestingly, this preliminary analysis indicates that no significant relationship existed in Kings County and Glace Bay between cigarette smoking and the number of visits to a health care provider in the previous twelve months. Visiting a health care provider in the last twelve months was significantly correlated with location, age and gender. The lack of significance for cigarette smoking was somewhat surprising in light of other evidence from the literature in this area. Further analysis might pursue the various medications respondents were currently taking or the health of the respondents' children who are living in the same household.

The information contained in the Glace Bay and Kings County community health surveys constitutes a remarkably rich database that can and should be studied for years. Extensions to the present study on tobacco use might include further work on:

- Health care expenditures and cigarette smoking
- Long-term health issues and cigarette smoking;
- Addiction
- The relationship between "core values" and tobacco use
- Medication and smoking; pregnancy
- Children's health and smoking in the house
- Cigarette smoking and the work place

All these analyses are possible using the new community health database for Kings County and Glace Bay.

6.2.1 Teenage Smoking in Kings County

A separate analysis and report on teenage smoking in Kings County was prepared by Dr. Glynn Bissix, Acadia University, and Liesel Carlsson of Acadia University, and presented to the three Kings County community health boards, public health officials, and community leaders. Dr. Bissix and Ms Carlsson isolated the teenage respondents and assessed smoking behaviours. The following summary is prepared by Ms Carlsson and Dr. Bissix, and their full report is attached as Appendix 8.

According to health officials and analysts, the effect of smoking on the lives of Canadian youth is serious. Canadians age 15 who smoke now are more than twice as likely to die before age 70 as are non smoking 15 years olds. Health Canada predicts that more than 50% of deaths before age 70 will be caused by smoking among today's teenage smokers. In contrast, about 6% will die prematurely because of traffic accidents, suicides, murders and HIV/AIDS, all combined. Recent changes in tobacco control legislation that restrict youth access to tobacco make it important to monitor how these changes affect youth smoking trends. Baseline information can become the sounding board for evaluation of current legislation, and suggest changes for the future investment in programming.

Understanding more about smokers' behaviour, especially how smokers took up smoking and what environmental factors may have contributed to smoking adoption can provide valuable insights for reshaping public policy and smoking reduction program design. This study focuses on a number of key factors concerning youth smoking behaviour, as revealed by the Kings County community health survey. It particularly focuses on the age youth began to smoke, how many cigarettes a day they smoke, and how living with a smoker influences smoking habits.

Eight questions pertaining to the smoking habits of respondents were included in the Health and Community Questionnaire section of the GPI-Kings survey. These questions, along with demographic information such as age and sex, form the basis of this report.

Summary of Key Findings

One hundred and fifty one youth (62 males and 87 females) participated in the survey. There were noticeable gender and age differences in the smoking habits of youth. Of the 21% of youth who currently smoke for instance, two thirds were female. King's County youth appear to have lower smoking rates in comparison to both provincial and national averages. Smoking rates among 15 to 19 year old females exceed both the national and provincial averages, while the percentage of male youth smokers is relatively low in King's County.

Females smokers in Kings County began to smoke an average of one to two years earlier than male smokers. Fifteen to 17 year old females who smoke daily began to smoke at a mean age of 13, whereas males of the same age group began at 15. Even among the 20 to 24 year olds, women began to smoke one year earlier than men (16 vs. 17 years old).

Males smoked more cigarettes than females, even though fewer males smoked. The largest difference in the number of cigarettes smoked per day between the genders occurred in the 20 to 24 year old category, where males smoked significantly more cigarettes than their female counterparts ($P < 0.005$). Males smoked a daily average of 19 cigarettes versus 12 cigarettes for females (mean difference = 7.48).

The results showed that of the 151 youth who filled out the survey, 43% lived with a smoker. Over half (51%) of those who lived with a smoker, lived with a smoker who smoked *inside the house*. Significantly more ($p < 0.001$) current youth smokers lived in a home with a regular smoker (83%) than in a non-smoking household (17%).

6.3 Caregiving and Health

(Deborah Kiceniuk, Ph.D, Population Health Research Unit, Dalhousie University)

One of the most detailed analyses done for this Canadian Population Health Initiative research program was an analysis of the health status of unpaid caregivers. As acknowledged by the recent Romanow Commission report on the Future of Health Care in Canada, the gradual de-institutionalization of health care in Canada has shifted a considerable portion of long-term health care from hospitals to private homes and put an increasing burden on unpaid caregivers. Yet there is little substantive research assessing the implications of this major shift for the health of caregivers.

Our initial CPHI proposal envisioned a detailed exploration of the relationship between voluntary work and health outcomes, and indeed that study is currently under way with funding from the Canadian Volunteer Initiative. Preliminary results of that study are attached to this report. But for this CPHI research program, we decided instead to take advantage of the two pages of detailed survey questions on caregiving to explore this important issue in depth and to undertake a more detailed analysis of the health impacts of unpaid caregiving.

Key results are presented below in relation to a number of initial hypotheses, which were generated by an examination of the current relevant literature on caregiving. These hypotheses, which framed our investigation, were as follows:

1. Caregivers are more likely to be female and married, be in an older age group, not in the labour force, and have less education and a lower income, than the comparable general population.
2. Caregivers are more likely to have poorer perceived emotional health status, and are likely to have similar physical health status as non-caregivers.
3. Caregivers and non-caregivers will have similar self-reported health care utilization patterns.
4. Caregivers will have similar health behaviour patterns than non-caregivers.

Based on preliminary results of the GPI Atlantic data for this study, the following hypotheses concerning the differences and similarities between caregivers in Glace Bay and Kings County were generated.

- 1a. The average age of caregivers will be lower in Kings County compared to Glace Bay.
- 2a. Based on the age of the population, Glace Bay caregivers will use health care services more than those in Kings County.
- 3a. Caregivers in Glace Bay will have a lower average income and lower education levels than Kings County.

This summary focuses on those key results related to the health status, health outcomes, and health behaviours of caregivers. They are summarized here by Deborah Kiceniuk, Ph.D, with the detailed report attached as Appendix 3. Parenthetical references are in the attached paper. Results were also presented to caregivers and public health officials in both Kings County and Glace Bay.

Health Status

The burden of caregiving has long been recognized as an important issue in relation to the health outcomes of caregivers. Caregivers' adverse psychological and physical outcomes due to their caregiving responsibilities have been supported in some studies. Our results also indicate that caregivers have significantly lower perceived health status than non-caregivers. Furthermore, these results were consistent between the two communities with caregivers in both communities reporting a lower perceived rating of health.

Germane to our study of health status is caregivers' limited activity levels imposed by chronic health problems as a reflection of physical health. Our results supported the notion that caregivers have more activity limitations than non-caregivers, and this may reflect poorer physical health status. Nonetheless, we could not determine in this study whether these limitations were a result of their caregiving responsibilities or had been present prior to assuming their caregiving responsibilities.

Many studies refer to negative emotional and mental health effects on caregivers in relation to the burden of caregiving. Our results support the view that caregivers have higher stress levels than non-caregivers. In fact, the findings revealed that caregivers experienced elevated feelings of nervousness and worthlessness, and felt more stressed and time pressured than non-caregivers. In addition, our findings suggested that non-caregivers had higher odds of reporting happiness in their lives than caregivers. These findings are similar to those by George and Gwyther who found that caregivers experienced three times more stress than a comparison population. The findings of this study are comparable to those of others that report on the negative emotional health (Snow-Spracklin, 1998) of caregivers due to their caregiver responsibilities.

Medication can also mirror factors associated with health status. Although there appeared to be a dearth of literature surrounding medication use and caregiving, we believe that the results found in this study are an important issue for future caregiver research. In general, caregivers used more anti-inflammatory medication, anti-depressants, sleeping pills, stomach remedies, and asthma medications than non-caregivers. It could be maintained and certainly not too presumptive to suggest, that these findings may be reflective of high stress levels and perceived poorer emotional health reported by caregivers in both communities.

Between the communities, caregivers in Glace Bay reported using more anti-depressants than Kings County. Comparatively, Kings County caregivers used asthma medications nearly twice as much on a daily basis than Glace Bay caregivers. Although we were unable, from the data available, to examine associations to explain the difference associated with asthma medications, it may be due to environmental factors rather than being a caregiver.

Based on the literature, we had hypothesized that that caregivers would be more likely to have poorer perceived emotional health status, and were likely to have similar physical health status as non-caregivers. Our findings partially supported this hypothesis in that caregivers reported poorer emotional health with respect to stress and other factors than non-caregivers. Nonetheless, our original hypothesis, in part, was not supported by our results. That is, caregivers did not report similar physical health status as non-caregivers. Rather, our findings suggested that caregivers reported more physical limitations than non-caregivers, although the reason for these limitations could not be attributed to their caregiving responsibilities. In addition, caregivers reported higher use of medications associated with emotional or psychological health issues compared to the non-caregiver population. This idea coincides with our findings that caregivers have high stress levels and report more emotional health issues than our comparable population.

Health Care Utilization

Many studies have suggested that a higher level of morbidity in caregivers will likely translate into higher health care utilization. Few studies have thoroughly investigated this question. Of those that have, the majority appear to find that, in general, caregivers do not visit their physician more often than a comparative population. However, stratifying by types of physicians or health care workers it appears that caregivers visit psychiatrists and internal medicine consultants more often than comparable non-caregivers (Baumgarten et al. 1997). Our findings also supported the notion that, in general, caregivers and non-caregivers did not differ with respect to their health care utilization and this was similar in both communities. Nonetheless, our findings did indicate that, although not significant, there appeared to be a tendency for caregivers to have higher odds of visiting health care professionals and emergency/outpatient departments, and of staying overnight in a health care facility more frequently than non-caregivers.

However, when the entire sample of caregivers and non-caregivers was examined, it revealed that caregivers visited mental health professionals more frequently than non-caregivers. These findings are quite similar to those of Baumgarten in that she found that caregivers visited psychiatrists more often than non-caregivers.

Comparing results between communities for the entire sample also revealed conflicting results. The results indicated that, as a whole, the frequency of physician visits was similar for Kings County and Glace Bay respondents. However, odds ratios revealed that Glace Bay had lower odds of visiting other health care providers than Kings County. This result may be indicative of the differences in the types of health care services in the communities. As explained in the community descriptions, the community of Kings County is slightly larger and has more access to a variety of health care services than Glace Bay, which is more isolated. Furthermore, the between-community caregiver sample analysis revealed that, controlling for age, Glace Bay

caregivers reported that they visited their physicians and other health care professionals more often than their counterparts in Kings County.

On the surface, similar health care visiting patterns between caregivers and non-caregivers appears to be contradictory to our findings that caregivers report poorer health status than non-caregivers. That is, based on their reported poorer health status, it would be reasonable to assume that caregivers would have a higher frequency of visiting health care professionals.

However, there are several plausible explanations for these findings. First, we did find that caregivers are stressed and feel that they cannot accomplish what they feel they need to, and therefore it could be assumed that they may not have time to visit their health care provider more than they indicated. Consequently, caregivers would not show a higher frequency of visits. Second, caregivers may feel that their symptoms could not be alleviated by professional treatment, and therefore, do not seek help. Third, it could be suggested the responsibilities of caregiving can reflect an implicit selection process in that only those people that become caregivers are those that are physically and mentally capable of maintaining a caregiving role. Therefore, those people that require high levels of health care utilization either give up, or never undertake, caregiving responsibilities.

Of course, frequency of visits to health care providers may always depend on the types of health care services available in a given area. A lack of physician services could also account for the inability of caregivers to seek medical care. Although we were not able to control for this confounding factor, future research should consider the resources available in the community under study.

In general, our results supported our initial hypothesis (based on the literature) that “caregivers and non-caregivers will have similar self-reported health care utilization patterns,” in that the Kings County and Glace Bay survey results indicated that caregivers and non-caregivers did in fact have similar health care utilization patterns.

However, when investigating the between-community differences, the results supported our initial hypothesis that “based on the age of the population, Glace Bay caregivers will use health care services more than those in Kings County.” In fact, we found that Glace Bay caregivers did utilize health care services more frequently as compared to Kings County, and this held true when controlling for age. Additionally, our results also indicated that Glace Bay reported higher utilization rates than Kings County with respect to visits to mental health professionals. It is suggested that further study in this area could address some of the reasons why caregivers’ reported poorer health status is not reflected in their utilization patterns and the types of services available in the specific areas.

Health Behaviours

Our results indicated that, with only one exception, there were no differences between caregivers and non-caregivers with respect to preventive health behaviours. The only exception to this finding is that Glace Bay non-caregivers had their blood pressure checked more often than

caregivers, and only a small portion of the entire sample indicated this. Consequently, we can conclude that ‘hypothesis 4’ above was supported by our results. These results were similar to those found by Scharlach (1997) who investigated differences between caregivers and a comparison group on a variety of health behaviours such as exercise, nutrition, and smoking. Nonetheless, the between-community caregivers group analysis revealed that caregivers in Glace Bay smoked more frequently than Kings County, but that Glace Bay caregivers exercised more often than their counterparts in Kings County.

Social Support

Social support as an intervening factor in caregiver emotional health has been investigated by Snow-Spracklin (1998). Studies examining social support in caregiver’s lives vary because of the conceptualization of social support. For the purposes of our study we examined associations with the caregivers’ ability to: (1) partake in community and religious events; (2) visit/contact with neighbours; and, (3) to visit/contact relatives who did not live with them. According to our results both caregivers and non-caregivers participated in religious events and community volunteer activities in similar patterns. Nonetheless, between caregivers, Kings County caregivers were able to participate in voluntary activities more often than Glace Bay caregivers. Both groups indicated that they did not participate in voluntary activities because of health problems and lack of time.

However, differences were revealed in the respondents’ relationships to their neighbours. Glace Bay caregivers had contact with their neighbours more frequently than non-caregivers. Kings County caregivers had more frequent contact with relatives than non-caregivers. Between communities, caregiver differences indicated that Kings County caregivers had far less frequent visits with neighbours than Glace Bay.

From our results, it appears that all caregivers suffer from high levels of stress. Additionally, each community appears to have a unique method in which to seek social support, and this could act as an intervening factor in ameliorating stress for caregivers. We conclude that the types of social support used in each community vary. Glace Bay caregivers utilize neighbours more than Kings County and, and Kings County seek family or relatives more than Glace Bay. Several factors could account for these findings. Keefe and others found that rural caregivers use more informal supports than urban caregivers. Both these communities are considered rural areas of Nova Scotia and may not have formal services available as would be in the larger centres. Additionally, lack of transportation may also be a factor in the types of social support caregivers choose, or have to rely on, to relieve the burden associated with their caregiver responsibilities.

Consequently, our results may be a reflection of caregivers using the informal supports of family and friends to alleviate stress and caregiver burden. These results may reflect the varying culture and family structures in each community. Additionally, Glace Bay has higher unemployment rates and an older population than Kings County. Some of these findings may reflect the out-migration of young people to seek employment in larger centers, and therefore are not available as a support to their family. Consequently, Glace Bay caregivers may have to rely on neighbours rather than family for their social support.

In summary, caregivers appear to rely on informal resources for social support. These social support patterns manifest themselves in a variety of ways in each community. However, we have also shown that caregivers use mental health services more frequently than do non-caregivers. This may be an indication that some caregivers do access professional services to alleviate stress, or for other emotional health issues that may be associated with their caregiving work.

6.4 Physical Security and Wellbeing

(Mark Raymond, Ph.D, Economics Department, St. Mary's University, and Peter MacIntyre, Ph.D, Psychology Department, UCCB)

CIHI and Statistics Canada now acknowledge physical safety and security as a key non-medical determinant of health, and Statistics Canada now regularly reports crime rates among its Health Indicators. In this initial analysis we considered peace and security as a key component of community wellbeing. Further analysis is required to assess the correlation between these initial results and specific health outcomes.

A summary report and PowerPoint presentation on Peace and Security in Glace Bay and Kings County with comparisons between the two communities was prepared by Dr. Peter MacIntyre, UCCB. These results and the PowerPoint slides were also presented to community groups, including representatives of victim services agencies, public health officials, community leaders, police services, and others, in both Kings County and Glace Bay in 2003-04. A representative of Justice Canada attended the Glace Bay meetings, and the results were also presented at a press conference and well reported on CBC-Radio, and in both *The Chronicle-Herald* and *The Cape Breton Post*. As the Canadian Institute for Health Information and Statistics Canada both recognize freedom from crime as a key determinant of health, these results also help deepen analysis and understanding of the determinants of population health.

A further paper analysing the peace and security results in both communities was prepared by Dr. Mark Raymond of Saint Mary's University. Both this paper, and Dr. MacIntyre's PowerPoint presentation are appended to this report. In this summary of key results, we focus on major conclusions in Dr. Raymond's paper.

Abundant evidence in the literature points to a close correlation between unemployment and crime, indicating that both health and physical security may have similar social and economic determinants. From that perspective, job creation might therefore be seen as an important disease and crime prevention strategy. Several pieces of research on this connection between employment characteristics, security, health, and wellbeing were conducted as part of the CPHI research program.

Evidence also points to close correlations between justice problems and other risk behaviours. Those who are in contact with the justice system have higher rates of smoking, and of alcohol and drug abuse. Reductions in addictions and health risk behaviours may be important elements of any crime prevention strategy just as they can contribute to disease prevention and health promotion at the same time. To this end, in the holistic view proposed in this research program,

the tobacco use results reported above are also seen as relevant to issues of peace and security. Thus, the smoking prevention initiatives, particularly among teenagers, described above are seen not only as health promotion activities for the concerned individuals, but also as important activities that can enhance larger community wellbeing. From that perspective, smoking cessation programs among teenagers may help reduce the propensity towards petty crime used to get money for cigarettes, and they may reduce the prevalence of addictive behaviour frequently associated with criminal activity. In sum, close links are recognized between activities that promote population health and improve wider community wellbeing.

Dr. Raymond's analysis focuses particularly on the relationship between victimization rates, views on justice, and views on current controversial issues like gun laws and marijuana legalization on the one hand and variables such as employment, income, and education levels on the others – variables that are recognized as common determinants of both population health and personal security.

Notwithstanding the breadth of this overview, the analysis produced some very precise pieces of information. Higher levels of education are significantly correlated with views on the legalization of marijuana, the perceived fairness or unfairness of the justice system, and tougher gun control laws. Respondents with higher levels of education were significantly more in favour of tighter gun control laws and the legalization of marijuana. As well, higher education levels are significantly correlated with views that the justice system is not fair to everyone. These results took into account, location, age, gender, household income, and employment status.

There is clear difference between Glace Bay and Kings County when we look at the rates of victimization and views on marijuana legalization, the need for tougher gun control laws, and the need for tougher sentencing. Respondents in Glace Bay are significantly more supportive of the need for tougher guns laws, significantly more against the idea of legalizing marijuana, and significantly more in favour of the need for tougher sentencing.

However, respondents in Kings County were almost twice as likely to have been victims of crime in the past sixty months when compared to respondents in Glace Bay. This is an important finding in light of the markedly different socio-economic profiles of the two communities. The victimization results sharply contradict established wisdom that victimization, like disease, is associated with lower incomes, higher unemployment rates, and lower educational attainment – all of which are more prevalent in Glace Bay than in Kings County. This leads us to hypothesize that stronger social supports and social networks in Glace Bay may ameliorate some of the expected adverse health and security consequences of more difficult economic circumstances.

One very interesting result, which should be examined more closely in future research, is the difference in victim behaviour after being victimized. Despite there being no significant difference between the gender of victims in terms of victimization rates, females were significantly more likely to alter their behaviour after being victimized than males. One can speculate reasons for this, and future research might consider an analysis of the costs associated with these types of behavioural changes.

Associated with this result was a continuous level of significant difference between males and females, with females more likely than males to view the justice system as fair to everyone. Females were also more likely than males to favour stricter gun laws and to oppose the legalization of marijuana. These widely differing results indicate the importance of conducting a gender-based analysis for all work on the determinants of population health, security, and wellbeing. In this case, male-female differences were substantially more marked than differences according to economic variables like employment and income.

Employment status was, in general, not significantly correlated with views on justice, marijuana laws, or gun laws. Only when employment status was categorized more precisely did greater detail emerge. Being a student was a significant predictor for all three dependent variables. Being a student was significantly correlated with views that a tougher stance on gun control was needed, that marijuana should be legalized, and that the justice system was fair to everyone.

Other than the significant relationship between being unemployed or retired and the view that marijuana should (respectively) be legalized or not, employment status did not play a statistically significant role for views on marijuana and gun laws or for views on justice system fairness. Factors such as location, gender and education level seemed to play the largest role.

Somewhat surprising was the general lack of significant correlation between attitudes towards crime and household income. Household income was not significantly correlated with views on legalizing marijuana, the need for tougher gun laws, and the fairness of the justice system.

The data provided by the community health indicator surveys in Glace Bay and Kings County provides a remarkably rich database that can and should be studied for years. Extensions of the present work might include:

- Understanding of the costs of crime (on which survey questions exist)
- Deeper analysis of the perception and opinion results to assess what respondents consider to be a “just” society
- Relationship between health status, health outcomes, and rates of victimization
- Prescription medication use, health risk behaviours (like smoking, alcohol use, and drug use) and crime
- Further analysis by age group, particularly to understand youth crime and attitudes towards the justice system
- Analysis of the degree to which the determinants of health and the determinants of personal security coincide or differ.

6.5 Health of Discouraged Workers

A research paper on *The Health and Wellbeing of Discouraged Workers*, correlating results from the employment and health outcomes sections of the GPI Community Indicators survey, was prepared by Dr. Andrew Harvey, Saint Mary’s University, as part of the research on employment issues, and is attached to this report.

This work is particularly relevant to conditions in Glace Bay, which has suffered the loss of its key industry, coal, along with employment losses in the nearby fisheries and steel industries. Although official unemployment statistics do not capture “discouraged workers” who are no longer looking for work, and therefore underestimate the true unemployment figures in Glace Bay, the community health indicators survey administered in Kings County and Glace Bay does ask questions that allow these workers to be identified. The following abstract is prepared by Dr. Harvey, one of the CPHI research program partners, for this report:

The association between unemployment and adverse physical and mental health outcomes makes sense logically and has been reinforced with extensive research. In general it has been found that unemployment is linked to higher instances of various illnesses as well as poor health, earlier deaths, and higher rates of suicide and other emotional and behavioural problems when compared to people who are employed. The evidence is strong and the findings are robust.

However, it must be recognized that there are different types of unemployment and that some unemployed people may face their situation differently from others. Further and more refined work is required to understand the true effects of job scarcity and its health impacts. This paper, using data collected as part of the community health survey conducted in Kings County and Glace Bay, Nova Scotia, examines a key group requiring attention – the discouraged unemployed. These are workers who have given up looking for work. It was hypothesized that the discouraged attitude will reinforce and may even exacerbate the already adverse effects of being unemployed and negatively affect physical and mental health to an even greater extent than among those who have lost jobs but are still actively looking for work.

The target group – discouraged workers – is not easy to distinguish since it essentially combines an individual’s ‘real’ labour force status with his or her mental attitude toward that status. The latter is difficult to distinguish conclusively. However, a workable classification of labour force attachment was developed, consisting of those (1) in the labour force who are employed (2) those in the labour force actively looking for work but still unemployed, (3) not in the labour force, (4) discouraged workers (5) Other.

This paper examines the relationship between labour force status and health – specifically self perceived health, and health suggested or implied from responses to questions dealing with smoking, exercise, and pain or discomfort. Among other results it was found that significant differences appeared in health status, with the unemployed, those not in the labour force, and discouraged workers all showing poorer health than persons in the labour force. Discouraged workers showed significantly worse health than those not in the labour force.

Both the unemployed and discouraged workers showed significantly worse health than the employed – as expected. However, it was interesting to find that discouraged workers also showed results that were significantly higher than unemployed, with higher values suggesting worse health. This evidence from the Glace Bay and Kings County community health survey supports the hypothesis that, not only does the relationship between unemployment and poor health exist as demonstrated by evidence in the literature, but also that this relationship is even stronger (worse) for the discouraged unemployed than for those who are officially unemployed and still actively looking for work.

Analysis of the survey data also shows an impressively strong relationship between being discouraged and significantly worse mental health. For mental health, no significant differences appeared between those in the labour force and those not in the labour force. However, significantly higher results appeared between discouraged workers and those in the labour force for six out of eight survey questions relating to mental health. Furthermore, discouraged workers also registered significantly higher stress levels than those not in the labour force for six out of eight stress-related questions.

The study found that being a discouraged worker in some situations had a more deleterious effect on both physical and mental health than simply being unemployed. It was also found that lack of social support further exacerbated these health problems among discouraged workers. In no case was it found that unemployed persons were worse off relative to discouraged workers in terms of their physical and mental health. The research suggests that greater attention needs to be paid to the special case of discouraged workers with respect to impacts on physical and mental health.

6.6 Time Use and Wellbeing

The community health survey administered in Kings County and Glace Bay included a two-page time diary. As the first step in analysing the relationship between differing time use patterns and different health outcomes, Dr. Andrew Harvey, Director of the Time Use Research Program at St. Mary's University, and President of the International Association of Time Use Research, and his research assistants, analysed the initial time use survey results from the Glace Bay and Kings County community health surveys. Dr. Harvey and his assistants prepared the paper that is attached to this report and the following abstract and summary of key results.

Researchers, policy makers and academics have all come to recognize the virtually unlimited array of issues that can be better understood through the analysis of data describing how people use their time. In light of this, considerable effort has been devoted in recent years to developing and conducting national time use studies in many industrialized countries, including Canada. And while the focus is on conducting larger scale surveys that can provide data representative of a larger proportion of the population, smaller community level time use surveys have the potential of being able to explain community level experiences that might be overshadowed in national surveys.

This paper presents the results of the time use survey conducted in Glace Bay and Kings County, Nova Scotia in 2002 as part of the CPHI community health indicators research program. The results presented here provide a basic picture of the ways people from Glace Bay and Kings County use their time. The results indicate that considerable differences exist in how men and women use their time. In addition, significant differences between the two communities and among different age groups are also apparent. This paper further discusses the results in terms of their ability to help paint a clearer picture of some vital current policy issues, including the struggle to balance work and family, the division of labour, the time spent caregiving in the household, and the quality of people's leisure time.

Comparing Glace Bay and Kings County time use data reveals a very interesting picture of productive time use consistent with expectations. First, paid work time is much higher in Kings and there is a reasonably large gap between men and women. By contrast, in Glace Bay, paid work time is very low and the gap between men and women in average daily hours of paid work is minor. This appears to reflect adaptation to the labour market by women in cases where job opportunities may be in short supply for men. Additionally, the data show a much heavier time allocation to domestic work in Glace Bay. This reflects the shortage of income due to lack of employment, the greater reliance on unpaid household work such as cooking and unpaid child care rather than market substitutes like eating out and paid child care, and the additional time that is available to look after children and undertake such unpaid household work.

Increasingly, researchers and policy makers are recognizing the importance of time in understanding a broad range of issues including but not limited to those discussed in the paper attached to this report. The time use data therefore, when combined with other information collected through the Glace Bay and Kings County community health surveys can be used to address an unlimited array of issues facing these two communities. This initial analysis is seen as a precursor to further analysis of the relationship between differing time use patterns and health outcomes. The data collected in this survey appeared to compare well with the data collected for Nova Scotia in the 1998 GSS, indicating that community-based time use surveys can provide useful and valid data.

6.7 Core Values, Analysis of Open-Ended Questions, and Respondent-Generated Hypotheses

Health and wellbeing are likely the outcomes of a wide range of non-material factors in addition to more accepted economic and social determinants like income, employment, and education. Three initial analyses by Peter MacIntyre, Ph.D, Psychology Department, University College of Cape Breton begin to explore these more elusive determinants of health and wellbeing.

Dr. MacIntyre prepared three short presentations based on his analyses of:

- (1) core respondent values as reported in the community health survey;
- (2) open-ended questions at the end of the survey in which respondents were invited to express their own views and describe issues of importance to them that may not have been covered in the survey; and
- (3) respondent-generated hypotheses as revealed in these open-ended questions. Dr. MacIntyre analyzed the responses to explore the causes and correlations suggested by respondents as potential research questions for further exploration.

These short analyses and presentations are appended to this report.

A healthy population, adequate livelihood security, a peaceful community, and other characteristics of wellbeing, may be regarded as core community values. It is hypothesized by our CPHI research program team that strong commitments to shared community values may themselves strengthen social supports and act as determinants of community health and wellbeing. By contrast, it may be supposed that communities that do not share such values may be less successful in enhancing population health and community wellbeing. Among these

values, it may also be interesting to compare differing commitments to non-material values with particular health outcomes. The PowerPoint presentation appended to this report summarizes key results from responses to the “Core Values” section of the Glace Bay Community GPI survey and has been posted on the Glace Bay GPI Web site at http://discovery.uccb.ns.ca/glacebay_gpi/.

In particular, Dr. MacIntyre explored whether particular values might mediate between economic and employment variables on the one hand and health outcomes on the other. His hypothesis was that there is indeed a link between core values and health differences between employed and unemployed persons in Glace Bay and Kings County. To test the relationships, Dr. MacIntyre’s analysis examined ten core values, as listed in the community health survey:

Responsibility
Family life
Friendship
Generosity
Spiritual Faith
Material Wealth
Financial Wealth
Career Success
Pleasure
Freedom

Results of this analysis are presented in the PowerPoint slides attached to this report. The top issues raised by Glace Bay respondents in the open-ended questions at the end of the survey were the following:

Jobs- over 300 people wrote about the importance of work in Glace Bay. This includes work for youth and adults, better paying jobs, long term employment, and more development of the business sector in Glace Bay.

Healthcare- almost 200 respondents wrote about wanting better healthcare, more doctors, nurses, and shorter waiting times. According to the respondents this would not only allow more patients to be helped but would also enable more services to be offered, such as drug counselling for youth.

Water- 150 people wrote about the poor quality of water in Glace Bay. They spoke of their health being in jeopardy, their clothes being ruined, and the frustration at paying a water bill for water they feel they can’t use.

Cleaning up Glace Bay- over 100 respondents wrote about the benefits of cleaning Glace Bay and revitalizing the downtown sector. The aesthetics of Glace Bay seem to be an important issue. Respondents seem to link beautifying Glace Bay with the potential to enhance the prosperity of the community by attracting an increased number of tourists, having more shoppers in Glace Bay, and feeling an overall feeling of pride.

Youth activities- almost 100 respondents believed activities for youth to be very important. According to respondents it alleviates boredom, decreases crime, helps youth develop, and keeps youth in the community. Many respondents called for development of a pool and/or youth center to keep youth occupied and stopping them from hanging around in the streets. Also a high number of respondents wrote about the importance of keeping youth in Glace Bay as opposed to moving away to work.

Crime- 90 respondents said feeling safe from crime was an important aspect of Glace Bay life. Also many mentioned feeling secure as vital to a happy life. The police were seen by many respondents as the key to maintaining peace and security and many felt that if more police were hired and doing foot patrols, this would decrease crime greatly.

6.8 Volunteerism and Health

This CPHI research program and the value of the new Kings County and Glace Bay community health database have leveraged funding for additional research that is currently under way. Among these projects is a study being undertaken by Dr. Peter MacIntyre at the University College of Cape Breton for the Canadian Volunteer Initiative on the relationship between volunteerism and health. Dr. MacIntyre is using both the Kings County and Glace Bay results for this study. Preliminary results of that research were presented at a workshop in Sydney, Cape Breton, on May 20, 2004, and are attached as Appendix 19 of this report.

There is mounting empirical evidence that the type of community a person resides in can have a dramatic influence on a person's health status. Much of this research refers to the importance of "social capital" (Lomas, 1998). These community attributes that can facilitate the healthy development of its members has been defined as "...the features of social organization, such as civic participation, norms of reciprocity and trust in others, that facilitate cooperation for mutual benefit" (Kawachi, Kennedy, Lochner and Prothrow-Smith 1997, pg 223). In a number of studies of American states and communities, lower rates of mortality and higher self-reported health status have been associated with higher levels of participation in civic associations and social trust (Kawachi, Kennedy & Glass, 1999). Most of these studies have been ecological in nature in employing aggregate indicators for geographical areas. The relationship at an individual level has not been well studied. The database that has been developed in the current project includes a variety of measures of health status, social trust and volunteer participation at an individual level.

The empirical demonstration of this relationship has important implications for the non-profit sector. This sector has been traditionally viewed as an important provider of community services and, as such, an important facilitator of healthy development in communities. The more recent research on social capital suggests that the voluntary and non-profit sector makes a broader contribution. It is also the primary vehicle whereby citizens of a community can work together to develop healthier communities. The sector therefore represents a key component of "civic communities," performing a role that goes beyond its service provision role.

The precise role of non-profit civic associations in this vital but more subtle health promotion role is not completely understood:

“Civic associations vary along important dimensions that predict their contribution to overall social cohesion. Thus, some groups may be more exclusive in their membership, compared to others that bridge social divisions along the lines of class, gender, and race/ethnicity; some associations have a mission that is more self-regarding (e.g. hobby groups) than other-regarding (e.g. charities); some associations are more likely to foster civic trust by encouraging face-to-face contact, while others merely involve the payment of membership dues, and so on. An important research task is to determine which of these characteristics matter to health.” (Kawachi, Kennedy and Glass 1999, pg 246).

At an individual level, the relationship between civic participation and health has not been well studied. It may be for example that healthier persons are more likely to participate in civic and volunteer initiatives and, consequently, areas that have higher concentrations of healthier individuals also have higher levels of civic participation. There is some direct evidence for this proposition. In Canada, civic participation is positively related to both education and income (Statistics Canada 1998). Education and income are also positively associated with health status (Health Canada 1999). It is possible, therefore, that higher levels of health and civic participation are a function of underlying socio-economic determinants and are not related to each other in a direct causal manner. This supposition is supported by a recent analysis of survey data from Saskatchewan that did not find a strong relationship civic participation and health at the individual level (Veenstra 2000).

The database that has been produced as a result of the CPHI research program provides a unique opportunity to test for these effects in two communities which have been found to differ substantially in health status, education and income. A summary of key results from Dr. MacIntyre’s initial analysis is provided here. Please refer to Appendix 19 for more details.

The relationship between volunteerism and health has been explored in previous research, yet most of the research has been qualitative and not quantitative and has focused on select samples (e.g., elderly persons). Research using the results of the Glace Bay and Kings County community health surveys has allowed a contribution to the small amount of community-level, quantitative research that exists on volunteerism and health. The Glace Bay and Kings County survey results indicate that there are significant health advantages to volunteering. On average, the self reports of volunteers suggest that they are in better health, are more satisfied with life in general, are happier, and engage in more physical activity than their non-volunteering counterparts. However, they do experience more stress and time pressure. In addition, those who volunteer in Glace Bay are less psychologically distressed than non-volunteers. In sum, there appears to be a significant advantage to one’s health and well being when one volunteers.

The new community health data have allowed us to put together a profile of the typical Glace Bay and Kings County volunteer. The demographic categories with the highest rates of volunteerism are female, between the ages of 45-55, (35-44 in Kings County), married or living common law, are employed, and who typically possesses a grade 9-12 education. In addition, volunteers tend to spend their time volunteering for religious and sporting organizations.

The information on health outcomes and the profile of a typical volunteer have many implications for the local volunteering community. Equipped with this information, organizations that depend on volunteers can first look at whom they might target for volunteer recruitment and what methods may be more successful in recruiting (for example, the health benefits of volunteering). The information may also be useful in helping these agencies devise strategies to retain volunteers.

In addition to these implications for the local volunteer community, this research is contributing to a broader field of research into volunteerism. By better understanding the factors that contribute to or detract from volunteerism, as well as its outcomes for the individual and the community, at the local level, we can develop models of volunteerism with wide applicability. Given that we have found similarities, but also some striking differences in two small Nova Scotian communities, there is much left to be learned about the voluntary sector in Canada.

This research project is expected to be completed in the fall of 2004 with results outlined in detail in a final research paper. As part of this ongoing research project on volunteerism and health, workshops are also being held to communicate results to voluntary sector organizations in both Kings County and Glace Bay, and three such workshops have already been held. At these workshops, discussions take place on the practical application of the results to voluntary sector initiatives, and on issues like the provision of adequate supports to volunteers to prevent and alleviate potential stress and burnout.

6.9 Future Research Initiatives Beyond the CPHI Program

It is clear from the discussion above that the new community health indicators database that we now have in both Kings County and Glace Bay affords unparalleled opportunities for analysis and understanding of community health and wellbeing, beyond anything that has existed in Canada to date. Here we have a survey that links employment characteristics, income, social supports, voluntary activity, personal security, education, time use, and other important determinants of population health with key information on health behaviours, health status, health outcomes, and health service utilization. Because questions on all these and other factors are asked in the same questionnaire, correlations and linkages among these factors can now be undertaken in ways that have not hitherto been possible from disparate data sets.

This CPHI research program has enabled us not only to make significant progress in examining these relationships, but to gain experience in presenting the results in a meaningful way to community groups so that they can use them in practical ways to improve community health and wellbeing. Our approach matches the holistic approach of the Canadian Population Health Initiative itself, which explicitly recognizes the importance of going beyond the medical model of health, to address the deeper, underlying social and economic determinants of health and wellbeing.

As well, Statistics Canada data do not penetrate to the level of community. So the data provide a remarkable opportunity for communities to learn about themselves – their strengths and weaknesses – and to understand what they need in order to build on their strengths and overcome

their weaknesses in order to improve their health and wellbeing. The large sample size of the survey – 1,700 surveys in Glace Bay and 1,900 in Kings County – allows analysis of results by gender, age and other characteristics without compromising statistical integrity. Because the two communities in which GPI Atlantic undertook the surveys (Glace Bay and King County) have such different socio-demographic characteristics, the results should also shed light, over time, on what makes some communities healthier and than others.

As stated elsewhere in this report, the most important request we have of CPHI in submitting this final report is to make the existence of this database known to population health researchers throughout Canada to encourage their use of this unparalleled resource.

Three current and ongoing research projects, all funded separately from this CPHI research program, are now using the Glace Bay and Kings County database to conduct further investigations into key social and economic determinants of population health. They are:

- 1) Volunteerism and Health: Funded by Canadian Volunteer Initiative. See Appendix 19 and the preceding section (6.8) for a summary of preliminary results to date. Lead researcher is Dr. Peter MacIntyre, Psychology Department, University College of Cape Breton. Expected completion: End of 2004.
- 2) A major 18-month research project (2004-2005) on the relationship between employment and health as part of Health Canada's Health Impact of Economic Change research program. This new research program, which uses the new Kings County and Glace Bay community health database extensively along with Statistics Canada and other sources, is described in Appendix 20 of this report. Lead researcher is Dr. Sean Rogers, Economics Department, Dalhousie University. Expected completion: August, 2005.
- 3) A detailed analysis of the Kings County income and employment results, funded by HRDC, to provide guidance and planning advice for job creation strategies in Kings County. Lead researcher: Dr. Glyn Bissix, Acadia University. Expected completion: November, 2004.

Other research and activities based on the new Kings County and Glace Bay community health databases are also continuing without specific funding. For example, an Acadia University environmental science professor is using the Kings County data on energy use, transportation, and food consumption, to calculate the Kings County Ecological Footprint. She is doing this work, using the new database, as a class project with her environmental studies class, and is delighted to teach about global sustainability and human impacts on the environment using local data.

Glenn McMullen of Kings County HRDC is also developing a new Kings County community health indicators web site, to parallel that already in existence in Glace Bay. Like the Glace Bay web site, the new Kings County web site will contain summaries of all Kings County results to date, and is intended eventually to provide easy data access to aggregated Kings County data for use by other researchers. Mr. McMullen has undertaken this web site development on a voluntary basis, and GPI Atlantic will provide any funding required to pay for technical services.

7. Challenges faced and met

Since the inception of the program, there have been major challenges that stem from the type of community-based research we undertook with the assistance of CPHI funding. These challenges are presented and discussed here, because we believe they are highly relevant to the CPHI's wider mandate, which includes the improvement of the health of Canadians. That goal, in turn, is supported by research into the potential for community-based disease prevention and health promotion strategies and the building of community capacity to that end. As this community health indicators research program as a whole is definitely an example of community-based research, some of these larger challenges are also discussed here.

The challenges faced in this endeavour include those dealing with community-based survey administration, data entry, data cleaning, data access procedures, and confidentiality provisions, as well as the community presentation and consultation process that has been the focus of recent activity. We are very pleased to report that many of these challenges have been satisfactorily resolved at this point – some as a direct result of the experience gained in this CPHI research program. As a result of this experience, the Kings County and Glace Bay GPI Society members and Kings County and Glace Bay residents and leaders involved in conducting the initial community-based research are now well placed to provide advice to other communities that are interested in developing community-level indicators of population health and wellbeing. Those communities can benefit from the Kings County and Glace Bay learning experience and do not need to make the same mistakes.

In retrospect, the biggest mistake we made in undertaking community-based indicator research was to try to please community groups by including everything they wanted in the indicator selection and questionnaire design. That in turn led to other serious problems – particularly a survey that was much too long (and correspondingly expensive and difficult to administer). In retrospect, we should have pushed back more, insisting that the community reduce the size of the questionnaire by prioritizing indicators. Whenever we tried to do that in practice, the ensuing discussion with community groups would raise more, new issues of importance and more nuances they wanted, in all sincerity, to understand. The questionnaire had a way of expanding.

The results are seen in the very long and detailed questionnaire that was administered in both communities. Please visit the GPI Web site at <http://www.gpiatlantic.org/publications/communitypubs.shtml>, and scroll to the bottom of that page to view the survey instruments. It will quickly be seen that the survey is much too long, and contains a level of detail in many sections that was requested by different community groups, but is probably not necessary.

One problem was that we didn't have a good basis for knowing what to accept and what to reject – which questions would yield the most meaningful and important results for the most people. As a result of our experience, and as a result of having now looked at the actual results, we have a very much better idea of which were the key questions and the most important pieces of information that can serve as benchmark indicators of community wellbeing. If we were to advise other communities, I feel confident that we could reduce the size of our current

questionnaire by two-thirds without losing the most important information. In other words, it could (and should) be a 40-45-minute survey rather than a two-hour survey.

Because of our experience with a survey that was too long, we did in fact sharply reduce the survey size when recently asked to assist the Halifax Inner City Community in the construction of its own survey. To demonstrate these lessons learned, please see the Halifax Inner City survey at <http://gpiatlantic.org/pdf/communitygpi/halifaxsurvey.pdf>, to see how much the Glace Bay and Kings County surveys can be reduced without losing real value. In that survey, we have selected what we believe (from our experience) are the 130 most useful and valuable questions on health status, health behaviours, health outcomes, employment, income, job security, voluntary work, peace and security, and other key issues out of the much larger number of questions used in the original surveys. We have omitted many specialized questions that produced less useful results in our Kings County and Glace Bay data analysis.

For other communities, we would therefore strongly recommend this Halifax Inner City version of our questionnaire rather than the original, much longer Kings County and Glace Bay versions. Based on our Kings County and Glace Bay experience, we were able to assess which questions and results were the most relevant and useful, and we are now in a much better position to provide this kind of advice to other communities wishing to establish their own indicators of community health and wellbeing.

A second key challenge has been balancing community-based leadership with professional expertise. Initially we leaned too far in the direction of the former, *before* that local leadership was adequately trained. We therefore made mistakes in our initial hiring of local leaders who could not deliver adequately on the quality of work expected. In retrospect, based on our experience, GPI Atlantic would recommend beginning the community health indicator program (and probably any serious community development work) with heavier emphasis on the expertise (even if it has to be parachuted in), and then gradually train the community leaders over time. We have now done that in the last two years with very much better results.

For example, we sent our two Glace Bay Community GPI coordinators, Patricia MacKinnon and Debbie Prince, on a one-week leadership training course that was very helpful indeed in teaching communications, leadership, and organizational skills. We are very pleased with the leadership that has now emerged and with the performance of these two talented women (both wives of out-of-work coal-miners), and we are confident that they can now carry the process forward effectively and successfully as active members of the Executive of the new Glace Bay GPI Society.

As noted above, one of the key accomplishments of this CPHI research program has been the complete transfer of ownership and control of the Kings and Glace Bay GPI programs to newly established Kings and Glace Bay GPI Societies. Halifax-based GPI Atlantic and PHRU are now available to the new societies whenever they wish to call on us for expertise or technical advice. But the program and the data are firmly owned and controlled by Kings and Glace Bay residents, and all decisions on future directions are made in Kings County and in Glace Bay. However it is important to note that we could not have accomplished this transfer of ownership and control successfully at an earlier stage.

So a lesson we learned in the earlier stages of this community health indicators endeavour is that the *quality* of the product cannot be sacrificed in the interests of community participation (however undemocratic that may initially seem), because a shoddy product in the end provides no benefit to the community. Fortunately we were able to learn from our initial mistakes and take corrective action, so that we now have both a first class product and also excellent local leaders in place. At the same time, we would caution against the apparently more comfortable path of relying solely on experts, because that builds no community capacity to learn and carry the program forwards.

In our experience with this research program, what is required for both successful community-based research and for community health promotion initiatives, is a middle path in which the initial reliance on experts is combined with intensive, dedicated, hands-on training to build community capacity to take over and carry forward the program. We do believe this would apply to most community development and community-based disease prevention and health promotion programs, even beyond indicator work.

A third practical challenge in conducting community-based research like that undertaken in this CPHI research program involves the balance between paid staff and volunteers. Due to HRDC employment creation programs, GPI Atlantic and its partners were able to afford the hiring (through targeted wage subsidy programs) of three key staff in Glace Bay, in addition to the survey administrators and data entry personnel. Funds were not available to hire an equivalent staff complement in Kings County, where the effort depended on fewer paid staff and far more on volunteers. There was a notable difference in results, with Glace Bay survey administration and data entry moving forward far more quickly and efficiently due to the presence of full-time paid staff. It is likely that Glace Bay's higher survey response rate (82% in Glace Bay vs. 70% in Kings County) was related to the better funding and staffing, and therefore more concentrated efforts that were expended in the survey administration process in Glace Bay. A key lesson learned is that, although volunteer efforts can be enormously helpful and are tremendously appreciated particularly in the consultation processes, it is vitally important to have paid staff in the leadership positions and to conduct the actual survey administration and data processing work.

The greatest challenge we currently face in the present period is to build an actual institutional infrastructure at the community level capable of owning and carrying the program forward. This includes building *both* research *and* management capacity. This issue is so important at the present time, and is related so directly to the community capacity building objectives of this program, that a separate section is devoted to that below. The two new societies are a first step in that process, but further steps are needed.

As noted, the emphasis in the last year has been on analysis of the Community GPI results, and presentation of those results to community groups and local public health officials, community health boards, employment and municipal officials and others, while at the same time putting in place the infrastructure needed to sustain and deepen the community health indicators in the future to ensure their ongoing use to improve community health and wellbeing. To this end, the data analysis and presentations completed and under way to date have also tended to focus on subject matter of direct interest to community groups in Kings County and Glace Bay, so that the

practical utility of the indicators and results is clearly apparent, and so that enthusiasm is consequently roused for the program's continuation. We have been fortunate here that the program largely speaks for itself and requires no great selling job, and we have been gratified at the interest it has aroused and continues to arouse.

This focus, presenting results that respond directly to expressed community needs and interests, has helped to build community understanding of the potential of the community health indicators to inform policy, promote change, initiate actions that can help prevent disease, and improve community health and wellbeing. In particular, we have seen the importance of the *process* of communicating the results as a means to enlist the community participation that is essential to the long-term and expanding success of this program, well beyond its CPHI-funded phase.

The emphasis on use of the material to meet expressed local interests has therefore been necessary, both to honour the promise made to the communities in obtaining support for participation in the survey, and to help build their capacity for expanding community use. With this infrastructure now in place, the way is open for broader use of the data to support policy development in the areas of most direct interest to the community.

8. Infrastructure and database development and sustainability

Perhaps the major challenge that we faced, nearing completion of the CPHI-funded phase of this research program, is to ensure that these community health and wellbeing indicators are not a one-shot deal, but are incorporated into the structure and fabric of Kings County and Glace Bay for the long term. We cannot call this pilot project genuinely successful if the program is cannot be sustained into the longer term, because indicators, by definition required ongoing assessments of progress and refreshment of the data sources.

For that reason, we have increasingly focused our community capacity building efforts on sustainability, empowerment, and creating local structures that will own and maintain the reporting mechanisms. Interestingly, this was not a key component of our original proposal to the Canadian Population Health Initiative, in which we focused on developing the indicators, survey tools, research results, and reporting mechanisms as our principal data gathering and community capacity building tool for improving community health and wellbeing. Although we did discuss sustainability in our proposal to CPHI, we did not recognize just how important this issue was to the integrity and essence of the research program as a whole, and we certainly did not have a clear conception of how this sustainability would be managed and accomplished. We did speak of integrating the indicators within the fabric of both communities, but we were unsure of the mechanisms for *how* this could best be achieved.

The transfer of ownership of the data and project to the Kings County and Glace Bay communities is therefore a relatively unanticipated but extremely important consequence of this Canadian Population Health Initiative research program and funding. In fact, the program partners feel that this outcome is perhaps the most important (though unspecified) program deliverable, as it has the promise to sustain the program well into the future.

The critical infrastructure to support extensive use of the survey data, and to set up and manage the process of measuring genuine progress in improving community health and Wellbeing over time, is now in place in both Kings County and Glace Bay. The rich and unparalleled community database is stored and can be accessed at the both the Acadia University and UCCB libraries, instead of at Dalhousie University, where the database was located during most of the CPHI research program. ***All the project partners would much appreciate the assistance of the Canadian Population Health Initiative in spreading awareness of the new database among Canadian population health researchers nationwide.*** We believe the database offers an unparalleled resource for further research and the potential for correlations between health determinants and health outcomes not previously possible at the community level in Canada. The database, if fully and properly utilized, can provide new insights into why some communities are healthy and others not.

We like to think, within our Nova Scotia research group, that we have undertaken immense efforts to plough the ground, plant the seeds, and nurture and grow the tree. The rich and abundant variety of fruit, in the form of this extensive community-level population health database, is now ready to harvest, and it would be a great pity if it were to rot on the vine. It is extraordinarily rare for a database to contain detailed information ***from the same respondents***, on a wide range of health behaviours and outcomes, income, employment characteristics, values, voluntary work, social supports, care-giving, peace and security issues, time use, food consumption, environmental issues, and many other determinants of health. The robust data sample and high statistical validity of the survey, the capacity to do cross-tabulations without losing statistical validity, the comparability of most questions and responses to provincial and national data sets, and other strengths of the database, make it an outstanding resource for future research into the determinants of health. For this reason, ***we request CPHI to publicize the existence of the database and to invite Canadian researchers to use it.*** The data access requirements are not onerous.

This assistance from CPHI, and the consequent widespread use of the database, will further ensure the project's sustainability over time, and create a demand for refreshing the data in the future. Indeed, although the data is currently cross-sectional, there is every opportunity to turn the next phase of the project into the beginnings of a longitudinal analysis that could become an invaluable resource for future research.

Acadia University and UCCB have now developed their own research capacity under the direction of Dr. Glyn Bissix at Acadia University and Dr. Peter MacIntyre, Glace Bay resident and UCCB professor. Aside from conducting their own research and analysis of the data, Drs. Bissix and MacIntyre and their colleagues are committed to responding to requests from their communities for analysis of the data on issues of priority and concern to the two communities. They are also committed to responding to requests from other researchers around the country. Their only concern is that this research not be used solely for academic purposes, but that it include reporting to the two communities, so that they can benefit from such further research.

Community and researcher access to this unique data and information resource is through the newly created GPI Kings and GPI Glace Bay Societies. These non-profit societies, which are now registered under the Companies Act of Nova Scotia, were set up in the last phase of this

CPHI research program in direct response to community feedback, and they are testimony to the success of the capacity building initiative. The organizations are now up and running, with active Boards of Directors in place. The societies have gradually been building membership and developing lines of communication to community groups, interest groups, and agencies in the Kings County and Glace Bay areas. They are actively connected with community health boards, economic development agencies, public health officials, and other community-based organizations.

The new community-based Kings County and Glace Bay GPI Societies have signed formal agreements both with their respective universities (Acadia and UCCB) and with GPI Atlantic. The agreements identify the society's responsibilities to administer the data access guidelines for research; to assist community groups to work with the universities in generating analysis that is useful to the communities; and to incorporate genuine progress measures into their planning and actions for improving community health and wellbeing. Safe and secure storage of the original surveys for both communities is at UCCB.

In Kings County, leadership of the new society has been under Dr. Bissix, Richard Hennigar (a local farmer and member of the Kings Economic Development Agency), Dr. Richard Gould, chief medical officer for the Valley Regional Health Authority, Reverend Canon Sid Davies, a respected local pastor, and others. Key executive members are listed in an Appendix to this report. In Glace Bay, leadership of the new society has been under the direction of Dr. Peter MacIntyre of UCCB, whose family includes several generations of coal-miners in Glace Bay, and Stacey Lewis, executive director of the Cape Breton Wellness Centre, who has organized the community engagement and facilitation process. Dr. Bissix, Dr. MacIntyre and Ms Lewis have a unique capacity to wear their research-academic-investigative and community-based hats with equal ease. Other directors and active participants of the Glace Bay GPI Society are listed in a detailed attached document prepared by Ms Lewis that also includes an account of earlier community workshops held in Glace Bay.

8. Policy engagement

With the formation of the Kings County and Glace Bay GPI Societies, the infrastructure is now in place to facilitate policy initiatives to prevent disease and improve health and wellbeing on the part of community groups, agencies, and interest groups in both communities. The examples provided below indicate the ways in which the community population health indicators and the evidence they yield can be used to initiate immediate change.

Initiatives for change have been arising naturally as community groups are gradually exposed to the data analysis being undertaken. This has already been happening. For example, in 2003, a meeting in Glace Bay to analyse and discuss the tobacco results from the community health survey produced an initiative to approach local Glace Bay school principals and school boards to initiate and strengthen school-based smoking prevention programs, including the adoption of school-based curricula that are available but were not being used. It should be noted that, while such action seems obvious, Canadian communities have never before had tobacco use data available at the local and community level. So the shock and immediacy of seeing local results,

including high levels of teenage smoking, had an impact at the local level that national and provincial averages cannot possibly have.

The survey results also indicated remarkably high levels of smoking among community college students and graduates. Identifying this particular group prompted the Glace Bay community groups, physicians, and addictions counsellors to urge the public health officials present at the presentation of results to initiate targeted advertising, literature, and publicity campaigns in the local community college campuses. Participants at this particular workshop noted that the survey results could result in highly *cost-effective* actions, since targeted programs in areas where particular needs had been identified would likely be more effective than blunt across-the-board programs that were not tailored to those needs. Public health officials themselves expressed appreciation for this new information base as an extraordinarily helpful tool in their own health promotion efforts, and they promised to discuss and use the results to initiate actions.

While tobacco reduction among teenagers has value in its own right in saving lives and preventing sickness and addiction, participants in the workshop where the results were presented were convinced that it also plays a role in improving community wellbeing in the larger sense. Some workshop participants pointed out that the extra money youth need to buy cigarettes and feed their addiction frequently leads to petty crime, especially now that cigarette prices have climbed steeply and are not affordable to most teenagers.

At a deeper level, the psychological profile of addiction, the poor self-esteem that it nurtures, and the increasing social ostracism associated with smoking all match the profile of delinquency, criminal activity, and other forms of social dysfunction and disengagement. One researcher at the workshop noted that evidence from the epidemiological literature indicates that criminals have higher rates of addictive behaviour. We therefore regard the tobacco reduction initiatives undertaken as a result of the community health indicators work in Kings County and Glace Bay, particularly among teenagers, as important activities not only in preventing avoidable premature death and illness and improving the physical health of many individuals, but also in preventing crime and improving community wellbeing in the larger sense.

In Kings County, a special analysis, report, and presentation on teenage smoking, based on the community health indicators survey results, was prepared and presented to community health boards and public health officials. This report is attached here.

Another concrete example of the practical (and perhaps unanticipated) translation of the community health indicator results into action and policy use happened when the Glace Bay peace and security results were presented to community groups in 2003. Present at this workshop were community leaders, public health officials, local victim services counsellors, and the local police chief. The latter was particularly interested that, in the survey, Glace Bay residents had identified vandalism as an issue of key concern and one of the major problems in their community. He noted that the police generally respond to assaults, thefts, break-ins, and other such crimes, but that vandalism is generally below or not on their radar screen. He was so interested in learning about this community concern that he promised to discuss it at the very next meeting of his staff and officers, and to begin to direct resources and attention to this

problem, which the community had identified in the GPI survey. In addition, that same gathering discussed in detail how to improve victim services offered to crime victims.

This is an interesting example of the practical policy utility of community-level health indicators in dealing with the deeper social determinants of health and wellbeing. It also indicates how the new information has the potential to impact national processes of reporting on population health. CIHI and Statistics Canada acknowledge crime as a key social determinant of population health, and the crime statistics are regularly reported among Statistics Canada's health indicators as part of the reporting on "non-medical determinants of health." However, very little analysis to date has examined the particular pathways between crime and population health, and between research results and potential policy actions, and the vandalism identified by Glace Bay residents as key to their community's health and wellbeing is not reported as part of the crime statistics included in Statistics Canada's non-medical determinants of health. The new information has the capacity to influence these national reporting mechanisms in positive ways.

Another example well illustrates that the completion of the community health indicators survey and the analysis of data is only a beginning, and that the larger purpose of the program is to move from information to action. Using data reported at one workshop in Glace Bay, in which survey results were presented to community groups, the wellbeing of young people emerged as an important theme. Through the action of several concerned people present at that workshop, a new community program was created. The YMCA Youth Leadership Program, initiated in Glace Bay as a direct result of this community health indicators workshop, is a 30-week program designed to give eight unemployed youth an opportunity to build and practice their leadership abilities, increase their knowledge of youth health issues, and promote inclusiveness in other community organizations.

This pilot program will provide the participants with enhanced employability skills, increased self-confidence, and positive interactions with various parts of the community. They will be working on an after-school tutoring service and delivering presentations to schools on injury prevention, tobacco reduction, and health promotion. The bulk of the program is a 25-week work placement. Host organizations are the Cape Breton District Health Authority, Family Services of Eastern Nova Scotia, and the YMCA of Cape Breton. Taking action on a need identified by the community is the ultimate goal of this CPHI research program. It is anticipated that, as further research results are presented to both communities, other community members with good ideas like this one can use the community health indicators results to help Glace Bay and Kings County residents improve their wellbeing in other ways.

This is an important, and again unanticipated, outcome of the CPHI research program. Aside from the particular survey results and research conducted, one of the most valuable outcomes is the simple fact that the presentation of the population health survey results brings together a wide variety of community groups in the same room – groups that may otherwise rarely communicate. The discussion sometimes leaves the particular topic area around which the workshop has been organized and addresses other areas of community concern. This is a testimony to the power of a health determinants approach. Since health is seen as a final outcome of a wide range of social and economic factors, this approach naturally opens the door to discussion of deeper, underlying community conditions and issues of importance. In other words, the presentation of the

community health survey results creates an excellent forum for wide-ranging discussion and innovative action to improve community wellbeing beyond what any researcher can anticipate when he or she presents particular sets of results.

More recently, Cape Breton has been in the news due to an epidemic of prescription drug abuse, particularly the drug OxyContin, which has been associated with a sharp rise both in crime and in mortality among drug users. The Glace Bay GPI community health indicators team addressed this issue directly both in its meetings and in its recent newsletter distributed to all Glace Bay households. In other words, beyond the mandate of the original CPHI research program, and as a direct result of the program's sustainability, which in turn was produced through the initial CPHI funding, the community health indicators initiative is showing itself capable of responding to new community health and wellbeing issues as they arise and of producing new initiatives as they are needed. While our initial research work has focussed on the relationship between health and wellbeing outcomes on the one hand and employment, tobacco use, care-giving, and peace and security issues on the other, the increasing importance of prescription drug abuse in recent times demanded the attention of the Glace Bay community health indicators team, which addressed that issue directly. To demonstrate this response to emerging issues, please see the GPI Glace Bay newsletter at: <http://www.gpiatlantic.org/glacebaynewsletter.pdf>.

There have been many other community meetings initiated as a result of the presentation of community health indicator survey results. Thus, one of the most important (and again unanticipated) outcomes of the community health indicators process is that the presentation of results brings into the same room a wide range of community and government actors who otherwise never meet and talk. For example, four meetings on the tobacco results in Kings County and Glace Bay brought together addictions counsellors, local high school officials, community health board members, public health officials, parent and community groups, local physicians, and others who otherwise would never meet to coordinate actions on a key issue of common concern.

Similarly two workshops (December, 2003, and March, 2004) on the employment and health results in Kings County and Glace Bay brought together employment counsellors, community leaders, and local health authorities who normally do not communicate and who often regard their spheres of action as entirely separate and distinct. Likewise, two workshops on the care-giving results brought together health officials, care-giving groups, and individual care-givers who had not previously communicated. Many care-givers spoke of their usually isolated circumstances and expressed gratitude for the chance to share their concerns and experiences, and to be heard. In fact, most of those present at the meetings on care-giving and health stated that they did not even know of the work of other organizations and were unaware of services and supports that existed. They left the meeting determined to share resources more effectively and to continue to communicate and provide mutual supports.

The community health indicators process therefore has a way of forging alliances and working partnerships that are key to effective, coordinated community action. In both Kings County and Glace Bay, we have been delighted that the community health boards and public health officials have shown a strong commitment to the process, and that they have been eager to learn and listen to community groups and to use results to improve their own work.

Nevertheless, it must be acknowledged that these successes in translating results into action and policy are still ad hoc occurrences rather than a systematic or coordinated process. The new Kings County and Glace Bay GPI Societies are now poised to act as lightning rods for such activity, to integrate important initiatives, and to tackle the long-term task of expanding and using the new community health indicators process to strengthen community initiated change to prevent disease and to improve health and wellbeing.

What remains to be done, in addition to further analysis and presentation of the results, is to enable the Kings County and Glace Bay communities to identify the most important benchmark indicators towards healthier communities. This is the one task identified in the original CPHI proposal that has not yet been accomplished at this date. All the project partners agree that further analysis and presentation of results is necessary before the two communities are in a position to select the most indicators that will be used to measure progress over time. We anticipate this task will happen in the spring of 2005. These benchmark indicators will then need to be refreshed over time through more survey work.

In addition, future work will include:

- identification of gaps in the data and expansion of the indicator set as needed;
- the setting of targets and objectives for community health and wellbeing and for practical, identified improvements (e.g. reducing youth smoking from x% to y% by 2005; reducing stress rates among care-givers by a given percentage; increasing employment and the proportion of jobs with benefits by given percentages; increasing the percentage of people who feel safe walking in their neighbourhood at night from x% to y%; etc.); and
- Agreeing on indicators of success and on data that will be required in the future for periodic measures of genuine progress.

The key challenge will be to keep this process moving rapidly enough and effectively enough to sustain the continued enthusiasm and involvement of the community and interest groups and of the community-based agencies that contribute to the different aspects of community health and wellbeing. This enthusiasm exists now, but we see our main challenge as maintaining this over the long-term to ensure the sustainability and continuity of this process well beyond this CPHI-funded phase.

In addition to some of the general policy implications discussed here, there are also very specific policy recommendations that flow directly from particular results that have emerged in the last year. A sample is provided here to indicate the very practical nature of the policy recommendations that emerge naturally from analysis of the indicator results. The following list is by no means exhaustive:

Tobacco: A key recommendation made by community groups and policy actors at the community meetings considering the community health indicators survey tobacco results was to persuade school principals to adopt the NS Health Department's exemplary *Smoke-Free for Life* school-based smoking prevention curriculum. Health Canada has ranked this curriculum as the best in the country, but most NS schools do not currently use it. Meeting participants in both Kings County and Glace Bay felt this school-based smoking prevention curriculum should be mandatory as it has been proven to reduce significantly smoking take-up by teenagers.

As noted above, it was also recognised that the tobacco results pointed to very high smoking rates among community college graduates – much higher than among university students and graduates. Meeting participants recommended that the NS Health Department and local public health officials target community colleges with posters, brochures, and other promotional and informational materials aimed at discouraging smoking use. In Kings County, a separate analysis of teenage smoking led to a partnership with a non-profit community group, Smoke-Free Kings, in an effort to reduce rates of teenage smoking in the County, and the head of that group, Lila Hope-Simpson, is now also an executive member of the Kings GPI Society.

Workshop participants noted with concern the very high smoking rates among teenage girls, and they noted that existing smoking prevention and cessation literature and promotional materials did not successfully address some of the key causes of smoking among this demographic group. They recommended to the public health officials that materials emphasizing alternatives for dealing with stress and weight gain could help teenage girls avoid using tobacco to achieve these objectives.

It was also felt that dedicated programs to assist current smokers to quit should accompany all such prevention efforts. The example of Quebec, which has made quitting aids like nicotine patches and gum available free, was cited. It was noted that this would not only encourage low-income smokers (who have particularly high rates of smoking) to quit, but would also be an investment that would save the health care system money in the long run.

Care-giving. The key message emerging from these results was the great need for more respite and support services for caregivers. Many caregivers give up paying jobs and livelihood security when their spouses become unexpectedly ill and require in-home care. Not only are there extraordinary stresses on care-givers' time and emotional resources, but their income may suddenly be threatened as well. Interestingly, our discussions on this issue in Glace Bay and Kings County coincided with the Romanow Report's key recommendation that unpaid caregivers be eligible for the equivalent of EI benefits. The report addressed these very concerns.

The following key issues were identified at the Glace Bay and Kings County meetings at which the care-giving results were presented:

- Unpaid care-giving for sick relatives, particularly parents, elderly spouses, and children, is an issue of growing importance with the gradual de-institutionalization of health care. Frequent reference was made to the Romanow Report recommendations, and meeting participants expressed the hope that the recommendations to provide financial and other supports, including respite services, for caregivers would be speedily implemented.
- The caregiver role seriously affects livelihood, household income, and the ability to hold down a job. Participants felt that income supports were crucial to enable caregivers to perform their functions effectively. Several participants argued that such supports would still save government and taxpayers money, as unpaid care-giving in the home was much less expensive than hospital or institutional care.

- The community GPI health survey results showed serious impacts on health, risk behaviours and conditions, stress, and health care utilization that have been inadequately researched and publicized. Care-giver groups who heard the community health survey results knew intuitively that they were correct, but felt that these facts were not widely known in the community or in the policy arena and even more rarely addressed as policy issues. Among the key findings were:
 - Care-givers are more likely to be female, married, middle-aged (especially 45-54), unemployed, less educated, and with lower incomes than non-caregivers.
 - Care-givers have poorer emotional health status and more stress, are more likely to report fair or poor health and activity limitations, are more likely to visit doctors/ER frequently, use medications more often, smoke more, and exercise less than non-caregivers.
 - Care-givers have higher rates of several chronic disorders, some of which are stress-related. For example, the community GPI health survey found that care-givers have twice the incidence of migraine headaches and intestinal disorders, and three times the incidence of bowel disorders.

Meeting participants felt it was important for these results to become known as they would immediately and naturally indicate the importance of adequate and better supports for care-givers.

- Some of the policy implications emerging from the results were: A need for more respite services for care-givers; EI and other income-support benefits for care-givers; employer policies that include supports or insurance for caregivers forced to give up their jobs to care for an ailing spouse, child, or parent; and better community supports. On the last point, meeting participants felt that care-giving was currently regarded as a personal, domestic issue – up to each family to deal with when the circumstances required it. Community infrastructure and support services for care-givers currently did not adequately exist and many care-givers therefore feel isolated, particularly when they cannot leave ailing relatives for any period of time.

Employment and health. Unemployment rates are three times as high in Glace Bay as in Kings County. The Community GPI results found high correlations between poorer health outcomes on the one hand and low income, unemployment, low levels of education, and threat of layoff on the other. These results and others were presented in workshops in 2004 in both Kings County and Glace Bay. The health of discouraged workers was found to be even worse than those who were unemployed. Job creation was a key policy issue in the Glace Bay meetings to discuss the community GPI health survey employment results, and is seen there as the most important action that can be taken to promote better health and wellbeing. The current epidemic of prescription drug abuse, which has been linked to an increase in crime in industrial Cape Breton in general and Glace Bay in particular, is thought to be directly linked to the loss of key local industries and to high rates of unemployment.

However, one of the more surprising findings that led to an interesting discussion on policy implications was that stress levels were higher in Kings County than in Glace Bay, and higher for more educated groups than for less educated groups. Interestingly, those with the lowest and highest incomes had higher stress levels than middle-income groups. In the discussion that ensued at the community level in both communities, researchers referred to a Statistics Canada

study that found the main reason for growing earnings inequality in the 1990s was a growing polarization of hours, with increasing numbers of workers putting in longer hours than before and an almost equal number unable to get the hours they need to make ends meet. The standard workweek has declined. A Japanese study found equal risk for heart attack among the overworked and under-employed.

The health implications of the employment results were extensively discussed, and it is fair to say that for many workshop participants, it was the first time they had considered the relationship of employment characteristics to health outcomes. In that sense, these workshops were really educational events. Workshop participants were introduced to evidence indicating that more cohesive societies with smaller gaps between rich and poor are also likely to have higher levels of population health than societies with wide gaps between rich and poor, in which a significant portion of the population feels excluded. Reducing the growing polarization of hours therefore has the potential to reduce unemployment, earnings inequality and social exclusion, to foster community cohesiveness, and to improve population health and community wellbeing. In this way, the holistic approach of this CPHI research program is in accord with the growing understanding in Canada that attention must be paid not just to the behavioural determinants of health but to the deeper social and economic determinants of health and wellbeing.

Participants in workshops in both communities, but particularly in Kings County where higher income groups registered high stress levels, were therefore particularly interested in the potential to reduce unemployment by redistributing work hours more equitably. It was felt that such measures had the potential benefit of reducing high stress levels among both the high-income, highly educated and over-employed segment of the workforce, who often tend to work very long hours, and the unemployed and underemployed who have inadequate hours and therefore low incomes.

The most specific and concrete policy action that has so far emerged from analysis of the community GPI employment results is the YMCA Youth Leadership project described above. But we feel strongly that the policy implications of the results have not yet been fully explored and that there is great potential for identification and implementation of other relevant policy actions that can improve community health and wellbeing in the longer term. In fact, the employment-health nexus aroused such interest in both communities, and was considered so relevant and important, that further research in this area is now being undertaken using the Glace Bay and Kings County data. That research is being undertaken by one of our new team members, Dr. Sean Rogers of Dalhousie University's Economics Department, with funding from Health Canada.

Upcoming workshops in Kings County and Glace Bay therefore intend to follow up on the implications of these initial community health survey employment results and will be designed to prepare specific policy recommendations that flow from the findings presented in the December 2003 and March 2004 workshops on this subject in both communities. These earlier workshops were aimed primarily at presenting and understanding the employment results and their correlation with health outcomes, and there was considerable discussion on employment as a determinant of health and wellbeing. These workshops might therefore be considered to have

served primarily an educational function. The participants in those workshops are determined to turn their learning into policy actions at the follow-up workshops planned in the coming months.

Peace and Security. An example was given above that the Glace Bay police chief immediately intended to translate the community GPI health survey results on concern about vandalism into action. Without this information, he said, his force had not been aware of how great a concern this issue was to community members, and had devoted no resources to this problem. He intended to address the issue at his next staff meeting.

Beyond such immediate concerns, the community groups, victim-service counsellors and others attending the meetings were mainly interested in addressing the deeper social causes of crime and thus preventing it in order to improve community health and wellbeing. In fact, workshop participants noted that crime is not only a determinant of health and wellbeing. It is also, like health and disease, the outcome of similar economic and social conditions like income, employment, education, and social supports. The most common theme in Glace Bay particularly was: “There is nothing for our young people to do.” It was felt that an investment in youth programs, recreational facilities, and activities would be very beneficial both in improving health and wellbeing, and in increasing peace and security in the town. The Community GPI newsletter, which was distributed to all Glace Bay households in July this year, also specifically addresses the need for more and better youth facilities as a key tool both for preventing crime and improving community wellbeing.

Perhaps the most surprising result of the peace and security section of the community health indicators survey was that Glace Bay victimization rates were considerably lower than those in Kings County – 44% lower in fact. Crime is usually associated with lower incomes and higher rates of unemployment – but in this case, a high-unemployment, low-income community showed very low rates of victimization. These results were reinforced by overall feelings of community safety and security and high rates of confidence in the local police. These results were very important to community members because they pointed to a hidden *strength* in a community that has lost key industries, and has become accustomed to feeling “poor” and insecure in assets and resources. A considerable pride was generated by the community health survey results as meeting participants realized that the community ties, networks, social supports, and mutual caring made their community a remarkably safe and physically secure one in which to live. Thus, one of the key survey findings that was particularly meaningful to residents and community leaders was that strong social supports could to some extent ameliorate some of the main disadvantages of high unemployment and low income that would otherwise likely have undermined community health and wellbeing to a far greater extent.

In short, community health survey results do not only point to problems that need to be solved, but to assets sometimes hidden by the usual emphasis on standard economic growth statistics in assessing progress. Our experience in this research program leads us to believe that the most effective disease prevention initiatives may not be those focussed solely on “problems,” but rather may be those aimed at recognizing and building on community strengths and assets. In this case, our community health survey results revealed a remarkably strong network of social and community ties and support mechanisms that could be a vitally important asset in preventing crime and improving community health and wellbeing. Because the Glace Bay peace and

security results were so positive in a community that has not fared well economically, we decided, with community support, to make the Glace Bay peace and security results the first to be released publicly to the media. In that way, positive numbers and a sense of community pride would be the first public messages disseminated from the community health indicators process. The excellent media publicity received on this issue also generated additional community support for the process as a whole.

These issues are a very small sample of the highly interesting and provocative issues that arise when community health indicator results are presented to and discussed with community groups. This short list of examples is by no means comprehensive, but illustrative only. One of the key conclusions is that discussions and policy options based on the community health indicator results often venture into non-conventional and innovative areas that are generally hidden by the usual emphasis on standard economic indicators, and which emerge naturally when a broader range of health and wellbeing indicators are examined.

9. Dissemination/knowledge transfer

The attached documents outline in greater detail the organization, activities, workshops, and other community level meetings and discussions that have occurred and are planned in presenting survey results to community groups. The excellent Glace Bay GPI Web site set up by UCCB as a direct outcome of this CPHI research program will provide community access to all analysis, as it happens, and to aggregated data that can be provided without breaching confidentiality. This Web site development is one of several important outcomes of this CPHI research program that was not anticipated in the original proposal. It is anticipated that, over time, this Web site, and a parallel Web site now being developed for Kings County, will become the main dissemination and communications tools for new results, and that they will become a major source for further community-based research.

In 2003, we also experimented with the first releases of data to the media, and held our first press conference in conjunction with the presentation of the Glace Bay peace and security data. This was very well received, and the results were prominently reported in two daily newspapers and on the CBC province-wide news broadcasts, as well as on CBC call-in and interview programs. Newspaper clippings are attached as an appendix to this report. We have been sensitive to the fact that results should generally be reported to key community groups and stakeholders *before* being more widely disseminated. But the success of this first media effort has encouraged us to plan on continuing to use the media to spread the results more widely.

The community workshops at which survey results are presented, generally by Acadia University and UCCB researchers and co-investigators, have been preceded by letters of invitation to key parties and telephone calls. The process is steadily raising the profile of the Kings County and Glace Bay community GPI, and gradually awakening community interest and energy in the power of community-based research as a tool to mobilize communities to prevent disease and improve health and wellbeing.

As noted above, one quite extraordinary and unanticipated outcome of the community meetings at which survey results are being presented is that they bring together in the same room groups that normally do not have the opportunity to communicate with each other or share information on issues of common concern. The community health survey results have the effect of initiating dialogue, discussion, and awareness, and of prompting the sharing of information. For example, at the community meetings on tobacco use, care-giving, peace and security, and employment and health, the discussions included a scan of relevant programs and initiatives currently in place, allowing community groups to learn from each other, sometimes for the first time, of services already available, and also to identify gaps and needs. In sum, the survey results themselves end up not being the only thing on the agenda. Rather, they have the important effect of initiating and triggering a wider-ranging dialogue and exchange of information around the area of concern raised by the survey data.

Thus, at our first tobacco workshops in Kings County and Glace Bay, we began with a scan of all existing relevant services currently available in both communities, including addictions services, school-based smoking prevention programs, help lines for smokers trying to quit, clinic-based smoking cessation programs; counselling services provided by physicians, nurses, and other health providers; work-based smoking prevention programs; and more. Some participants were surprised to learn of the extent to which valuable services already existed. Thus our workshops also serve the purpose of informing community residents of the availability of services with which they may have been unfamiliar. This scan of existing services also helps identify current gaps, and spurs discussion of actions needed to fill those gaps, to bolster services that may be in high demand, and to spread information about important services that are not adequately known or used.

The most ambitious dissemination work recently took place in the form of writing, editing, designing, and printing, a newsletter with key survey results, which was distributed to every Glace Bay household in July this year. As noted above, the greatest concern expressed by workshop participants was that the results of the community health survey were being transmitted only to a small and rather elite group of community leaders and policy actors in both communities. Workshop participants agreed that the results were very important, provided vital new information about the community, could help empower the community at large, and were an important new instrument for effective evidence-based disease prevention and health promotion initiatives. But they recognized that this would not occur while communication was confined to small workshops, and while the knowledge was not transferred to the community at large.

As a direct result of this strong feedback and recommendation to “spread the word,” we recently put all our energy into the creation and distribution of a very attractive four-page, colour, tabloid newspaper. The newspaper summarizes key results and analysis to date in short, clear articles written in language that is easy to understand. Based on this experiment, we hope to repeat this wider dissemination work in Kings County. We could think of no more effective way to report to the community at large than through this newspaper. Again, this level of dissemination was not anticipated in our original proposal to CPHI but emerged as a direct result of community recommendations at the workshops where survey results were presented. As noted above, the newsletter can be accessed at: <http://www.gpiatlantic.org/glacebaynewsletter.pdf>.

To produce the newspaper, we hired a professional writer/journalist from Sydney, Norma Jean MacPhee, to work with three Glace Bay GPI Society members to compile the key results, write up short well-written articles, include photographs of Glace Bay, and suggest a potential layout. We then had the tabloid professionally laid out and designed, printed, and distributed to all Glace Bay households. As a mark of the maturity of this research program and the degree of community empowerment already achieved, all these tasks were undertaken entirely in Cape Breton and by Cape Bretoners, under the leadership of the new Glace Bay GPI Society. The distribution to all Glace Bay households in July has received very positive feedback from community members.

As noted above, one of the key instruments of dissemination has been the Internet. UCCB researchers, with professional assistance, have designed an excellent GPI Glace Bay Web site to provide user-friendly community access to analysis, reports, and activities connected with the Community GPI survey for Glace Bay. Limits to access of raw data on the Web site are imposed by concerns of confidentiality but community groups and other users can access considerable aggregated data on the Web site. Please visit this Web site at: http://discovery.uccb.ns.ca/glacebay_gpi/. In addition, GPI Atlantic has recently posted all new Community GPI results, reports, and PowerPoint presentations on its own Web site at <http://www.gpiatlantic.org/community.shtml>, with a link to the Glace Bay Web site.

One of the most important outcomes of the CPHI research program is its success in leveraging further support and interest from an ever-wider range of government and community groups. Dr. Glyn Bissix and the GPI Kings Society recently received a grant from HRDC in Kings County to conduct further and more detailed analysis of the Kings County GPI employment results in detail. Dr. Peter MacIntyre, Stacey Lewis, and the Glace Bay GPI Society received a research grant from the Canadian Volunteer Initiative (CVI) to analyse the voluntary work results in the Glace Bay Community GPI survey. A paper summarizing initial results from this analysis is attached to this report, and further analysis is currently under way. This Cape Breton research team has already held two community workshops on this subject. The researchers are now analysing the correlations between voluntary work and health outcomes.

Finally, as noted, funding has been secured from Health Canada's Health Impact of Economic Change project to conduct far more detailed analysis of the employment-health results, comparing our Glace Bay and Kings County data with national and provincial data sets to secure a deeper understanding of the health impacts of different employment characteristics. Because we regard this as our most important ongoing research project using the Glace Bay and Kings County data, emerging directly as a result of this CPHI research program, we have attached our proposal for this work as an appendix to this report

The Nova Scotia Rural Team has also expressed interest in the program. The Federation of Canadian Municipalities asked GPI Atlantic to present the community health indicators work to the Sustainable Communities Conference held at the Chateau Laurier Hotel in Ottawa on February 4-7, 2004, where this CPHI research program was specifically acknowledged and profiled. The work has also been presented to meetings of government and community groups in the other Atlantic provinces – most recently to a symposium sponsored by the University of Prince Edward Island's Institute of Island Studies. It was also presented to the Nova Scotia

Government's inter-departmental committee on community economic development, to the Atlantic Canada Opportunities Agency (ACOA), and to the Population and Public Health Branch (Atlantic region) of Health Canada. This CPHI research program was also profiled at a Policy Research Institute conference in Ottawa. In short, there is a growing interest and demand for information about community-level indicators of health and wellbeing, and we have had several opportunities to present, profile, and acknowledge this CPHI research program.

As noted above, we have also learned some important lessons that are now helping us advise other indicator initiatives. In presenting results to community groups, for example, we have learned which survey questions have not yielded important or highly useful data, and which have yielded the best and most interesting results, and thus we can now advise others on reducing the survey size drastically to include only the most important questions. Thus, to help other communities, like the Halifax Inner City, develop community health indicators, we reduced the original questionnaire by nearly two-thirds, selecting the most important and useful questions, so that the Halifax Inner City questionnaire now takes about 45 minutes to complete, compared to the average two hours needed to complete the original Glace Bay and Kings County surveys. This will allow much quicker and more cost-effective data collection than was the case in our Kings and Glace Bay surveys.

We have also found instances where re-wording the questions is helpful to reduce ambiguity, provide missing information, and improve clarity. In fact, we have recently sought advice from Statistics Canada's Social Survey Methods Division on such issues of survey re-design. In short, we are now well placed to provide practical advice to other communities interested in community-based research and in creating indicators of community health and wellbeing, so that they do not need to repeat our own mistakes.

Apart from continuing to energize community groups, academics, and policy actors, and to stimulate general public interest, we still have more work to do on other lessons learned from this extensive and emerging venture. Over time, in the coming months, we want to review the methodologies and many other aspects of this program, in such a way that the outcomes will be valuable, not only to Kings County and Glace Bay, but to communities throughout Canada. We want to outline suggestions and procedures for other communities that might wish to use this powerful tool in their own quest to improve community health and wellbeing.

In sum, our two key current goals are (1) to ensure the long-term sustainability of these community health indicators in Kings County and Glace Bay so that key data can be refreshed and progress measured over time; and (2) to ensure that other communities both in Nova Scotia and beyond can use our experience to develop their own indicators of community health and wellbeing. We are more convinced than ever that good local indicators can be a tremendously powerful tool that has very practical policy relevance and utility in empowering communities to act to prevent disease and to improve their health and wellbeing. From our experience to date, we have seen that the immediate, local knowledge that these indicators provide can help mobilize communities behind common goals and objectives and spur them to action. We are also convinced from our experience that, as postulated by the U.S. based Institute of Medicine, community participation in identifying health issues, and in collecting and analyzing data on

indicators of community health, is a key ingredient in improving population health at the community level.

We have so far done no marketing of these community health indicators outside Kings County, Glace Bay and this region, and we do not have the capacity to do so. However all the program participants recognize that these community health indicators, the methods we have developed, the database developed, and the lessons learned, represent a real resource that has utility for population health researchers and marketability to communities throughout Canada and beyond. From all we have read and learned, we are convinced that other communities that can benefit greatly from the work done for this CPHI research program. Should CPHI be able to alert population health researchers to the existence of our new community-level population health database, and should CPHI have an interest in making the community health indicators known beyond Nova Scotia's borders, we would be delighted to support the work of these researchers, and to provide assistance to other communities interested in developing such indicators.

This possibility could also present job opportunities for Kings County and Glace Bay GPI participants and staff who are now well trained in survey design, methods, and administration, in data entry, and in using the results to build community capacity. At times we have even envisioned small enterprises based in Kings County and Glace Bay that could train other communities in some of the methods of community-based research undertaken in this program. For example, we were able to pay Patricia MacKinnon and Debbie Prince, co-coordinators of the Glace Bay GPI program, on three occasions to travel to Halifax to participate in consultations and to provide advice and training to a new Halifax Inner City community indicators project. Although they had no prior experience in survey methods before their involvement with the Glace Bay health indicators work, these two women are now training others in community-based research methods.

Despite these positive outcomes of the CPHI research program and the lessons learned and challenges met, all the project partners feel strongly that we have only scratched the surface of the potential that these health indicators hold to improve community health and wellbeing. In particular, we would like to see the new database widely used to conduct population health research, and to see further results on a wide range of health determinants reported to both communities and beyond. What we have accomplished so far can perhaps be described as a "demonstration" project, but we would like to see it further developed and brought to fruition in the coming years.

Appendix 1: Employment and Health

EMPLOYMENT AND HEALTH:

PRELIMINARY ANALYSIS OF RESULTS FROM THE GLACE BAY AND KINGS
COUNTY COMMUNITY GPI SURVEY

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INTRODUCTION

The purpose of this paper is to examine the relationship between health and employment in two non-urban areas of Nova Scotia - Glace Bay and Kings County. These two areas represent contrasting profiles of rural communities. Glace Bay is located in Cape Breton Island and has a history of economic insecurity and population decline. Heavily invested in the mining industry, the area has recently suffered a major economic setback with the closing of area coal mining operations. Kings County is one of the more affluent rural areas in Nova Scotia with a strong agricultural base, as well as active logging, fishing, manufacturing and service industries. The unemployment rate in Glace Bay is traditionally twice as high as the corresponding rate in Kings County and average incomes are seventy to eighty percent lower. The contrasting economic circumstances of these two areas provide an opportunity to examine the relationship between employment and health within two different community contexts.

Between 2001 and 2003, these two communities were involved in the design and implementation of a comprehensive community survey in partnership with GPI Atlantic, the Population Health Research Unit at Dalhousie University, and other partners. The purpose of the survey was to collect baseline data for the monitoring of community wellbeing and progress. The survey instrument was extremely comprehensive and included detailed questions on a variety of topics:

- Household demographics
- Labour Force Activity
- Health
- Core Values
- Caregiving
- Voluntary Activity and Community Service
- Personal Security and Crime
- Ecological Footprint
- Time Use

A total of 3,606 respondents completed the 70-page survey with 1,708 respondents from Glace Bay and 1,898 respondents from Kings County.

This paper utilized the results of this survey to conduct a preliminary examination of three issues-

- The relationship between health status and labour force activity
- The role of employment-related stress
- The relationship between stress and income.

Literature Review

Job Insecurity and Health

A variety of studies have examined the relationship between job insecurity and health. There have been fairly consistent findings which support a positive relationship between job insecurity,

stress, and a number of disease-related symptoms. (Catalano 1991, Dominighetti, D'Avanzo and Bisig 2000).

Of particular importance are a number of longitudinal studies, which examined the effects of job insecurity over time in groups of workers. A fourteen-month study among auto workers reported increased incidence of symptoms for a variety of physical problems which appeared to be accumulative over time. The longer the exposure to the stress of job insecurity, the more pronounced the effects. The authors concluded that job insecurity acted as a chronic stressor with effects that increased in potency over time (Heaney, Israel and House 1994). However, the accumulative effects of job insecurity were not found in a Finnish study, which reported an increase and leveling of symptomatology over time (Kinnunen et al. 1999).

A more recent two-year study of job insecurity in the British civil service examined the effects of both increased and decreased job security on health. Adverse effects on self-reported health and minor psychiatric morbidities were associated with job insecurity. These effects were not entirely negated by a removal of the threat. The study also found that the effects tended to increase with the chronicity of the stressor (Ferrie, Shipley, Marmot, Martikainen, Stansfeld, Davey Smith (2000).

Unemployment and Health

The relationship between unemployment and health is complex and has been studied extensively since the early findings of Brenner (1977 and 1979), which found positive relationships between mortality and unemployment in national data over periods of as much as forty years. These studies have been criticized for their interpretation of the association as causal in nature (Smith 1987, Shortt 1996).

Since Brenner's studies, however, a number of longitudinal studies using linked administrative data have supported the notion of a causal relationship between unemployment and mortality at a national level in Britain (Moser et al 1987), Denmark (Iverson et al 1987) and Finland (Martikainen and Volkonen 1996). A recent review of the literature concluded that there is convincing evidence that unemployment contributes to ill-health in the population, even after controlling for the effects of socio-economic status, poverty, and health behaviours. It noted the co-existence of a health-section effect, whereby persons with health problems may have a higher probability of becoming unemployed. (Mathers, C. and Scholfield, D. 1998).

A variety of cross-sectional studies have reported strong relationships between unemployment and stress (Smith 1987, Shortt, S., Linn et al. 1985, Frese and Mohr 1987.) Of particular relevance to the current study were the results of a British study, which found lower levels of distress among unemployed men from areas of chronically high unemployment, when compared to unemployed men in areas of lower unemployment (Jackson and Warr 1987).

DEMOGRAPHICS

There were no significant differences between the two locations with respect to the gender of respondents (Table 1).

Table 1: Gender of Respondents

	Glace Bay	Kings County
Male	42.77	44.95
Female	57.23	55.05
Pearson Chi-Square= 1.7385 p<.187		

There was a significance difference in the age distribution of respondents in the two locations. The Kings County sample contained a larger proportion in their late thirties and a smaller proportion in their early twenties (Table 2).

Table 2: Age of Respondents

	Glace Bay	Kings County
15-19	3.58	5.51
20-24	5.58	2.54
25-34	10.69	10.12
35-44	19.51	24.84
45-54	24.56	22.88
55-64	16.33	16.10
65+	19.74	18.01
Pearson Chi-Square=42.29 p<.000		

There was a significant difference in the income distribution of the two sets of respondents, with a substantially larger proportion of Kings County residents in the higher income categories (Table 3).

Table 3: Household Income

Income Group	Glace Bay	Kings County
- 10,000	6.73	4.21
10,000- 19,999	18.50	9.11
20,000-34,999	26.52	19.34
35,000-49,999	17.97	20.60
50,000+	20.26	41.31
No Answer	10.01	5.43
Pearson Chi-Square=244.54 p<.000		

The Kings County respondents also had a substantially higher proportion of respondents with higher levels of educational attainment (Table 4).

Table 4: Highest Level of Education Attained

	Glacé Bay	Kings County
Primary to Eight	10.37	5.98
Grade Nine to Twelve	50.24	40.97
Community College Diploma/Certificate	19.08	23.56
University Degree	10.66	19.28
Other	9.66	10.20
Pearson Chi-Square=86.31 p<.000		

Health Status Comparisons

When respondents were asked about their general health, there were no significant differences in self-reported health status between the Glace Bay and Kings County residents, after controlling for age and gender differences (Table 5). However, when asked more detailed questions about their health status, Glace Bay respondents were more likely to report having activity limitations, disabilities, high blood pressure, and diabetes. Kings County respondents were more likely to report higher stress levels, and were more likely to report that they had little or no control over important decisions that affected their lives. There was no significant difference in life-satisfaction between the two sets of respondents.

Table 5: Selected Health Status Indicators, after controlling for age and gender

Indicator	Kings County	Glace Bay	Odds Ratio*	Difference
Health status poor or fair	18.6	20.2	.93	Not Significant
With Activity Limitation	17.9	23.4	.717	GB significantly higher (p<.000) after controlling for age and gender
With a Disability	19.9	27.3	.664	GB significantly higher (p<.000) after controlling for age and gender
High Blood Pressure	14.2	22.8	.538	GB significantly higher (p<.000) after controlling for age and gender
Diabetes	5.5	7.5	.708	GB significantly higher (p<.01) after controlling for age and gender
Heart Disease	5.7	6.4	.878	Not Significant
Reporting Life Is very or Somewhat Stressful	52.0	45.5	1.29	Kings County significantly higher (p<.000) after controlling for age and gender
Reporting Somewhat or very Dissatisfied With Life	8.06	9.25	.843	Not Significant
Reporting No or Little Control Over Decisions Affecting Life	17.97	13.88	1.33	Kings County significantly higher (p<.000) after controlling for age and gender

***For Location After Controlling For Age and Gender**

To test for the effects of differing income and educational attainment upon these health-status differentials in the two areas, the logistic regression analysis were re-run with the inclusion of income and education as independent variables (Tables 6-14). With the exception of diabetes, the significance of the locational variable did not change. In the case of diabetes the difference between the two areas was not significant after controlling for income and education.

Table 6: Logistic Regression Results For Self-Reported Health Status

			Number of obs = 3389			
			LR chi2(5) = 250.98			
			Prob > chi2 = 0.0000			
Log likelihood = -1538.282			Pseudo R2 = 0.0754			
hlthstatus	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
age	1.336354	.0405805	9.55	0.000	1.259138	1.418305
sex	.9318786	.0853591	-0.77	0.441	.778736	1.115138
location	1.143538	.1074252	1.43	0.153	.951235	1.374717
income	.8295352	.0255463	-6.07	0.000	.7809465	.881147
educ	.7473125	.0340201	-6.40	0.000	.6835223	.8170559

Table 7: Logistic Regression Results For Activity Limitations

Logistic regression			Number of obs = 3389			
			LR chi2(5) = 183.32			
			Prob > chi2 = 0.0000			
Log likelihood = -1625.0657			Pseudo R2 = 0.0534			
limitation	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
age	1.330439	.0396168	9.59	0.000	1.255014	1.410397
sex	.8661858	.0767764	-1.62	0.105	.7280527	1.030527
location	.7842681	.071261	-2.67	0.007	.6563293	.9371461
income	.8539628	.0255756	-5.27	0.000	.8052783	.9055905
educ	.9478085	.0390071	-1.30	0.193	.8743582	1.027429

Table 8: Logistic Regression Results For Presence of Physical Disability

					Number of obs = 3389	
					LR chi2(5) = 223.04	
					Prob > chi2 = 0.0000	
					Pseudo R2 = 0.0604	
Log likelihood = -1734.6531						
disability	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
age	1.350341	.0384622	10.55	0.000	1.277023	1.42787
sex	.7811187	.0661991	-2.91	0.004	.6615741	.9222647
location	.7378969	.0641962	-3.49	0.000	.6222174	.8750829
income	.8782583	.0254002	-4.49	0.000	.8298595	.9294798
educ	.9005848	.0357941	-2.63	0.008	.8330925	.9735448

Table 9: Logistic Regression Results For Diagnosed High Blood Pressure

					Number of obs = 3389	
					LR chi2(5) = 500.12	
					Prob > chi2 = 0.0000	
					Pseudo R2 = 0.1532	
Log likelihood = -1381.8138						
Hbp	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
age	2.009996	.0810071	17.32	0.000	1.857334	2.175206
sex	.9435809	.0912969	-0.60	0.548	.7805855	1.140612
location	.5897854	.0588378	-5.29	0.000	.4850395	.7171517
income	.9824202	.0331458	-0.53	0.599	.9195571	1.049581
educ	.8828483	.0394333	-2.79	0.005	.8088469	.9636201

Table 10: Logistic Regression Results For Diagnosis of Diabetes

					Number of obs = 3389	
					LR chi2(5) = 141.36	
					Prob > chi2 = 0.0000	
					Pseudo R2 = 0.0868	
Log likelihood = -743.64384						
	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
age	1.726525	.1027034	9.18	0.000	1.536521	1.940024
sex	.6871726	.0990446	-2.60	0.009	.518059	.9114912
location	.7724771	.1152496	-1.73	0.084	.5766214	1.034857
income	.9539648	.0478358	-0.94	0.347	.8646683	1.052483
educ	.9056839	.0612835	-1.46	0.143	.7931944	1.034126

Table 11: Logistic Regression Results For Diagnosed Heart Disease

					Number of obs = 3389	
					LR chi2(5) = 257.98	
					Prob > chi2 = 0.0000	
					Pseudo R2 = 0.1644	
Log likelihood = -655.69505						
heart	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
age	2.340879	.1756445	11.34	0.000	2.02074	2.711738
sex	.5290568	.0807435	-4.17	0.000	.3922779	.7135276
location	1.033855	.1609492	0.21	0.831	.7619838	1.402729
income	.9634997	.0513824	-0.70	0.486	.8678764	1.069659
educ	.8092059	.0593872	-2.88	0.004	.700793	.9343903

Table 12: Logistic Regression Results For Stress

					Number of obs = 3389	
					LR chi2(5) = 197.72	
					Prob > chi2 = 0.0000	
					Pseudo R2 = 0.0421	
Log likelihood = -2249.0479						
stress	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
age	.7819369	.0172455	-11.15	0.000	.7488564	.8164786
sex	1.205373	.086467	2.60	0.009	1.047275	1.387338
location	1.237226	.090441	2.91	0.004	1.072078	1.427814
income	1.013594	.0253447	0.54	0.589	.9651169	1.064506
educ	1.191588	.0395677	5.28	0.000	1.116506	1.271718

Table 13: Logistic Regression Results For Life-Satisfaction

					Number of obs = 3389	
					LR chi2(5) = 61.17	
					Prob > chi2 = 0.0000	
					Pseudo R2 = 0.0307	
Log likelihood = -964.30811						
lifesat	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
age	.8236591	.0277479	-5.76	0.000	.7710308	.8798795
sex	.7316666	.0912538	-2.51	0.012	.5729952	.9342766
location	.9709188	.1235756	-0.23	0.817	.7565621	1.246009
income	.8001455	.0321806	-5.54	0.000	.7394945	.8657708
educ	1.055517	.0614252	0.93	0.353	.9417382	1.183043

Table 14: Logistic Regression Results For Decision Control

				Number of obs = 3389		
				LR chi2(5) = 95.56		
				Prob > chi2 = 0.0000		
				Pseudo R2 = 0.0324		
Log likelihood= -1425.1636						
Decision	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
age	.786529	.0211117	-8.95	0.000	.7462205	.8290149
sex	.8024888	.0776167	-2.27	0.023	.6639124	.9699898
location	1.417487	.14095	3.51	0.000	1.166483	1.722501
income	.9128041	.029994	-2.78	0.005	.85587	.9735255
educ	.9814445	.0449477	-0.41	0.683	.8971867	1.073615

Labour Force Activity

Consistent with labour force characteristics, Glace Bay respondents were more than three times as likely as those in Kings County to report that they were unemployed at the time of the survey (Table 15).

Table 15 : Labour Force Activity of Respondents

All Respondents	Glace Bay	Kings
Employed	42.7	60.9
Unemployed	13.5	4.3
Student	8.2	8.1
Homemaker	14.1	12.9
Retired	16.8	10.1
Other	4.7	3.6

The Glace Bay respondents were more likely to report that they were unemployed due to layoffs or a lack of suitable work. The role of health problems as a contributory factor in unemployment was not substantially different between the two areas (Table 16).

Table 16: Reason for Unemployment

Reason for unemployment	Glace Bay	Kings
Illness/Disability	11.8	13.1
Maternity/paternity leave	5.2	5.4
Personal/family responsibilities	6.6	3.1
Returning to school	5.2	5.4
Layoff, expecting to return to work	29.8	20.9
Waiting for new job to start	8.5	10.8
No transportation	1.4	2.3
No suitable work available	26.1	20.2
Other	5.2	18.6

Glace Bay respondents were also significantly more likely to be pessimistic about the probability of finding work and were more likely to have been unemployed for 52 weeks or longer. Among employed respondents, the Glace Bay group was more likely to report stress due to concerns about the threat of future layoffs (Table 17).

Table 17: Job Insecurity and Unemployment Duration

	Glace Bay	Kings
% of Unemployed Who Consider it Very Likely They'll Find a Job In Next Six Months	17.4	30.6
Percent of Unemployed Population Who Have Been Unemployed for 52 weeks or longer	27.9	19.2
Percent of Employed Respondents reporting Stress About Threat of Lay-off	17.3	12.2

In summary, the survey results are consistent with the employment characteristics of the two areas. The higher traditional levels of unemployment and job insecurity in Glace Bay are reflected in the results that were obtained from Glace Bay respondents.

Labour Force Activity and Health Status

To examine the relationship between health status and labour force activity, after controlling for age and gender, a logistic regression was carried out which utilized health status as the dependent variable (0=good, very good or excellent; 1= poor or fair health) among persons under age 65. Persons who classified themselves as unemployed, homemakers, retired or other were significantly more likely to report poor or fair health than employed persons (Table 18).

Table 18: Logistic Regression: Health Status and Labour Force Activity, Glace Bay and Kings County.

Log likelihood = -1619.556				Number of obs =	3585
				LR chi2(7) =	284.07
				Prob > chi2 =	0.0000
				Pseudo R2 =	0.0806
hlthstatus	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]
Unemployed	2.465017	.4344781	5.12	0.000	1.744974 3.482176
Student	.884278	.2974341	-0.37	0.715	.4573832 1.709611
Homemaker	2.641452	.3900158	6.58	0.000	1.977703 3.527966
Retired	2.533129	.3601008	6.54	0.000	1.917139 3.347042
Other	6.776704	1.339329	9.68	0.000	4.600334 9.982692
age	1.224558	.0541062	4.58	0.000	1.122974 1.335332
sex	.9090159	.0880147	-0.99	0.325	.7518905 1.098976

When this analysis was conducted separately for Glace Bay and Kings County respondents, the relationship between labour force activity and health status was mirrored in both locations. The

relationship between self-reported health status and unemployment, which has been reported in other studies was also apparent in Kings County and Glace Bay. It was notable, however, that the odds ratios for “retired” and “other” were larger in Glace Bay than Kings County (Table 19).

Table 19: Health Status and Labour Force Activity: Glace Bay and Kings County

	Kings Odds-Ratio With Employed	Glace Bay Odds Ratio With Employed
Unemployed	3.32 (p<.000)	2.72 (p<.000)
Student	.821 (NS)	1.15 (NS)
Homemaker	2.01 (p<.000)	4.07 (p<.000)
Retired	1.96 (p<.001)	3.77 (p<.000)
Other	3.53 (p<.000)	14.41 (p<.000)
Age	.079 (p<.000)	.079 (p<.000)
Sex	.96 (NS)	.96 (NS)

Although the two areas did not differ with respect to the overall health status of respondents, the relationship between health status and location varied dramatically by labour force activity for the working age population. In Glace Bay, unemployed respondents were more than three times as likely to report poor or fair health as those with jobs. In Kings County, the unemployed were 2.7 times as likely to have poor or fair health as those with jobs.

Table 20: Health Status and Labour Force Activity: Locational Effects

	Health Status Odds Ratio: Kings/ Glace Bay	P	Conclusion
Employed	1.56	<.02	Employed respondents in Kings County more likely to report poor health status.
Unemployed	1.80	<.08	Borders on significance
Student	1.14	<.8	Not significant
Homemaker	.95	<.8	Not significant
Retired	.76	<.24	Not significant
Other	.38	<.02	“Other” respondents in Glace Bay are more likely to report poor health status.

These results may result from the substantial difference between the two areas with respect to the labour force activity of persons who report poor or fair health (Pearson chi-square= 47.08. p<.000). Respondents who rated their health status as poor or fair were significantly more likely to be employed in Kings County than in Glace Bay (Table 21).

Table 21: III- Health and Labour Force Activity

	Percent of Working Age Persons Who Rate Their Health Status as Poor or Fair	
	Kings County	Glance Bay
Employed	45.31	17.96
Unemployed	7.76	13.06
Student	2.45	2.45
Homemaker	18.78	20.00
Retired	17.55	32.24
Other	8.16	14.29
Total	100.00	100.00

To further examine this relationship, a series of logistic regressions were developed which used employed vs. all other activities as the dependent variable and location age and gender as the independent variables. This allowed for the calculation of an “employment odds ratio” between Kings County and Glance Bay, after controlling for differences in age and gender between the two respondent groups. For all persons of working age, Kings County respondents were significantly more likely to be employed than their counterparts in Glance Bay (OR=2.11, $p<.000$). When the analysis was repeated for those respondents who reported their health status as good, very good or excellent, the relationship continued to be significant although the odds ratio dropped slightly (OR=1.78, $p<.000$). When the analysis was completed for persons who rated their health as poor or fair, the odds ratio increased substantially (OR= 3.58, $P<.001$). These results suggest that the “employment advantage” of Kings County residents applies to all persons, regardless of their health status but it is particularly pronounced for persons who rate their health status as poor or fair.’

It is possible, therefore, that employability problems related to health status may be more acute in Glance Bay than in Kings County. A partial explanation for this difference might lie in the higher rate of physical disability among the Glance Bay respondents. If, for example, health problems in Glance Bay are more likely to involve a physical disability than health problems in Kings County, the differing levels of disability among the “unhealthy” respondents in the two locations may account for the apparent lower rate of labour force participation among working age respondents with poor/fair health in Glance Bay.

To test this possibility, the analysis was repeated for persons who rated their health as poor or fair but did not report a physical disability. Due to sample size limitations, some activity categories were collapsed for this analysis. The results suggested that the disability issue did not account for the differences noted above. Working age persons in Kings County who rated their health status as poor or fair, but did not report a disability, were still substantially more likely to be employed than their counterparts in Glance Bay (Table 22).

In noting the correlation between unemployment and poor health, analysts have sometimes speculated about the direction of causality. Is unemployment partly attributable to poor health, or vice-versa? These results indicate that poor health is not likely a generic cause of unemployment. Rather, unemployment appears likely to produce poor health.

Table 22: Disability and Labour Force Activity

	Percent of Working Age Persons Who Rate Their Health Status as Poor or Fair and Did Not Report a Disability	
	Kings County	Gloucester Bay
Employed	61.42	34.15
Unemployed	8.66	15.85
Retired and Other	11.02	24.39
Homemaker and Students	18.9	25.61
Total	100.00	100.00

Summary

The relationship between poor health and unemployment, which has been found in a number of studies, was replicated in this analysis in two different communities with substantially different employability issues. Persons who were unemployed were significantly more likely to report poor or fair health than their employed counterparts, after controlling for the effects of age and gender. This effect, however, did not translate into poorer self-reported health among Gloucester Bay respondents, despite their higher levels of unemployment. The two areas did not differ significantly with respect to the percentage of respondents who reported poor or fair health, after controlling for differences in age and gender between the two respondent groups. Despite the lack of differential in self-reported health status, Gloucester Bay respondents were significantly more likely to report disabilities and activity limitations as well as two chronic conditions - high blood pressure and diabetes. Kings County residents were more likely to report high stress levels and lower levels of control over decisions affecting their life.

Beyond this, however, the relationship between employment and health status proved to be complex, with some interesting contrasts developing between the two communities.

Although the two communities did not differ significantly in self-reported health status, after controlling for age and gender, significant differences did arise for specific labour force participation groups. Employed persons in Kings County were significantly more likely to report poor/fair health than employed persons in Gloucester Bay. The same relationship appeared to exist for unemployed persons, but did not attain statistical significance. Conversely, persons who reported their activity as “other” in Gloucester Bay were significantly more likely to report ill-health than their counterparts in Kings County.

Further analysis suggested that the “employment advantage” of living in Kings County was particularly strong for working age persons who described their health as only poor or fair. Although both “healthy” and “unhealthy” Kings County residents were more likely to be employed than those in Gloucester Bay, the advantage was particularly strong in the “unhealthy” group. These differences did not appear to be due to a higher level of disability among Gloucester Bay respondents.

Employment-Related Stress

There were substantial differences between the two locations with respect to work-related stresses. Based upon a logistic regression analysis which controlled for differences between the two areas with respect to age and gender, employed Kings County respondents were significantly more likely to report stresses related to excess demands, excess hours, too little autonomy, interpersonal problems and other sources. Glace-Bay respondents were significantly more likely to report stresses related to the threat of layoffs and the potential for accidents/injuries on the job (Table 23).

Table 23: Job-related Stresses for Employed Respondents: Kings vs Glace Bay

Source of Stress	Kings	Glace-Bay	Odds-Ratio, Controlling for Age and Gender Kings/GB
Too many demands	41.39	30.78	1.60 p<.000
Too many hours	20.17	9.86	2.29 p<.000
Not enough autonomy	14.15	10.20	1.43 p<.03
Risk of accident or injury	8.3	12.1	.64 p<.01
Interpersonal problems	19.01	9.35	2.31 p<.000
Possible layoffs	12.25	17.35	.670 p<.007
Other	8.66	6.12	1.44 p<.07

All of the sources of job stress were significantly related to the respondents' reports of life-stress. For example, 42.2% of respondents who did not report "too many demands" as a source of stress reported that their lives were somewhat or very stressful, compared to seventy-nine percent of respondents who reported excess demands as a source of stress. Similar associations were found for all sources of job stress (Table 24).

Kings County respondents were significantly more likely to report that their lives were somewhat or highly stressed than the Glace Bay respondents, despite the more positive employment situation among the Kings group. When this logistic regression analysis is repeated for each labour force activity group, the possible dynamics of this association became apparent. The higher rates of stress within the Kings County group appear to be largely attributable to higher rates of stress within the employed and unemployed groups. No significant differences were found by location for students, homemakers, retired or other respondents (Table 25).

Table 24: Job-Related Stress and Life-Stress

Source of Work-Related Stress	Percent of Low Work Stress Respondents Reporting Life Stress as Very or Somewhat	Percent of High Work Stress Respondents Reporting Life Stress as Very or Somewhat	Chi-Square
Too many demands	42.2	79.1	292.21 p<.000
Too many hours	46.0	80.26	130.91 p<.000
Not enough autonomy	46.7	79.91	96.51 p<.000
Risk of accident or injury	47.2	78.72	70.74 p<.000
Interpersonal problems	46.93	72.04	64.98 p<.000
Possible layoffs	46.96	69.87	58.15 p<.000
Other	47.89	69.05	28.71 p<.000

Table 25: Stress Odds-Ratios For Activity Groups By Location

	Stress Odds-Ratio for Location, controlling for age and gender	Significance
All Respondents	1.29	P<.000
Employed	1.51	P<.000
Unemployed	1.88	P<.03
Students	1.31	P<.31 NS
Home-makers	.927	P<.68 NS
Retired	.929	P<.63 NS
Other	.740	P<.42 NS

Employed persons within Kings County experience higher levels of job stress than their counterparts in Glace Bay from excess demands, excess hours, too little autonomy and interpersonal problems. Glace Bay respondents were more likely to report stresses due to potential layoffs and the risks of injury.

In summary, the various job-related stresses included in this survey were strongly related to respondents' ratings of general life-stress. The higher concentration of "stressed" persons in the Kings County group appeared to be largely attributable to higher rates of job stress within the employed population and higher rates of stress associated with unemployment in Kings County, when compared to Glace Bay respondents.

The lower stress rates associated with unemployment in Glace Bay may be partly due to residents there being more accustomed to being unemployed and less socially marginalized by unemployment status, than in an area like Kings County where employment is a more essential condition for social integration.

This conclusion would be consonant with Marie Jahoda's work on the social and psychological functions of employment and consequences of unemployment. Jahoda's seminal studies of the 1930s Depression showed that employment provides far more than income (Jahoda 1982):

"Employment makes the following categories of experience inevitable: it imposes a time structure on the waking day; it compels contacts and shared experiences with others outside the nuclear family; it demonstrates that there are goals and purposes which are beyond the scope of an individual but require a collectivity; it imposes status and social identity through the division of labour in modern employment; it enforces activity...."

Logically, however, a community with chronically high rates of unemployment may be more likely to establish compensatory or alternative mechanisms for some of these functions than one in which employment is relied on for these basic experiences.

To examine the relationship between life-stress and a variety of employment-related issues, a logistic regression analysis was carried out which used the binary stress variable (life is not at all/not very stressful vs somewhat/very stressful) as the dependent variable for working age respondents (Tables 26 - 28). All of the job-related stresses, with the exception of interpersonal problems, showed a significant relationship with reported life stress. "Too many demands" showed the strongest relationship, followed by "too many hours" and "risk of injury". Working shifts and being unemployed did not show a significant relationship with life-stress while age and "being female" showed significant positive relationships. The latter finding accords with results from Statistics Canada's time use surveys, which find women (particularly working mothers) to be significantly more time-stressed than men.

Table 26: Predictors of Life-Stress For All Respondents: Logistic Regression

					Number of obs =	2914
					LR chi2(11) =	307.10
					Prob > chi2 =	0.0000
					Pseudo R2 =	0.0765
Log likelihood = -1852.8095						
Stress	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
Threat of layoffs	1.571103	.2249705	3.16	0.002	1.18664	2.080131
Too many demands	2.936889	.3488778	9.07	0.000	2.326869	3.706834
Too many hours	1.941183	.3190214	4.04	0.000	1.40662	2.678898
Too little autonomy	1.594438	.3032866	2.45	0.014	1.098237	2.31483
Risk of Injury	1.946284	.3826708	3.39	0.001	1.323873	2.861318
Interpersonal	1.080182	.1732897	0.48	0.631	.7887544	1.479286
Other worries	1.538491	.2814862	2.35	0.019	1.074872	2.202079
Working shifts	.9469325	.0843128	-0.61	0.540	.795298	1.127478
Being Unemployed	1.267077	.1824497	1.64	0.100	.9555128	1.680234
Age	.9304198	.0243807	-2.75	0.006	.8838408	.9794536
Being female	1.428801	.1149016	4.44	0.000	1.220449	1.672722

Similar results were obtained for both Glace Bay and Kings County respondents.

Table 27: Predictors of Life-Stress For Glace-Bay Respondents

					Number of obs=	1366
					LR chi2(11) =	111.27
					Prob > chi2 =	0.0000
					Pseudo R2 =	0.0588
Log likelihood= -891.18912						
stress	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Threat of layoff	1.553129	.3034785	2.25	0.024	1.058972	2.27788
Too many demands	2.998021	.5851816	5.63	0.000	2.044981	4.395214
Too many hours	1.674608	.5075187	1.70	0.089	.9245745	3.033084
Too little autonomy	1.170511	.3753134	0.49	0.623	.6243751	2.194347
Risk of injury	2.095512	.5704298	2.72	0.007	1.229081	3.572728
Interpersonal	1.060281	.3355857	0.18	0.853	.5701773	1.971658
Other worries	1.554135	.461681	1.48	0.138	.8682112	2.781967
Working Shifts	1.071916	.1466631	0.51	0.612	.8197785	1.401603
Being Unemployed	1.19522	.2058612	1.04	0.300	.8527852	1.675161
Age	.9254562	.0358304	-2.00	0.045	.8578283	.9984156
Being Female	1.421565	.165584	3.02	0.003	1.131407	1.786137

Table 28: Predictors of Life-Stress For Kings County Respondents

					Number of obs=	1548
					LR chi2(11) =	183.88
					Prob > chi2 =	0.0000
					Pseudo R2 =	0.0877
Log likelihood= -956.67191						
stress	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Threat of layoff	1.663336	.3587164	2.36	0.018	1.089957	2.538346
Too many demands	2.866829	.4347842	6.94	0.000	2.12965	3.859182
Too many hours	1.964907	.389583	3.41	0.001	1.332213	2.898078
Too little autonomy	1.818784	.4362513	2.49	0.013	1.136614	2.910377
Risk of injury	1.931261	.5557429	2.29	0.022	1.098748	3.394565
Interpersonal	1.018179	.1917018	0.10	0.924	.7039803	1.472609
Other worries	1.505941	.3525352	1.75	0.080	.951798	2.382709
Working shifts.	.8891505	.1057672	-0.99	0.323	.7042425	1.122609
Being unemployed	1.680116	.4829152	1.81	0.071	.956486	2.951208
Age	.9344278	.0334274	-1.90	0.058	.8711553	1.002296
Being female	1.432244	.1608911	3.20	0.001	1.149204	1.784993

The potential health impacts of the life-stress and job-stress factors noted above have been well documented in the epidemiological literature. For example, in a wide ranging review of the literature, the *American Journal of Health Promotion* found that stress was the most costly of all modifiable risk factors – including smoking, obesity, physical inactivity, high blood cholesterol, and high blood pressure (Goetzel 2001).

A very different set of relationships was found when “life-satisfaction” was utilized as the dependent variable. In this case, a binary variable was constructed whereby 1=somewhat/very dissatisfied with life and 0= somewhat/very satisfied with life. As presented in Table 29, only two of the job-related stresses arose as significant predictors - risk of injury and interpersonal problems. In contrast to the results pertaining to life-stress, working shifts, being unemployed and age also emerged as significant predictors. With the exception of the significance of “risk of injury” in both cases, the results pertaining to life-satisfaction were the reverse of the results pertaining to life-stress.

Table 29: Predictors of Life-Satisfaction for All Respondents

					Number of obs=	2914
					LR chi2(11) =	106.73
					Prob > chi2 =	0.0000
					Pseudo R2 =	0.0580
Log likelihood= -866.38477						
lifesat	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
Threat of layoff	.9548752	.202332	-0.22	0.827	.630351	1.446475
Too many demands	.921243	.175924	-0.43	0.668	.6336152	1.339439
Too many hours	.7595337	.1825597	-1.14	0.252	.4741921	1.216578
Too little autonomy	.8964785	.2325288	-0.42	0.674	.5392063	1.490475
Risk of injury	2.072845	.47146	3.20	0.001	1.327286	3.237197
Interpersonal	2.240573	.4764965	3.79	0.000	1.47685	3.39924
Other worries	1.293353	.3419193	0.97	0.331	.7703496	2.171432
Working shifts	2.068514	.3447475	4.36	0.000	1.492085	2.867632
Being unemployed	2.74938	.4852582	5.73	0.000	1.94536	3.885702
Age	.8916645	.0363615	-2.81	0.005	.8231709	.9658573
Being female	.8267891	.1084145	-1.45	0.147	.6394096	1.06908

Once again, the results were similar for both Glace-Bay and Kings County respondents (Tables 30 and 31).

Table 30: Predictors of Life-Satisfaction For Glace-Bay Respondents

Log likelihood= -431.52318				Number of obs =	1366
				LR chi2(11) =	44.26
				Prob > chi2 =	0.0000
				Pseudo R2 =	0.0488
lifesat	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]
Threat of layoff	.5832401	.1952713	-1.61	0.107	.3025947 1.124174
Too many demands	.9472967	.3015635	-0.17	0.865	.5075906 1.767903
Too many hours	.8853312	.3852864	-0.28	0.780	.3772873 2.077492
Too little autonomy	.9391909	.4571231	-0.13	0.897	.3617903 2.438096
Risk of injury	2.115401	.7264615	2.18	0.029	1.079138 4.146756
Interpersonal	.99694	.4975755	-0.01	0.995	.374828 2.651588
Other worries	1.313999	.5734619	0.63	0.532	.558611 3.090869
Working shifts	1.888908	.4989785	2.41	0.016	1.125526 3.170051
Being unemployed	2.838345	.6275139	4.72	0.000	1.840254 4.377767
Age	.9494415	.0579084	-0.85	0.395	.8424646 1.070002
Being female	.9045354	.1684143	-0.54	0.590	.6279737 1.302896

Table 31: Predictors of Life-Satisfaction For Kings County Respondents

Log likelihood= -427.24054				Number of obs =	1548
				LR chi2(11) =	76.05
				Prob > chi2 =	0.0000
				Pseudo R2 =	0.0817
Lifesat	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]
Threat of layoffs	1.608391	.4519552	1.69	0.091	.9272682 2.789831
Too many demands	.960103	.2342917	-0.17	0.867	.5951152 1.54894
Too many hours	.6814812	.1997437	-1.31	0.191	.3836761 1.210439
Too little autonomy	.8510147	.2661639	-0.52	0.606	.4610147 1.570939
Risk of injury	2.27744	.7186546	2.61	0.009	1.227007 4.227141
Interpersonal	2.824236	.6968986	4.21	0.000	1.741251 4.580791
Other worried	1.272438	.4300627	0.71	0.476	.6560616 2.467905
Working shifts	2.222034	.4866906	3.65	0.000	1.44648 3.413413
Being unemployed	2.850048	.9101783	3.28	0.001	1.52411 5.329519
Age	.8434892	.0471642	-3.04	0.002	.7559343 .9411849
Being female	.73253	.1379385	-1.65	0.098	.5064547 1.059523

These results strongly suggest that different employment-related factors affect life-stress and life-satisfaction. Whereas stress was predicted by job-related problems such as too many

demands and too many hours, life-satisfaction was not. By contrast, working shifts or being unemployed did not appear to predict life-stress but arose as important predictors of life-satisfaction. Job stressors such as “too many demands” were not predictive of life-satisfaction.

Further work with the Community GPI database is required to assess the health implications of these findings and to determine the degree to which job stress, life stress, and life satisfaction are related to particular health outcomes. Future research using the Community GPI database might therefore *compare* the health outcomes linked with job stress, life stress, and life satisfaction with a view to understanding the relationships among different variables. For example, it is possible to hypothesize here that people who like their jobs (and therefore have higher levels of life satisfaction) are also tempted to put in too many hours at those jobs and therefore be highly stressed. These and other hypotheses based on the preliminary results provided here merit further investigation.

Income And Stress

Stress and income were related in a non-linear fashion, with the highest rates of stress reported among the highest and lowest income groups. This relationship may suggest an optimal income range for low stress. This connection between stress and income bracket was apparent among both the Kings County and Glace Bay respondents but appeared to be stronger among the former.

Table 32: Percentage of Each Income Group Reporting That Life Is Somewhat or Very Stressful

	Total	Glace Bay	Kings County
-10,000	55.90	54.78	57.50
10,000-19,999	47.65	50.00	43.35
20,000-34,999	42.87	38.85	47.96
35,000-49,999	52.44	50.81	53.71
50,000+	53.19	47.4	55.74

To test for locational differences across income groups, the income data were re-categorized into three groups and logistic regression analysis was carried out for each group, using the binary stress variable as the dependent variable (0= life is not very or not at all stressed, 1= life is somewhat or very stressed) (Tables 33 – 35). The higher levels of stress in Kings County were only apparent in the middle and higher income groups. There was no significant difference between Glace Bay and Kings County in the reported life-stress of persons with a household income of less than twenty thousand dollars.

Table 33: Relationship between Location and Life-Stress For Respondents With a Household Income of Less Than \$20,000; Logistic Regression

Log likelihood= -458.83416				Number of obs =	682
				LR chi2(3) =	27.78
				Prob > chi2 =	0.0000
				Pseudo R2 =	0.0294
stress	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]
age	.8051482	.0353315	-4.94	0.000	.7387941 .8774619
sex	1.247175	.2040007	1.35	0.177	.9050989 1.718536
location	.8829991	.1432984	-0.77	0.443	.6424246 1.213664

Table 34: Relationship between Location and Life-Stress For Respondents With a Household Income of \$20,000 to \$34,999; Logistic Regression

Log likelihood= -534.85463				Number of obs =	818
				LR chi2(3) =	47.20
				Prob > chi2 =	0.0000
				Pseudo R2 =	0.0423
stress	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]
age	.7621722	.0337513	-6.13	0.000	.6988103 .8312791
sex	.9626648	.1417569	-0.26	0.796	.7213262 1.28475
location	1.462246	.2135805	2.60	0.009	1.098224 1.946927

Table 35: Relationship between Location and Life-Stress For Respondents With a Household Income of \$35,000 and Over; Logistic Regression

Log likelihood= -1221.1868				Number of obs =	1818
				LR chi2(3) =	72.41
				Prob > chi2 =	0.0000
				Pseudo R2 =	0.0288
stress	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]
age	.8027086	.0256538	-6.88	0.000	.7539705 .8545972
sex	1.393538	.1338496	3.45	0.001	1.154412 1.682198
location	1.331644	.1332368	2.86	0.004	1.094515 1.620147

Given the important relationship between job-stresses and life-stress, a subsequent analysis was conducted of employed respondents that examined the weight of each job-related stress within the three income groups. As presented in Table 36, there were substantial effects. Significant differences arose between the income groups with respect to demands, hours and interpersonal relationships. There were no significant differences in autonomy, risk, fear of lay-offs or “other”. In the case of “too many demands”, the middle and higher income groups reported similar levels of stress, which were higher than the lower income group. A similar result emerged with respect to the interpersonal-conflict stressor. The significant relationship between income group and the “too many hours” stressor was more linear in nature, with a substantial increase in stress with each increase in income.

Table 36: Job Stresses and Income

Source of Work-Related Stress	Percent of Employed Respondents With Household Income of Less Than 20,000 Reporting Source of Stress	Percent of Employed Respondents With Household Income of 20,000-34,999 Reporting Source of Stress	Percent of Employed Respondents With Household Income of 35,000+ Reporting Source of Stress	Chi-Square
Too many demands	22.73	37.32	39.69	12.25 p<.002
Too many hours	8.18	12.68	18.22	10.8 p<.004
Not enough autonomy	8.18	12.32	13.60	2.71 p<.257
Risk of accident or injury	11.82	12.68	8.97	3.89 p<.143
Interpersonal problems	8.18	13.41	16.93	7.05 p<.029
Possible layoffs	15.45	14.49	14.06	.1755 p<.916
Other	4.55	6.88	8.70	2.94 p<.230

CONCLUSIONS

This series of analyses yielded a variety of interesting results that will contribute to the understanding of the dynamics of work and health. The opportunity to address these issues in two rural communities with very different employment contexts has yielded valuable results.

Somewhat unexpectedly, the traditional economic problems of Glace Bay, relative to Kings County, did not express itself in lower self-reported health status or higher stress levels. There

was some indication of more frequent health problems in Glace Bay (activity limitations, disabilities and some chronic diseases) but these differences were not reflected in lower ratings of self-reported health status.

Important differences did arise, however, with respect to specific labour force activity groups. Most notably, there was a significantly higher proportion of employed persons with poor or fair health in Kings County than in Glace Bay. In addition, a substantially higher proportion of persons with poor/fair health were employed in Kings County. It appeared, therefore, that the “employment advantage” of residing in Kings County was particularly strong among persons who rated their health as poor or fair. This effect did not appear to be due to problems of physical disability among persons of poor health.

The study confirmed the results of a number of other studies concerning the relationship between poor health status and unemployment. Unemployed persons in both Glace Bay and Kings County were more likely to report poor or fair health than employed persons.

The relationship between work and stress emerged as more complex. When asked to rate the level of stress in their lives, the Kings County respondents were significantly more likely to report that their lives were somewhat or very stressful than the Glace Bay group, despite the superior economic circumstances of the Kings County respondents. The elevated stress levels were predominantly apparent in employed and unemployed respondents in Kings County. These results suggested that the higher rates of stress in Kings County were due to both higher levels of job stress and a higher level of stress associated with unemployment.

A series of subsequent analyses confirmed the tentative conclusions pertaining to job stresses. Employed Kings County respondents were significantly more likely to report stresses related to excess demands, excess hours, too little autonomy, interpersonal problems and other sources. Glace-Bay respondents were significantly more likely to report stresses related to the threat of layoffs and the potential for accidents/injuries on the job. Overall, Kings County residents reported more job-related stress than Glace-Bay respondents, and levels of job-stress were strongly related to reported levels of life-stress.

Unemployment or shift work was not strongly related to stress but both emerged as important predictors of life-satisfaction, while the job-related stress factors were not related to satisfaction. These results strongly suggest that different employment-related factors affect life-stress and life-satisfaction. Whereas stress was predicted by job-related problems such as too many demands and too many hours, life-satisfaction was not. By contrast, working shifts or being unemployed did not appear to predict life-stress but arose as important predictors of life-satisfaction. Job stressors such as “too many demands” were not predictive of life-satisfaction. In fact, the results may indicate that people who like their jobs (and thus have higher levels of life satisfaction) also overwork and thus experience high stress. This possible relationship requires further investigation.

The analysis also identified a complex relationship between income and stress within these two communities. In both groups, the relationship was U-shaped, with the highest levels of reported stress occurring at the lowest and highest income groups and the lowest level of stress reported in

the middle-income group. The higher levels of stress in Kings County were only apparent in the middle and higher income groups. There was no significant difference between Glace Bay and Kings County in the reported life-stress of persons with a household income of less than twenty thousand dollars.

To some extent, the income-stress distribution at the upper end of the income spectrum appeared to be attributable to job-stresses. Significant differences arose between the income groups with respect to demands, hours and interpersonal relationships, with the middle and higher income groups reporting higher levels of stress. There were no significant differences in autonomy, risk, fear of lay-offs or “other.” In each of the significant stressors, the higher income group reported somewhat higher rates of stress than the middle group, but the most pronounced difference between the groups was in “working too many hours,” – with each increase in income related to a significant increase in stress due to apparent overwork.

The results might account for the upper half of the U-shaped relationship between stress and income. In other words, as income increases, the demands and pressures of work also increase. If this were the only factor at work, the relationship between stress and income would be linear in nature, with lower income persons experiencing the least stress. In reality, their reported levels of stress are as high as the upper income respondents but the sources of this stress do not appear to be related to work demands. Clearly, there a variety of other poverty-related stresses which are operating at the lower end of the income spectrum.

In light of the serious demonstrated health consequences of stress, the results indicate a need to consider the trade-offs that occur when people work longer hours to earn more money. They also demonstrate the need to consider new policy options that have been successfully tried in Europe – like a redistribution of work hours that can reduce the hours of the over-worked while making more hours available to the unemployed and underemployed.

Further research needs are also indicated by the results. This analysis represents the first systematic use of the rich, new Community GPI database for Glace Bay and Kings County. Further investigation should examine issues like:

- the relationship between job stress, life stress, life satisfaction and health outcomes;
- the health status of the *underemployed*, particularly involuntary part-time workers;
- the health status of the unemployed when the official definition of unemployment is expanded to include discouraged workers and others who want a job but have not looked for one in the previous four weeks;
- the relationship between actual hours of work (including paid and unpaid overtime) and health outcomes, to determine whether short and/or long hours are associated with stress and health status;
- whether those who are currently overworked want to reduce their work hours in order to alleviate stress;
- the relationship between unemployment, overwork, job stress and other employment characteristics on the one hand and health behaviours on the other. For example, as several studies have correlated smoking with stress, it will be interesting to investigate the degree to which those working long work hours and experiencing high levels of work demand manifest unhealthier lifestyle behaviours.

- the degree to which intervening variables, like strong social supports and social networks, may ameliorate potentially adverse health outcomes due to high unemployment and job insecurity in Glace Bay.
- the degree to which unpaid care-giving obligations exacerbate life or work stress, and impact life satisfaction and health outcomes.
- the degree to which voluntary community commitments exacerbate life or work stress, and impact life satisfaction and health outcomes.

Data on these and many other employment characteristics, unpaid work activities, and work schedules, as well as a wide range of health behaviours, health outcomes, and other variables, are all contained in the Community GPI database. In fact, this initial analysis and the many provocative hypotheses that flow from it indicate the extraordinary value and remarkable utility of this new community-level data source in elucidating the pathways between key social determinants of health and particular health outcomes.

The database is unique in that the same respondents answered questions on a wide range of employment characteristics, health outcomes, and other aspects of wellbeing at the community level – thus allowing careful investigation of correlations that are more elusive in surveys that focus more exclusively on either labour force activity, health, or other issues in isolation. Because Statistics Canada sample sizes are generally insufficient to provide this level of detail at the community level, this is the first community-level survey in Canada that allows for in-depth investigation of these relationships.

In addition, it is hoped that this and future analyses will provoke consideration of policy implications and new policy options at the community level. For example, if the unemployed and those in fear of layoff both have poorer health status, this indicates that a very substantial portion of the Glace Bay population (more than 30%) may be at significant health risk. If discouraged workers and involuntary part-timers are found to manifest similar results and are added to the calculation, the percentage could be even higher. This would seem to indicate that both job creation and enhanced job security are potentially important investments in population health that could avoid substantial future health costs.

As well, the U-shaped income-stress curve, indicating higher stress among both the poor and rich than among middle-income groups, has important implications for the potential role of greater income equity in improving health outcomes. Policies, such as those in the Netherlands, which have sought to redistribute work hours by reducing the hours of the overworked and making the additional hours available to the unemployed and underemployed, may be highly relevant here. Such policies have not been as prominent on North American policy agendas as in Europe, but the results demonstrated here indicate that they may be worthy of consideration.

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Appendix 2: Tobacco Use in Kings County and Glace Bay

Cigarette Smoking: An Introductory Comparison of Results from the Glace Bay and Kings County Community Health Surveys

March 25, 2004

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Introduction

In 2001-2002, community health surveys were randomly sent to residents of the town Glace Bay and the region of Kings County, Nova Scotia. The purpose was to measure quality of life and overall wellbeing, and to assess the key determinants of population health in the two communities. 1708 surveys were returned from Glace Bay, and 1898 surveys were returned from Kings County. Overall, an extremely high response rate was achieved even though the surveys were very lengthy.

Glace Bay is a community on Cape Breton Island. It is home to approximately 19,000 people and is part of industrial Cape Breton, which is the fourth largest urban area in Atlantic Canada. Kings County is somewhat different. The region is about one hour away from the city of Halifax and is residence to approximately 50,000 people. This report examines the similarities and differences between Glace Bay and Kings County with regard to cigarette smoking. We pay particular attention to the relationship between cigarette smoking and variables such as employment, income and education levels.

The two areas in our study represent contrasting profiles of rural communities. Glace Bay is heavily invested in the mining industry. The area has recently suffered a major economic setback with the closing of area coal mining operations. Kings County is one of the more affluent rural areas in Nova Scotia with a strong agricultural base, as well as active logging, fishing, manufacturing and service industries.

Between 2001 and 2003, these two communities were involved in the design and implementation of a comprehensive community survey in partnership with GPI Atlantic and several other partners. The purpose of the survey was to collect baseline data for the monitoring of community well being and progress. The questionnaire survey was comprehensive, examining a variety of topics including:

- Household demographics
- Labour Force Activity
- Health
- Core Values
- Care giving
- Voluntary Activity and Community Service
- Personal Security and Crime
- Ecological Footprint
- Time Use

This paper will first examine some simple demographics and descriptive statistics. Then a more concentrated examination of smoking habits is as well as a more detailed analysis of several variables is completed. Finally we suggest new areas of potential research and some readings for interested readers.

We note that despite the breadth of this overview a few very important and precise pieces of information are obtained. We note a significant difference in the incidence of cigarette smoking

between respondents in Glace Bay and Kings County. This was also the case for cigarette smoking in the house. This analysis suggests employment status is significantly correlated with cigarette smoking. We also found that higher levels of education are correlated with lower smoking rates.

Of particular interest is the relationship between employment status and cigarette smoking. Respondents who are unemployed are much more likely to be daily smokers than respondents who were employed, students, homemakers or retired. Although the relative magnitude is greater in Glace Bay, we noted that this is true for both regions in our study when each is examined independently.

When we controlled for further issues, such as location, gender, age, household earnings and education we still noted a significant relationship between employment status and cigarette smoking. A strong positive and significant correlation exists between being unemployed and cigarette smoking.

We remind readers to be cautious in interpreting a significant relationship with causation. In particular, we suggest it may be possible that another external factor links and indeed joins, cigarette smoking, employment status and life stress measures.

Demographics and Descriptive Statistics

We begin our examination of the data with brief overview of some of the more general and stylized statistics. Tables 1 through 6 examine variable such as gender, age, household earnings, education levels and employment status. We did not note a significance difference in the gender distribution of respondents in the two locations is present. (Table and Figure 1)

We did note a significance difference in the age distribution of respondents in the two locations. The Kings County sample contained a larger proportion in their late thirties, early forties and a smaller proportion in their early twenties. (Table and Figure 2)

Table 1: Gender of Respondents (in percentage)

<u>Gender</u>	<u>Glace Bay</u>	<u>Kings County</u>
Male	42.6	44.6
Female	57.1	54.6
No response	0.2	0.8
Pearson Chi-Square = 1.739 p<0.187		

Figure 1: Gender of Respondents (in percentage)

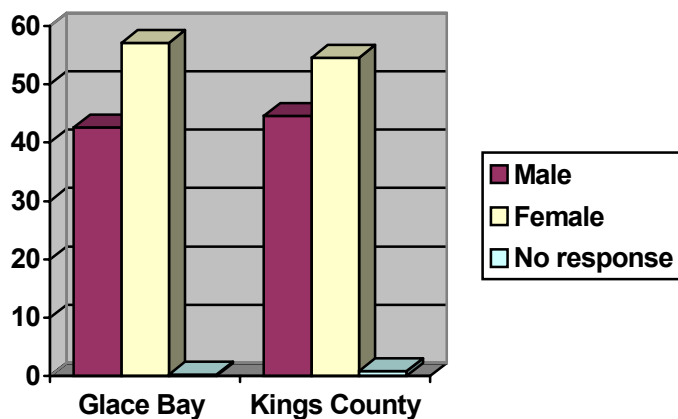
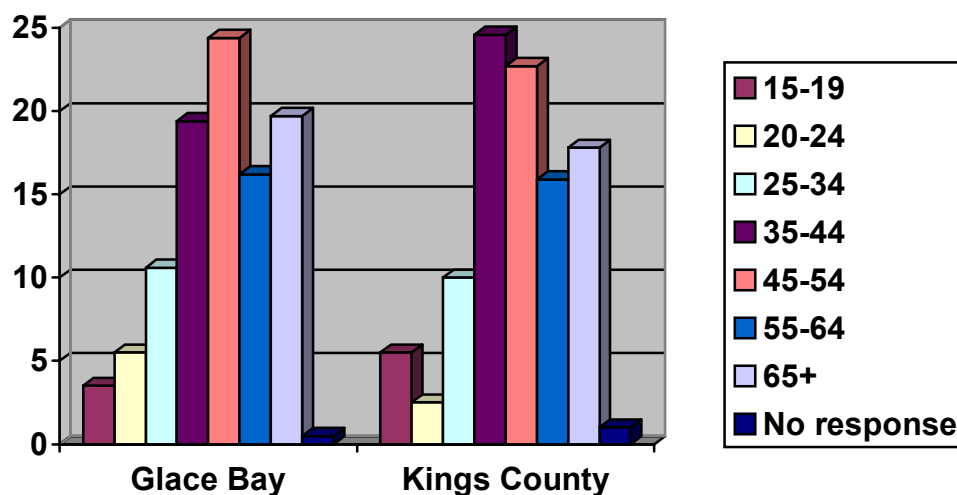


Table 2: Age Groups of Respondents (in percentage)

Age	Glace Bay	Kings County
15-19	3.5	5.5
20-24	5.5	2.5
25-34	10.6	10.0
35-44	19.4	24.6
45-54	24.4	22.7
55-64	16.2	15.9
65+	19.7	17.8
No response	0.5	1.0

Pearson Chi-Square = 42.494 p<0.000

Figure 2: Age Groups of Respondents (in percentage)



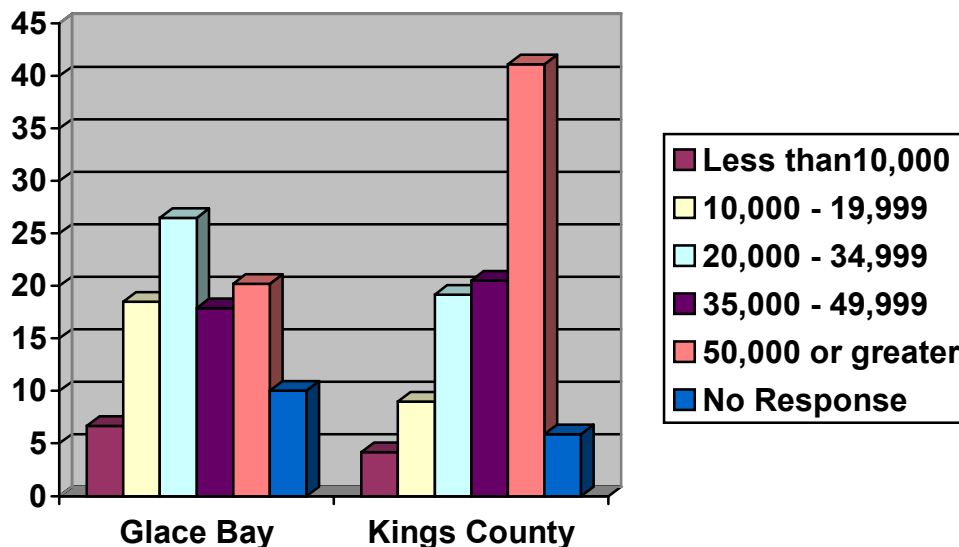
There was also a significant difference in the income distribution of the two sets of respondents, with a substantially larger proportion of Glace Bay residents in the lower income brackets. We note especially the percentage of residents with household incomes \$50,000 or greater. (Table and Figure 3)

Table 3: Total Household Income Brackets of Respondents (in percentage)

Income Group	Glace Bay	Kings County
Less than10,000	6.7	4.2
10,000 - 19,999	18.5	9.0
20,000 - 34,999	26.5	19.2
35,000 - 49,999	17.9	20.5
50,000 or greater	20.2	41.1
No Response	10.01	5.9

Pearson Chi-Square = 255.064 $p < 0.000$

Figure 3: Total Household Income Brackets of Respondents (in percentage)



For education levels we observe that Glace Bay respondents also had a substantially lower proportion of respondents with higher levels of educational attainment. In Glace Bay almost sixty percent of the respondents did not have more than a high school education. For Kings County this figure is just over forty percent. (Table and Figure 4)

Employment status for respondents in Glace Bay was also significantly different than in Kings County. Glace Bay had a substantially lower proportion of respondents employed and a substantially higher level of respondents that were retired. We note a key difference in the percentage of respondent reporting “unemployed” in Glace Bay and Kings County. (Table and Figure 5)

Table 4: Highest Level of Education Attained by Respondents (in percentage)

Education Level	Glace Bay	Kings County
Primary to Eight	10.2	5.3
Grade Nine to Twelve	49.6	36.7
Community College	18.8	21.1
University Degree	10.5	17.3
Other	9.5	9.1
No response	1.3	10.5

Pearson Chi-Square = 86.312 $p < 0.000$

Figure 4: Highest Level of Education Attained by Respondents (in percentage)

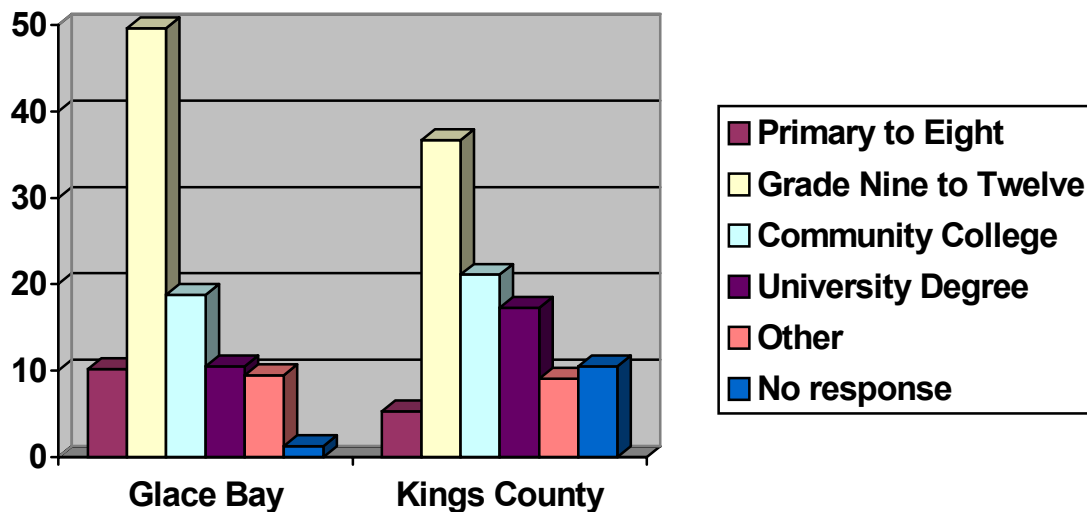
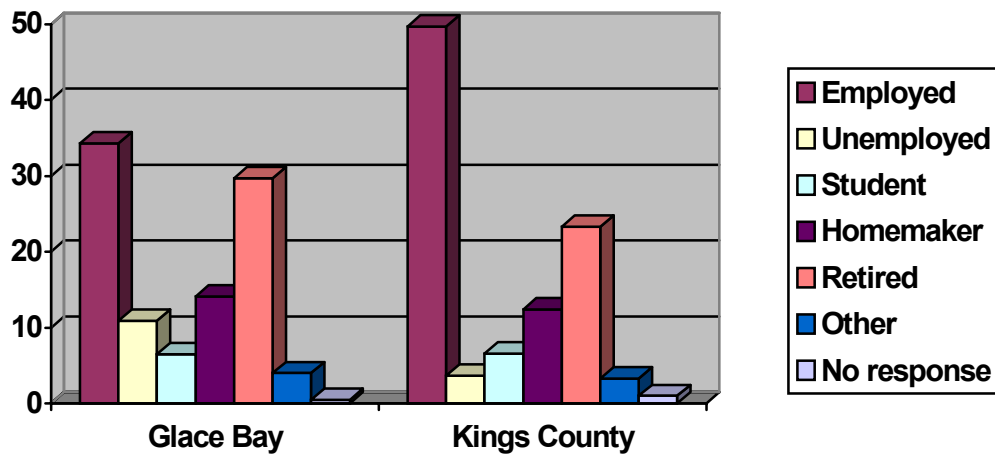


Table 5: Employment Status of Respondents (in percentage)

Employment Status	Glace Bay	Kings County
Employed	34.3	49.7
Unemployed	10.9	3.7
Student	6.5	6.6
Homemaker	14.1	12.4
Retired	29.7	23.3
Other	4.0	3.3
No response	0.5	1.0

Pearson Chi-Square = 132.094 $p < 0.000$

Figure 5: Employment Status of Respondents (in percentage)



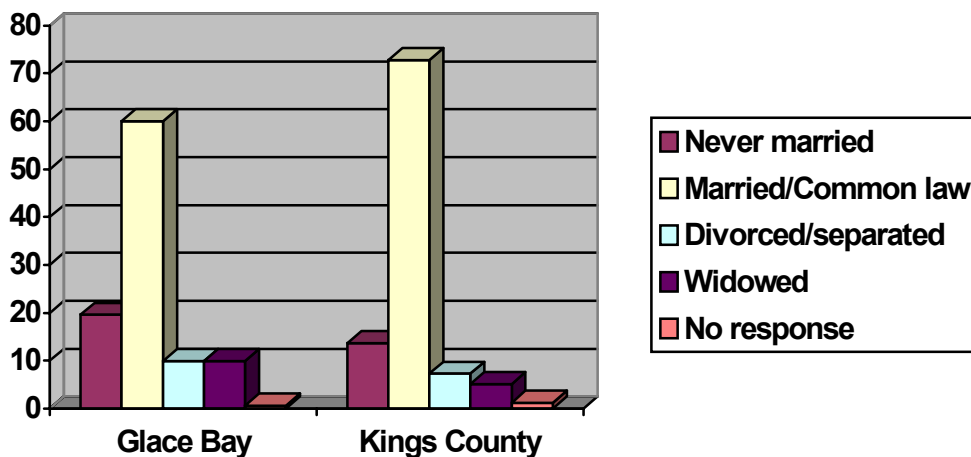
Kings County respondents also had a substantially higher proportion of respondents that were married or living common law and a significantly lower proportion of respondents that have never been married. This may be linked to the age distribution. (Table and Figure 6)

Table 6: Marital Status of Respondents (in percentage)

Marital Status	Glace Bay	Kings County
Never married	19.6	13.7
Married/Common law	60.0	72.8
Divorced/separated	9.9	7.3
Widowed	9.9	5.1
No response	0.6	1.2

Pearson Chi-Square = 76.360 $p < 0.000$

Table 6: Marital Status of Respondents (in percentage)



Incidence of Smoking

We turn our attention now to a more detailed analysis of cigarette smoking. To start, we examine some comparisons between Glace Bay and Kings County. For current “participation” there is a clear distinction between Glace Bay and Kings County with Glace Bay respondents reporting a significantly higher cigarette-smoking rate. (Table and Figure 7)

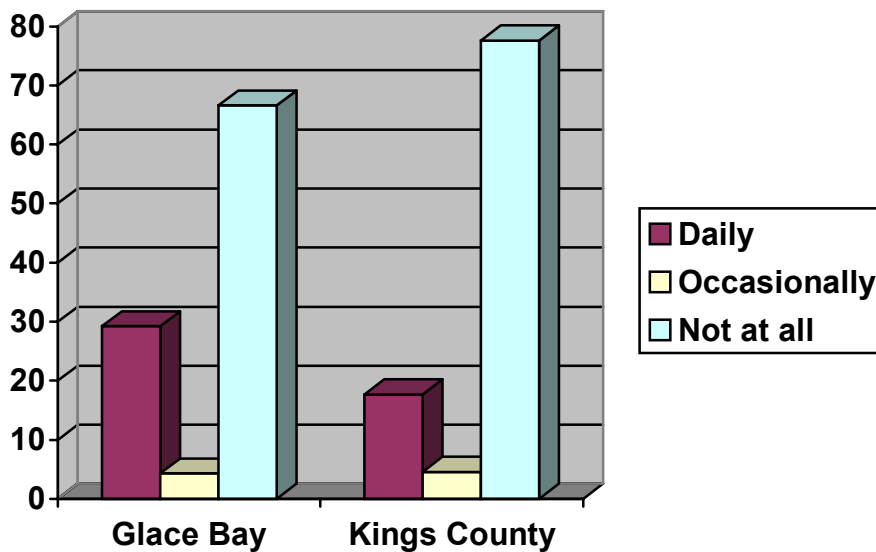
Table 7: Currently a Cigarette Smoker

Frequency of Cigarette Smoking	Glace Bay	Kings County
Daily	29.2	17.7
Occasionally	4.3	4.6
Not at all	66.6	77.6

Pearson Chi-Square = 65.875 $p < 0.000$

Number of Valid Cases = 3572

Figure 7: Currently a Cigarette Smoker

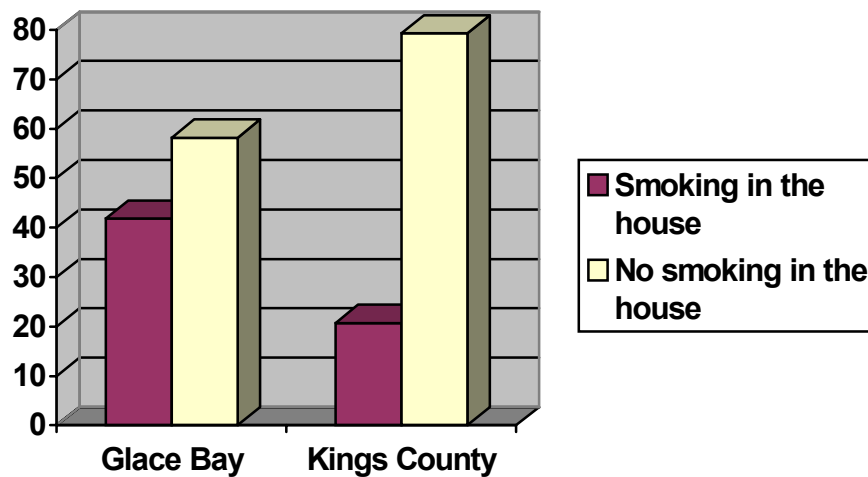


For cigarette smoking by a member of the household while actually in the physical house structure we noted a significant difference between Glace Bay and Kings County. The percentage of respondents in Glace Bay that have cigarette smokers in the house is more than double then that of Kings County. (Table and Figure 8)

Table 8: Cigarette Smoking in the House

Smoking in the House	Glace Bay	Kings County
Smoking in the house	41.8	20.7
No smoking in the house	58.2	79.3
Pearson Chi-Square = 186.902 p<0.000		
Number of Valid Cases = 3579		

Figure 8: Cigarette Smoking in the House

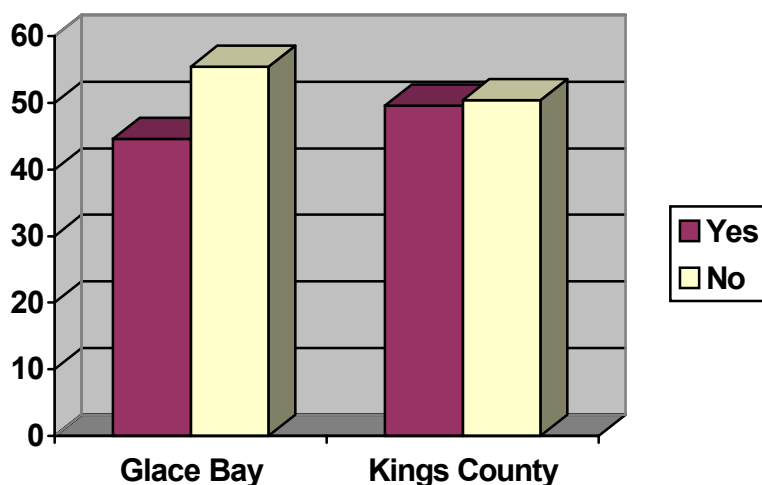


The data in Table and Figure 9 somewhat surprisingly illustrate that the percentage of respondents that reported ever smoking cigarettes is significantly lower in Glace Bay. One might infer that cigarette smokers of Glace Bay are more “serious” or “hardcore” smokers. Perhaps respondents in Kings County smoked at one time but never formed a serious habit.

Table 9: Ever Smoked Cigarettes

Ever Smoked Cigarettes	Glace Bay	Kings County
Yes	44.6	49.6
No	55.4	50.4
Pearson Chi-Square = 6.393 p<0.011		
Number of Valid Cases = 2661		

Figure 9: Ever Smoked Cigarettes



Somewhat more in line with what might be expected from the information in Table 8, and in line with comments made above is that a significantly higher number of respondents reported smoking their first cigarette with in five minutes of waking up. This indicator is traditionally used in Statistics Canada and other analyses as a marker of nicotine addiction. The results indicate again that there are more “serious” smokers in Glace Bay than in Kings County. (Table 10 and Figure 10)

Of particular interest in this introductory study are also some of the characteristics of those individuals who smoke cigarettes and what correlation cigarette smoking might have with education and employment related issues. To start we observe that gender does not seem to play a significant role in cigarette smoking habits for the respondents in this study. (Table and Figure 11)

However when we examine employment status, we see that a significant difference exists amongst different employment statuses. In particular is the rate of daily smoking for unemployed respondents. We noted a significant increase in the rate of daily cigarette smoking for unemployed respondents as compared to the other employment statuses. (Table and Figure 12)

Table 10: Time Until First Cigarette

Time Until First Cigarette	Glace Bay	Kings County
< 5 minutes	34.2	20.4
Between 6 and 30 minutes	41.8	46.3
Between 31 and 60 minutes	12.2	21.8
> 61 minutes	11.8	11.6

Pearson Chi-Square = 27.397 $p < 0.000$

Number of Valid Cases = 887

Figure 10: Time Until First Cigarette

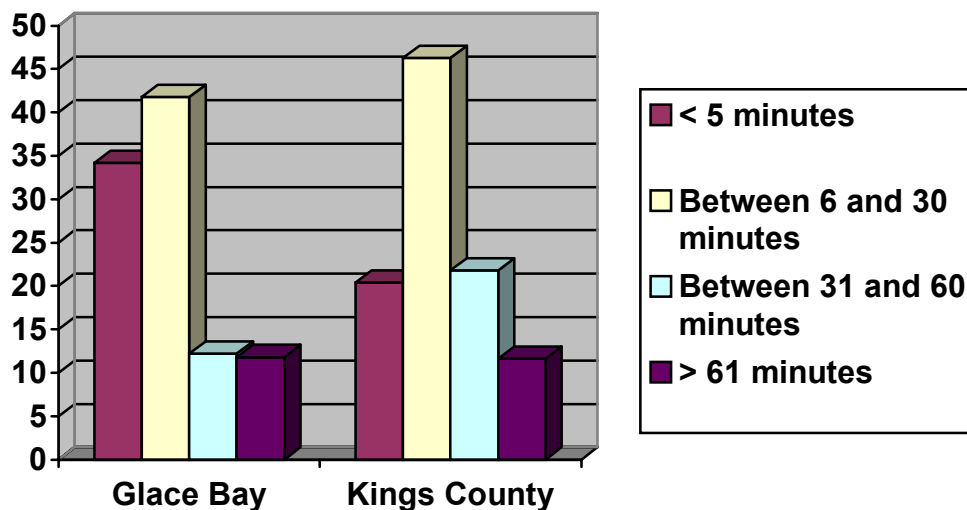


Table 11: Smoking Cigarettes and Gender

	Do you smoke cigarettes		
	Daily	Occasionally	Not at All
Male	23.9	4.1	72.0
Female	22.5	4.8	72.8

Number of Valid Cases = 3564

Pearson Chi-square = 1.759 p-value < 0.415

Figure 11: Smoking Cigarettes and Gender

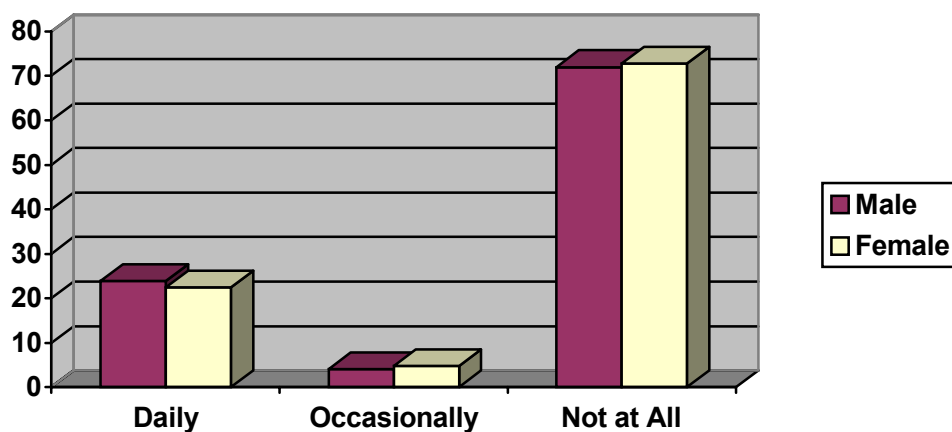


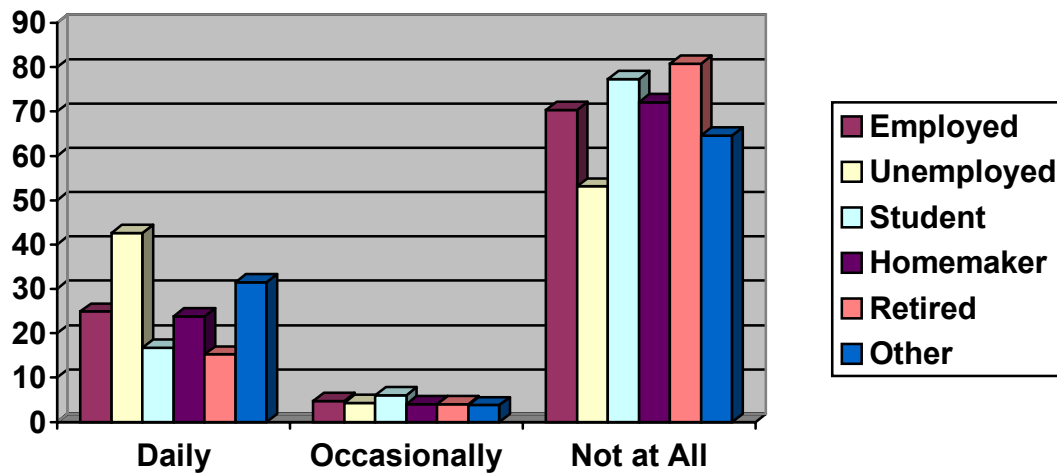
Table 12: Smoking Cigarettes and Employment Status

	Do you smoke cigarettes		
	Daily	Occasionally	Not at All
Employed	24.9	4.7	70.4
Unemployed	42.6	4.3	53.1
Student	16.7	6.0	77.3
Homemaker	23.8	4.0	72.1
Retired	15.2	4.0	80.8
Other	31.5	3.8	64.6

Number of Valid Cases = 3556

Pearson Chi-square = 105.082 p-value < 0.000

Figure 12: Smoking Cigarettes and Employment Status



Recognizing the difference in employment status between the two regions we also want to examine each region independently. We note a change in the aggregate numbers but note a continued significant difference for each region.

Table 13: Smoking Cigarettes and Employment Status

	Gloucester Bay		
	Daily	Occasionally	Not at All
Employed	30.5	4.3	65.2
Unemployed	47.8	5.4	46.8
Student	21.1	5.4	46.8
Homemaker	32.2	4.2	63.6
Retired	19.7	3.8	76.5
Other	39.7	4.4	55.9
Number of Valid Cases	1688		
Pearson Chi-square	65.823		

	Kings County		
	Daily	Occasionally	Not at All
Employed	21.3	5.0	73.7
Unemployed	28.6	1.4	70.0
Student	12.9	7.3	79.8
Homemaker	15.4	3.8	80.8
Retired	10.0	4.3	85.7
Other	22.6	3.2	74.2
Number of Valid Cases	1868		
Pearson Chi-square	40.469		

Clearly employment status seems to be significantly correlated with cigarette smoking habits. This relationship is more closely examined later in regression analysis below.

Along with employment status, the highest level of education also seems to play a significant role in the whether a respondent reports to smoking cigarettes “Daily” or “Not at All”. The most significant difference occurs with “University”. A significant drop in the rate of daily smoking is evident when compared to other levels of education.

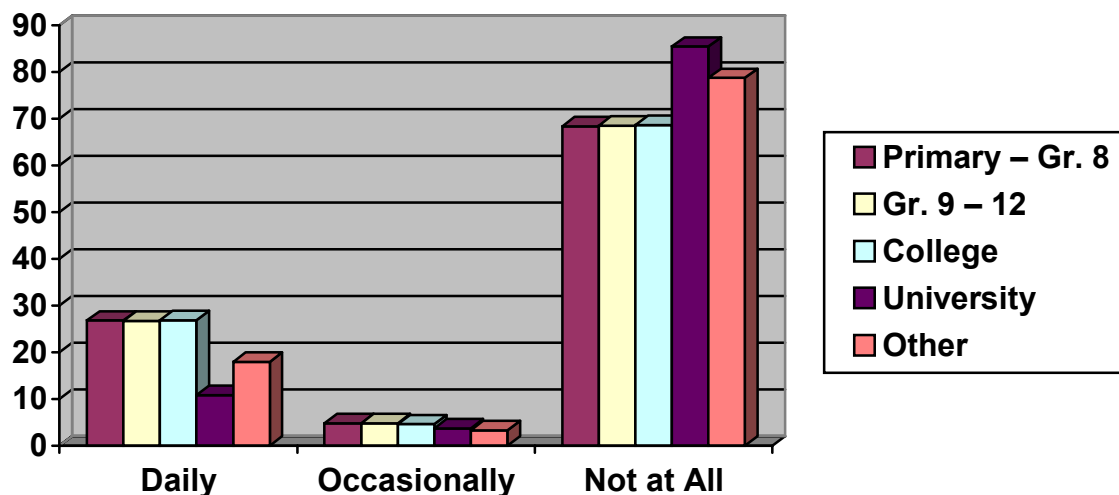
Table 14: Smoking Cigarettes and Education Level

	Do you smoke cigarettes		
	Daily	Occasionally	Not at All
Primary – Gr. 8	26.8	4.8	68.4
Gr. 9 – 12	26.7	4.8	68.5
College	26.9	4.6	68.6
University	10.8	3.7	85.4
Other	18.0	3.3	78.7

Number of Valid Cases = 3363

Pearson Chi-square = 71.359 p-value < 0.000

Figure 14: Smoking Cigarettes and Education Level



Predictors of Smoking

In an attempt to further uncover some of the relationships and correlations that exist between smoking cigarettes and other variables we turn our attention to regression analysis. For our purposes here, we will use binary logistic regression analysis. All dependent variables have been transformed into binary data.

For the Tables 15 through 20 cigarette smoking “daily” or “occasionally” are recorded with a “0” and cigarette smoking “not at all” is recorded with a “1”. For location Glace Bay is recorded with a “1” and Kings County with a “2”. For Gender, being male is recorded with a “1” and female with a “2”. For the variables Age, Household Earning, Education, Employment Status and Stressful Life, values are recorded with a “1”, “2” and so on depending on how many options each variable had. For example, for the variable Education, a response of Primary to Grade 8 was recorded with a “1”, a response of Grade 9 –12 was recorded with a “2”, Community College with a “3”, University Degree with a “4” and Other with a “5”. For the variable Stressful Life the responses are; “very stressful” recorded as a “1”, “somewhat stressful” recorded as a “2”, “somewhat not stressful” recorded as a “3” and “not very stressful” recorded as a “4”. For our first binary logistic regression we are interested in examining some potential predictors for the smoking of cigarettes.

We note that only Age and Stressful Life are not significant in predicting the smoking of cigarettes. To examine this in more detail we begin by explicitly breaking our regression analysis into two separate regions. Indeed we find more key differences, but interesting similarities.

Table 15: Predictors for current cigarette smoking

Variable	Estimated Coefficient	Standard Deviation	p-value
Location	0.250	0.079	0.002
Gender	-0.260	0.073	0.000
Age	-0.025	0.026	0.334
Education	0.102	0.039	0.008
Household Earnings	0.048	0.011	0.000
Stressful Life	0.071	0.048	0.143
Employment Status	0.111	0.028	0.000

Number of Observations: 3606
 Cox & Snell R-square: 0.213
 Nagelkerke R-square: 0.283
 -2 Log Likelihood: 3524.638

Table 16: Predictors for smoking cigarettes (Glace Bay)

Variable	Estimated Coefficient	Standard Deviation	p-value
Gender	-0.211	0.098	0.032
Age	0.008	0.034	0.821
Education	-0.010	0.052	0.849
Household Earnings	0.074	0.016	0.000
Stressful Life	0.082	0.064	0.197
Employment Status	0.087	0.038	0.022

Number of Observations: 1486
 Cox & Snell R-square: 0.125
 Nagelkerke R-square: 0.167
 -2 Log Likelihood: 1861.221

In Glace Bay, Gender, Household Earnings and Employment Status remain significant predictors of cigarette smoking. Age, Education and Stressful Life are not. When we contrast this to Kings County we see a slightly different picture.

Table 17: Predictors for smoking cigarettes (Kings County)

Variable	Estimated Coefficient	Standard Deviation	p-value
Gender	-0.136	0.107	0.206
Age	-0.045	0.038	0.246
Education	0.276	0.059	0.000
Household Earnings	0.022	0.015	0.151
Stressful Life	0.152	0.075	0.044
Employment Status	0.155	0.041	0.000

Number of Observations: 1586
 Cox & Snell R-square: 0.306
 Nagelkerke R-square: 0.408
 -2 Log Likelihood: 1619.228

Here Education and Employment Status are the only significant predictors of cigarette smoking. From the information in Table 14, we might expect a difference in the role various levels of education might have on the decision to smoke cigarettes. To examine this closer we categorize the Education variable. Our reference for the Education variable is Primary – Gr. 8.

Table 18: The Role of Education on for smoking cigarettes

Variable	Estimated Coefficient	Standard Deviation	p-value
Location	0.321	0.081	0.000
Gender	-0.137	0.077	0.074
Age	-0.011	0.026	0.680
Grade 9 –12	-0.418	0.149	0.005
College	-0.353	0.167	0.034
University	0.455	0.201	0.024
Other	0.058	0.202	0.773
Household Income	0.047	0.012	0.000
Stressful Life	0.126	0.050	0.011
Employment Status	0.102	0.028	0.000

Number of Observations: 3606
 Cox & Snell R-square: 0.224
 Nagelkerke R-square: 0.298
 -2 Log Likelihood: 3481.577

We note the sign and the significance of the various Education categories. As expected, a University education is a significant factor in predicting cigarette smoking. In a similar fashion we would like to break up the variable Employment Status. Our reference for the Employment Status variable will be “Employed”.

Table 19: Employment Status and Smoking Cigarettes

Variable	Estimated Coefficient	Standard Deviation	p-value
Location	0.283	0.082	0.001
Gender	-0.202	0.081	0.012
Age	-0.044	0.032	0.165
Education	0.142	0.040	0.000
Household Income	0.045	0.012	0.000
Stressful Life	0.068	0.051	0.178
Unemployed	-0.444	0.149	0.003
Student	0.400	0.209	0.055
Homemaker	0.314	0.142	0.027
Retired	0.754	0.141	0.000
Other	-0.195	0.212	0.355
<hr/>			
Included in Analysis:	3072		
Cox & Snell R-square:	0.225		
Nagelkerke R-square:	0.299		
-2 Log Likelihood:	3477.235		

We observe all, except Other, categories of Employment Status are significant in predicting the smoking of cigarettes. Respondents who were unemployed were more likely to be daily or occasional smokers as compared to employed respondents. Respondents who were students, homemakers or retired were less likely to be daily smokers. This accounts for location, gender, and age issues.

Another categorization of interest is the role of stress in predicting the smoking of cigarettes. One might assume that smoking is associated with stress or feeling stressed and that smoking “calms the nerves”.

Table 20: Life Stress and Smoking Cigarettes

Variable	Estimated Coefficient	Standard Deviation	p-value
Location	0.364	0.082	0.000
Gender	-0.121	0.076	0.112
Age	-0.009	0.025	0.726
Education	0.155	0.040	0.000
Household Income	0.054	0.011	0.000
Very Stressful	-0.739	0.182	0.000
Somewhat Stressful	-0.743	0.129	0.000
Somewhat Not Stressful	-0.197	0.132	0.135
Employment Status	0.097	0.027	0.000
Included in Analysis:	3072		
Cox & Snell R-square:	0.226		
Nagelkerke R-square:	0.301		
-2 Log Likelihood:	3472.974		

We note that respondents reporting a very or somewhat stressful life have a significantly higher correlation with the smoking of cigarettes as compared to those individuals reported a Not Very Stressful life.

Finally, we are also interested in what correlation might exist between cigarette smoking and various health care demand measures. More specifically we want to know what role smoking frequency plays in visiting a physician or other health care professional in the previous 12 months. Here visiting a physician or other health care professional is recorded as a “1.0” and not visiting a physician or other health care professional is denoted as “0.0”. Again we use a binary logistic regression analysis and we have categorized the Current Cigarette Smoker variable leaving “Not at All” as the reference.

Table 21: Visits to Health Care Providers

Variable	Estimated Coefficient	Standard Deviation	Significance
Location	0.307	0.076	0.000
Gender	0.483	0.021	0.000
Age	0.056	0.076	0.008
Daily	-0.075	0.107	0.480
Occasionally	-0.098	0.218	0.665
<hr/>			
Included in Analysis:	3204		
Cox & Snell R-square:	0.363		
Nagelkerke R-square:	0.484		
-2 Log Likelihood:	2998.814		

The information in Table 21 indicates that being a daily or occasional cigarette smoker is not a significant factor in the number of visits to a health care provider in the past twelve months. This is somewhat surprising and certainly would be just one of many ways this data set could be further explored.

Conclusions and extensions

Despite the breadth of this overview we do come away with a few very precise bits of information. There is a significant difference in the incidence of cigarette smoking between respondents in Glace Bay and Kings County. This was also the case for cigarette smoking in the house – a key indicator of exposure to second-hand smoke.

Despite a smaller percentage of respondents who reported ever being a cigarette smoker in Glace Bay, respondents there reported a significantly shorter period of time between waking up and having their first cigarette when compared to respondents from Kings County. It would seem that a higher percentage of respondents have “tried” smoking in Kings County, but that respondents in Glace Bay face higher addiction rates. Although we are not able to analysis the addiction aspect of cigarette smoking further in this study, the information gleaned from the time elapsed from waking up until the first cigarette is viewed as a proxy for addiction level in Statistics Canada analyses and is an important area for further research.

Of particular interest in this study was the relationship between employment status and cigarette smoking. Respondents who were unemployed were much more likely to be daily smokers than respondents who were employed, students, homemakers or retired. This remained true for both regions in our study when each was examined independently, although the relative magnitude was greater in Glace Bay.

When we controlled for further issues, such as location, gender, age, household earnings and education we still noted a significant relationship between employment status and cigarette smoking. A significant correlation exists between being unemployed and cigarette smoking.

Another interesting issue that was brought to light was the relationship between education levels and cigarette smoking. After controlling for location, gender, age, household income, and employment status we noted a significant negative relationship between highest education level and cigarette smoking. The higher the education level, the less likely a respondent was to report being a cigarette smoker.

Respondents recording their lives as very stressful or somewhat stressful were significantly more likely to be daily or occasional cigarette smokers. This was recorded after accounting for location, gender, age, household income, education level and employment status.

Again, we remind readers to be cautious in interpreting a significant relationship with causation. In particular, we suggest that another external factor might be linked and indeed join, cigarette smoking, employment status and life stress measures. For example, one issue that we have not been able to address in this study is the “culture of smoking”. Do people smoke because “everyone” around them smokes? We are also not able to address here the degree to which smokers know and acknowledge that smoking is an unhealthy life choice, and the degree to which greater or lesser knowledge of the health impacts of smoking in the two communities affects the comparative results.

By contrast to other studies, this analysis found no significant relationship between cigarette smoking and the number of visits to a health care provider in the previous twelve months. Visiting a health care provider in the last twelve months was significantly correlated with location, age and gender. The lack of significance for cigarette smoking was somewhat surprising. Further analysis might pursue the various medications respondents were currently taking or the health of the respondents’ children who are living in the same household.

The data in the Glace Bay and Kings County community health surveys constitute an extraordinarily rich database that can and should be studied for years. Extensions of the present study on tobacco use might include work on:

- Health care expenditures and cigarette smoking
- Long-term health issues and cigarette smoking;
- Addiction
- The relationship between “core values” and tobacco use
- Medication and smoking; pregnancy
- Children’s health and smoking in the home
- Cigarette smoking and the work place

Other Suggested Readings

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Appendix 3: Unpaid Caregiving and Health

COMMUNITIES IN PROFILE: CAREGIVING AND HEALTH IN GLACE BAY AND KINGS COUNTY

Prepared for

Canadian Population Health Initiative Program:

Development and Application of Community Health Indicators

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GPI Atlantic Survey

The Kings County and Glace Bay research program has been community-driven since its inception and involves collaboration among an extensive variety of partners. The development of a questionnaire to be used as an index of well-being in Glace Bay and Kings County began in 2000-2001 and came to fruition as a result of this CPHI research program. With input from community organizations, including community and regional health board representatives, a questionnaire was developed to collect baseline data on several variables related to health, caregiving, labour force participation, peace and security, voluntary/civic work, impact on the environment, and other elements of well-being.

Many previous reports on caregiving focus on the services available, profiles of caregivers, and burden of care. These reports have, most often, reported aggregated data at the provincial and national levels. This report is unique in that it focuses on community level data from two Nova Scotian communities. Accordingly, this report provides community level information from the original survey data collected from Glace Bay and Kings County residents, on health, demographics, and employment in relation to caregiving. The socio-economic variables included in this analysis are income, education, and occupational type and status. The demographic variables included age, gender and marital status. In particular, the focus of this report was to examine the following relationships.

- (1) The associations between the socio-economic and demographic information for caregivers in Glace Bay and Kings County and health status, health service utilization, and health behaviours.
- (2) The differences and similarities between caregivers in Kings County and Glace Bay in relation to socio-demographic variables and health status, health service utilization, and health behaviours.

Background

The changing nature of families, population demographics, economics, roles in the workplace, and health services have brought the issues of family caregiving and unpaid work to the forefront of policy debate. Recent trends have indicated that families are less stable and more diverse, with an increasing prevalence of children moving away from their families and communities to find work or attend school (Fast & Keating, 2000). These trends, combined with the increase in longevity and new patterns in chronic illness, leave much of the caregiving responsibilities for elderly parents with spouses and friends. Additionally, the devolution of health care services to the community has also transferred considerable responsibility for care to unpaid caregivers (Cheal, 1998). Furthermore, because of the severe fiscal restraints that have been placed on health services in recent years, this care can be technically demanding, complex, and costly when patients are sent home at earlier stages in the treatment process (Payne et al., 2001). Recently, Romanow (2002) has echoed these concerns. He reported “home care has become a partial substitute for care that was previously provided primarily in hospitals or by physicians.” This transfer of responsibility has various affects on family caregivers, and impacts all aspects of their

lives: mental and physical, social, family, labour force participation, and financial (Guberman, 1999). Statistics Canada's 2001 Census found a 17% increase in the number of Canadians providing care for seniors since the 1996 Census. Considering the increase in Canada's population, this means that there was a 10% increase in the proportion of people providing such care. The number of Canadians spending 10 or more hours per week caring for the elderly increased by 20% (Statistics Canada Census, 2001). In addition, nearly twice as many women as men spend long hours caring for the elderly. In the week prior to the 2000 Census more than 430,000 Canadian women (3.5% of adult women) spent more than 10 hours per week caring for aging parents and other elderly relatives, compared to fewer than 220,000 men (1.9% of adult men) (See Table Appendix I).

Definition of caregiving

The concepts of "unpaid work" and "unpaid care-giving" have been extensively reported in recent years, albeit they have been treated as separate concepts in the academic and general literature. Unpaid caregiving has also been referred to as "informal care" (Romanow, 2002); as opposed to formal care given by a paid health care worker (Fast and Frederick, 1999). Unpaid work has been defined as "the unpaid work households do by and for themselves, including domestic chores, childcare, and shopping" (Economic Justice Report). However, central to the focus of this report is the concept of unpaid caregiving. Accordingly, the concept of unpaid caregiving is defined as 'unpaid work conducted for family members, friends, and neighbours (either adults or children) that require care or help with daily activities.' These activities fall into two categories. The first, "instrumental tasks" include grocery shopping, assistance with transportation, and yard or housework. The second, "personal care" includes activities such as bathing, dressing, or grooming (Statistics Canada, Cranswick, 1997). Statistics Canada's 1996 General Social Survey conceptualized a second type care – "caring about." This type of care involves a psychological connection between people. For instance, it can refer to someone caring about another person by providing emotional support or encouragement. "Caring about" can also include checking up on an elderly relative or neighbour who lives alone.

The range of caregiving activities has also been changing with the devolution of health care services and the move to community-based care. The population health model encompasses the concept that the best place for emotional and social support during the recovery process is with family and social networks. This philosophy, together with advances in medical technology, facilitates longevity and enables, or forces, those individuals with disabilities to live outside formal health care institutions. This has a significant effect on the types of tasks caregivers are required to perform. These activities often follow the traditional gendered division of labour within caregiving households. That is, women provide most of the emotional/social support while men perform more physical and organizational tasks (Miller & Caffasso, 1992). The 2001 Census results reflect this notion. In fact, the household gendered division of labour has shifted very slightly since the 1996 Census that reported that 24.5% of women and 7.4% of men spent 30 or more hours per week doing housework, and 16.8% of women and 6.2% of men spent at least 30 hours taking care of children. In addition, nearly twice as many women as men spend long hours caring for the elderly. In the week prior to the 2000 Census more than 430,000 Canadian women (3.5% of adult women) spent more than 10 hours per week caring for aging relatives and parents, compared to fewer than 220,000 men (1.9% of adult men)

This gendered division of labour is more explicit in rural areas where traditional values are more prevalent. In addition, rural caregiving tends to focus more on informal caregiving supports because of these traditional values about family. Some argue that the reliance on informal caregiving in rural areas is also a reflection of the lack of services in these areas (Campbell et al, 1998). However, others have disputed this notion and conflicting results have been reported. Based on secondary analysis of the General Social Survey (GSS) of 1996, Keefe (1999) has reported that the types of task that are required may dictate whether those in rural areas seek formal or informal care, and this differs by gender. For instance, rural unpaid caregivers are more likely to provide assistance with meal preparation, house cleaning, home maintenance, and personal care. Urban caregivers are more likely to provide assistance with banking, transportation and grocery shopping. These findings may reflect the difficulties with transportation, and the geographical proximity of amenities in rural areas. Differences by gender were also evident in the 1996 GSS. Rural men were more likely to require assistance with meal preparation, personal care, and house maintenance than rural women. This finding may be explained by the fact that more elderly in the rural areas are living in single dwelling homes as opposed to their urban counterparts who are more likely to live in apartments or condominiums.

Caregivers

In the United States, it is estimated that unpaid caregivers contribute almost \$200 billion annually to the economy in unpaid health care (Health Affairs, 2001). In Canada the estimates are similar. Fast and Frederick conducted a cost replacement analysis on unpaid caregiving in Canada using data from the General Social Survey and Statistics Canada. They reported “The aggregate replacement cost for all Canadian caregivers in 1996 is estimated between \$5.1 and \$5.7 billion.” This estimate does not include other personal costs such as lost wages, inability to contribute to pension plans, inability to maintain a full-time job, and costs to the health care system associated with adverse health effects due to their caregiving activities. However, many of these estimates may be an underestimate of actual costs, since they may only include care provided to the elderly and exclude costs associated with providing care to mentally or physically challenged children and young adults. As well, none of the estimates appear to include the significant input value that these informal care activities have on the general well-being of society and the development of human capabilities such as education, and mental and physical health. Therefore, it may be more valid to estimate costs based on foregone wages that would require higher opportunity cost estimates of the value of caregiving work rather than the more conservative replacement cost estimates used by Fast and Frederick. In Nova Scotia in 1997, GPI Atlantic estimated the value of unpaid work and childcare to range from \$8.5 to \$10.5 billion. This figure depends on the evaluation method used but represents 42-51% of the annual value of the GDP (GPI Atlantic 1998, 95).

In a Canadian study conducted in 1996, over 12% of the population or 2.6 million people reported providing unpaid care to someone with long-term health problems (Cranswick, 1997). Of these caregivers, most were women (69%) who felt that they provided most of the care to their elderly family members or friends. Most caregivers were aged 45 and older (60.6%), with the average age being 42.2 years. All respondents reported an average of 28 hours per month in caregiving activities, but among those who provided personal care this increased to 60 hours per

month or more. Caregivers of disabled children differed slightly from those that report eldercare responsibilities.

In a study conducted by the Roeher Institute (2000) in Saskatchewan, Manitoba, Ontario, Quebec, and New Brunswick, 96% of those providing primary care for a disabled child were mothers, despite the fact that three-quarters of the participants were from two-parent households with the remaining households being a female-led, lone-parent families. Family income ranged from low to high with only one family relying on social assistance for their financial income.

In British Columbia (BC), Canada, the Caregivers Association of BC and the Centre on Aging, University of Victoria conducted a provincial telephone survey to identify and collect information on adult caregivers (Chappell and Litkenhaus, 1995). An initial screening survey was conducted to over 30,000 BC households. Approximately 2000 households participated in the in-depth survey. Their findings suggest that 8.4% of households (99,512) in BC provide unpaid care to a family member or friend who has a “long term (6 months or more) illness, physical disability, mental handicap or long term mental health or behavioural problem.”

These findings are similar to those found in national studies in that most caregivers were women, at least in the middle age-group, and were married and living with their spouse. Many of the caregivers had left the workplace in order to fulfil their caregiving activities. In addition, of the caregivers surveyed, approximately two-thirds were stressed about their caregiving responsibilities. Women caregivers reported being more stressed than their male counterparts. In part, this may be due to the gendered division of labour in caregiving tasks. As reported previously, women perform most of the personal hygiene and daily tasks, where men most often perform the instrumental tasks such as grocery shopping, paying bills, and maintenance.

The rural/urban differences in caregiver characteristics have been documented both nationally (Keefe, 1999) and provincially (Bruhm and Lilly, 1998; Jaffe and Blakley, 2000). Based on Keefe’s analyses of the General Social Survey (1996), caregivers in rural areas tend to be slightly younger than their urban counterparts, are more likely to be married, but less likely to have completed high school. Household incomes varied between rural and urban caregivers; rural caregivers earned less money than urban caregivers. However, rural caregivers were more likely to be Canadian born, and to live in close geographical proximity to their children.

By comparison, Wilkins (1992) contends that rural caregivers tended to be older and rely on informal health services, outside the family. This, in part, may be due to the fact that there are fewer services and supports in rural areas in relation to urban centres, and therefore caregivers in rural areas have to rely more on their informal supports and networks. Wilkins’ contentions may be supported by a number of factors. For example, (1) over 1/3 of older Canadians live in rural areas, and (2) there is a growing tendency for young people to migrate to urban areas for reasons related to employment and education, and therefore not to be available to lend assistance.

In the United States, caregiver characteristics are similar to those in Canada. That is, most caregivers are women (71%) and are aged 45 years and older (76.9%). Income of caregivers in the United States appears to be slightly lower, with 88.6% falling into the middle-income category and below. In addition, 80% of the caregivers provided unpaid assistance 7 days a

week to their care receivers. Gender differences with respect to the task performed were also similar to those found in Canadian studies. Women reported more often than men that they performed personal hygiene tasks. However, in contrast to some studies, one U.S. study found that men spend slightly more time per day on caregiver tasks than women (Stone et al, 1987).

A longitudinal review of caregiver activities provides evidence that, in the United States, some characteristics of caregivers have not changed dramatically between 1987 and 1997. In particular, 72.5% of all caregivers are still women. However, there are some differences with respect to income, and age. Most caregivers are younger, between 35 and 64 years, and more recently there appear to be no dramatic differences in household income between caregivers and non-caregivers.

Increased longevity has also affected the age of the caregiver. With increased life expectancy many caregivers are elderly or frail themselves and are responsible for the care of a disabled or ill spouse or other family members. Guberman (1999) reports that there is an “increase in the number of caregivers in their 80s and 90s looking after their disabled husbands.”

Labour force participation and caregiving

Changing trends in labour force participation, characterized by an increase in the number of women employed in paid labour, has significant effects on who will assume the care-giving role in the home. Although men assume some responsibility for family caregiving, it appears that women perform the majority of unpaid care-giving in Atlantic Canada, despite their increase in participation in the paid labour market (Colman, 2000). Women’s paid labour force participation has been steadily increasing since the 1960s, although it has levelled off in the 1990s. In Canada, women comprise 46% of the labour force and 70% of women between the ages of 25 and 44 work outside the home in paid labour (Statistics Canada, 1999). Since most caregivers are women, this trend may cause increasing concern about the availability of caregivers. However, information from the 2001 Canadian Census has not supported this assumption. In fact, employed women are as likely to assume caregiving activities as unemployed women (Pavalko and Artis, 1997). Moreover, some reports have shown that, with respect to the care of the elderly, “employment is a differentiating factor only when the unpaid assistance is 10 hours a week or more” (Keefe and Fancey, 1998). Accordingly, employed caregivers experience difficulty with balancing home and work only when their caregiving responsibilities exceed 10 hours per week.

Stress from balancing work-life activities is not alleviated by a spouse’s contribution to unpaid work, nor by most the type of job held by the caregiver. However, reports indicate that employed caregivers experience a variety of job and personal costs that are associated with caring for an elderly relative. These job costs include missed meetings, absenteeism, lateness, and foregoing promotions. Personal costs include, perceived levels of stress, and work interference with family life. Stone and Short (1990) reported that women are more likely than men to try to balance work and care responsibilities by reducing hours, taking leave without pay, and terminating employment. In fact, nine percent of women caregivers will leave employment to assume caregiving responsibilities (Canadian Study on Health and Aging, 1994; Guberman,

1999). “However, there is evidence that women, more so than men, use strategies such as self-employment to improve work-life balance” (Phipps et al, 2002). Therefore, those women who work outside the home more than 10 hours per day are burdened with the stress of labour force participation and performing unpaid care-giving tasks.

Women are reported to experience more role conflict with respect to their home and paid labour responsibilities than men (Kramer & Kipnis, 1995). The relationship between stress, disease, and the increased utilization of health care resources has been highly recognized. Factors that appear to mediate the impact of unpaid caregiving and employment stress are income and money. Duxbury and Higgins (2001) found that stress is higher in families where income is problematic than in those where money was not an issue. Financial resources appear to be able to assist people in coping with the stress of work-life balance. Frederick and Fast (2001) reported that other factors could also alleviate the pressures of work-life balance. These factors include extended family, job satisfaction, control at work, and employer programs (Phipps, 2002).

Caregiver Well-being

The burden associated with caregiving responsibilities has been reported in the literature to include: well-being; physical and psychological health effects or outcomes; and quality of life. Generally, most studies report that caregivers suffer increased risks for physical and psychological health, although this fact may be confounded by other factors such as type and duration of caregiving, age, and income (Shultz, Vistainer & Williamson, 1990). Some studies have referred to caregivers as the “hidden patients” (George and Gwyther, 1986; Johnson, 1998), since many of their health problems go unnoticed or untreated until after their caregiving responsibilities have ended.

Many studies relate caregiver health effects to specific diseases of the care receivers, such as Alzheimer’s Disease or dementia. Few studies refer to caregiver health outcomes in relation to providing care for chronically ill children.

The following studies provide a wide variety of evidence associated with caregiver well-being, but on the whole the association between caregiving and well-being is inconclusive. The variability of findings may be due to problems with the validity of measuring instruments, inappropriate use of instruments, problems associated with self-reporting, low sample sizes, or poor sampling techniques. However, some of these problems, such as low sample sizes and problems associated with sampling techniques may be unavoidable and are inherent in the type of population being studied. In addition, the difficulty in finding morbidity effects among caregivers is compounded with the fact that many give up their caregiving role if they become ill. Moreover, many symptoms may not be detected because caregivers lack the time to seek medical help or they do not seek it until after their caregiving responsibilities are over.

George and Gwyther (1986) conducted a mailed survey with caregivers from a family support program in the United States. Sample characteristics depicted that most caregivers were women (71%) aged between 21 and 90 with a mean age of 57 years. Several instruments were used to

measure physical and emotional health and these were related to the caregiving contexts (egg. relationship to care receiver, caregiver's perceived need for social support), and patient illness characteristics (egg. duration of illness, severity of symptoms). Results indicated that caregivers had similar characteristics to random community samples with respect to use of medical services and self-rated physical health status. However, caregivers performed worse on indicators of mental stress than non-caregiver comparison populations. In particular, the results indicated that caregivers experienced three times as much stress as a non-caregiver comparison sample.

Much of the literature indicates that income is a determinant of health and can affect health outcomes. That is, studies have shown that as income increases so does the likelihood of reporting excellent or good health. Although in the George and Gwyther study income was a controlled variable, some caregiver studies have not done so and therefore the results may be inconclusive. Correlations between patient illness characteristics and well-being supported the notion that the more severe the patient's symptoms, the lower the self-rated health, and the higher the stress symptoms. Nonetheless, in some studies this has been explained has the severity of behavioural problems, rather than the severity of physical symptoms (Baumgarten, 1989). The duration of illness of the care receiver was also considered a factor in caregiver health status. George (1986) found that illness duration was not associated with indicators of well-being. However, Haley and Pardo (1987) found that if illness duration coincided with severity and deterioration of the illness, then caregiver stress increased.

The relationship of the caregiver to the care-receiver was also a factor in caregiver well-being. Caregiver spouses were more likely to report more physician visits and poorer health than either, adult child caregivers or relative/friend caregivers. Moreover, these results persist when age differences are statistically controlled. This result may be confounded with caregiver living arrangements because it was indicated that caregivers who lived with their care-receivers were more likely to suffer higher levels of stress than those that had other living arrangements.

Beach, Shultz and Yee (2000) conducted a study to examine the health effects of caring for an elderly adult in a population-based sample of 680 caregivers. They reported that, after controlling for socio-demographic variables, increase in help provision resulted in decreased anxiety and depression. In addition, increases in spouse impairment also led to poorer health outcomes, higher health risk behaviours, and anxiety. Although many studies do not examine the positive aspects of providing care, Beach and colleagues included this analysis in their study. They reported that there were certain mental health benefits associated with helping a disabled person, although the magnitude of this effect was small explaining only "1% and 6% of the variance." This suggests that there may be both positive and negative benefits of providing care.

Studies on the burden of caregiving identify several areas of the caregivers' lives that are adversely affected due to their caregiving responsibilities. Many caregivers report adverse effects on their emotional health, social activities, leisure time, and family relationships (Anderson, Linto, Stewart-Wynne 1995). Similarly, Snow-Spracklin (1998) found that, in a sample of 75 primary caregivers, caregiver burden was strongest for personal and social restrictions, and physical, emotional, and economic costs. Accordingly, some studies have investigated the relationship between caregiver burden and social support as an intervening factor in these social and emotional outcomes.

Some results indicate that the perception of social support has a significant impact on caregiver well-being. However, other studies provide conflicting evidence on social support and well-being. The variability in results may be explained by how the concept of ‘social support’ is operationalized. George (1986) reported that high levels of perceived social support were associated with an improved caregiver well-being. Similarly, a study on 75 caregivers revealed “greater tangible support was associated with physical and mental health. However, there were no differences in the perceived mental and physical health of caregivers and the presence of formal support systems (Snow-Spracklin, 1998).

Few studies have investigated physical measures as a health outcome in relation to burden of care. Uchino, Cacioppo, & Kiecolt-Glaser (1996) reviewed 81 studies on caregiver social support and physiological processes. They reported that social support was related to “beneficial effects on aspects of the cardiovascular, endocrine, and immune systems.”

Health Practices

It has been suggested that, higher rates of psychological distress, emotional stress, and impaired family and social functioning in relation to unpaid caregiving responsibilities may translate into higher health care utilization rates. However, many studies provide conflicting evidence that may be due to the inherent characteristics of the population being studied. For example, in general, it has been proposed that the daily time requirements of unpaid caregiving may interfere with the caregiver’s ability to partake in preventive health practices and positive health behaviours. That is, for those caregivers who are unable to get adequate sleep, it may be impossible to have enough energy to exercise, meet with friends, or cook nutritious meals.

To date, there are few studies that examine health behaviours in relation to caregiving. Of the studies reviewed for this report, most have been conducted with an eldercare population, and have controlled for income and age. A mailed survey of 272 caregivers of spouses with dementia and a comparison group of 917, over the age of 50, was conducted from a member’s list of the Kaiser Foundation Health Plan in Northern California (Scharlach et al., 1997). The results indicated that for those caregivers that had adequate access to health professions and services, there were no differences in their health care practices than those of the comparison group. The health behaviours included getting regular exercise, sleeping moderately, eating breakfast daily, and smoking and alcohol consumption. Health care practices included routine physicals, flu shots, and preventive health practices such as mammograms. These practices were also examined in relation to care assistance, and care recipient and caregiver characteristics.

A Canadian study on secondary data from a longitudinal study on elderly caregivers revealed similar results (Baumgarten et al., 1997). The annual cost of physician services for caregivers and non-caregivers was similar. However, there were differences in the type of physician services used between caregivers and non-caregivers. Caregivers had a significantly higher frequency of use of internal medicine and psychiatrists than the comparison group. However, physician use was strongly associated with age and the caregiver suffering from a chronic condition. Other Canadian studies have shown similar results. An Ontario study on secondary data from the Ontario Health Survey investigated mental health utilization rates. Results showed

that caregivers used services for mental health problems at nearly twice the rate of non-caregivers (Cochrane, Goering & Rogers, 1997).

Objectives and Research Methodology

Objectives and Hypotheses

The objectives of this study were:

1. To examine the relationship between caregiving and health behaviours and practices in relation to socio-demographic variables.
2. To examine the similarities and differences in health behaviours and practices between caregivers in two Nova Scotian communities (Glace Bay and Kings County) in relation to socio-demographic variables.

Several general hypotheses were generated based on the current literature on caregiving.

5. Caregivers are more likely to be female and married, be in an older age group, not in the labour force, and have less education and a lower income, than the comparable general population.
6. Caregivers are more likely to have poorer perceived emotional health status, and are likely to have similar physical health status as non-caregivers.
7. Caregivers and non-caregivers will have similar self-reported health care utilization patterns.
8. Caregivers will have similar health behaviour patterns than non-caregivers.

Based on preliminary results of the GPI Atlantic data for this study, the following hypotheses concerning the differences and similarities between caregivers in Glace Bay and Kings County were generated.

- 1a. The average age of caregivers will be lower in Kings County compared to Glace Bay.
- 2a. Based on the age of the population, Glace Bay caregivers will use health care services more than those in Kings County.
- 3a. Caregivers in Glace Bay will have a lower average income and lower education levels than Kings County.

Survey Instrument

The original survey, conducted by GPI Atlantic, collected information on basic demographics and education, community values, population health, civic and voluntary work, care-giving and support networks, employment and income, time use, peace and security, consumption patterns, and other variables, that are core elements of the Genuine Progress Index (GPI). The questionnaire was developed, with assistance from Statistics Canada's Social Survey Methods

Division, to allow provincial and national comparisons, and thus to serve as a model for wider use. Accordingly, particular questions are drawn from existing Statistics Canada surveys including the General Social Surveys, National Population Health Surveys, Labour Force Surveys, Survey of Work Arrangements, national volunteer surveys, and other survey instruments. However, because these larger surveys are administered separately, they do not permit nearly the extent of correlation possible in the GPI community survey.

Based on Statistics Canada advice, it was determined that 1,900 surveys from Kings County and 1,700 from Glace Bay would be required to allow for two cross-tabulations, and analysis by gender, age, education, income level, employment status and other determinants of health. With assistance from the Electoral Commission and HRDC, a random sample of 1,900 (Kings) and 1,700 (Glace Bay) respondents was selected. The survey was “pilot-tested” to 200 respondents both communities, and necessary adjustments were made to the questionnaire and the survey process prior to the final survey administration.

Survey administration was conducted as follows: An initial telephone call was made to each respondent to set up an interview; the instructions were explained face-to-face; the survey and time-use diary were left with the respondent; a follow-up phone call was made after 4 days; the survey was picked up and checked for completion; respondent names were discarded to ensure confidentiality.

The response rate of the questionnaire has been 82% for Glace Bay, and is 70% for Kings County. The large sample size will allow for two cross-tabulations of data, with a confidence level of 95% and a margin of error of 5%.

For the purpose of this report, and based on the objectives outlined previously, the following variables were included in the analyses.

Demographic Variables

Demographic variables were included in the analyses for comparative purposes. Community and gender were dichotomous variables (e.g. either Kings County or Glace Bay; male or female). Marital status, education, age, and household income were categorical variables. Marital status was re-coded to be married or not married for the purpose of the analyses. Household income was recoded into 5 categories: <\$10,000; \$10,000-19999; \$20,000-34999; \$35,000-50000; >\$50,000. The question on education asked respondents to indicate their highest level of education and was categorized as: primary (P-8); Grade 9-12; Community College; university degree. Age was recoded to include: 15-24; 25-34; 35-44; 45-54; 55-64; >65 years. Occupational type was based on previous surveys and included ten categories plus ‘other.’ For example, management; health; art, culture, recreation and sport; trades, transportation, equipment operator. Respondents’ employment status was determined from the question concerning their main activity. This question asked respondents to indicate whether they were employed, unemployed, student, homemaker, or retired, and other.

Health Status Variables

A number of variables were utilized to determine both objective and perceived health status for both physical and emotional indicators. Perceived health status was categorized on a 5-point Likert scale and respondents were asked to rate their health between excellent and poor. Other variables included as indicators of health status were restriction of activities, and medication use. Respondents were asked to indicate whether they experienced pain sufficient enough to restrict their activities. Several questions referring to different types of drug use were also included. Some of the drug types were anti-inflammatories, heart medication, anti-depressants, asthma and others. Respondents were asked to indicate from various categorical choices their frequency of using a particular medication. Emotional health was measured using several questions asking respondents to indicate whether they felt sad, nervous, restless, stressed, or depressed.

Health Care Utilization

The questions concerning health care utilization were separated by type of health care provider. Types of health care providers were physicians, other health care professionals, emergency/outpatient visits, and mental health professionals. The variables were re-coded to include the number of visits as: ≤ 2 ; 3-12; 13-24; > 24 .

Health Behaviours

The questions on health behaviours, including risk behaviours, included questions on smoking, frequency of pap smears, mammograms, and exercise patterns. For instance, questions concerning smoking behaviour requested that respondents indicate the frequency of smoking (i.e. daily, weekly, monthly, not at all). Questions on preventive health practices requested that respondents indicate the last time they had a mammogram or pap smear. For the purpose of this analysis, these variables were re-coded to a dichotomous variable. Re-coding allowed inclusion of the respondents who answered either 'yes or no' in response to whether they had a pap smear/mammogram within the year previous to the survey.

Social Support

The literature indicates that social support is important for caregiver well-being. There were several variables included in the analyses that were used as a reflection of social support. Respondents were asked to indicate how often they had contact with family/relatives not living with them, and neighbours. In addition, their ability and frequency of partaking in community events were also considered important indicators of a respondent's ability to maintain a social network.

The Communities

According to the last Canadian Census, the population of Kings County is approximately 58,870. It is located in the Annapolis Valley of Nova Scotia - a predominantly agricultural area of the province. It is one of only a few communities in Nova Scotia which is experiencing population growth, and it is an area of the province which has relatively high health status, based on

premature mortality rates (Pennock, 1998). The general population gender split is 49% males and 51% female and the unemployment rate is 9.1% (compared to 12.4% for the whole province). The median age of Kings County residents is 38, and 58% are either married or living in common law relationships. Approximately 56% percent of the population have a university or community college education, (compared with approximately 35% of all Canadians with post-secondary education), and the average income is \$24,196 compared with \$26,239 for all of Nova Scotia.

Glace Bay is located in industrial Cape Breton. It has a population of 21,187 and is experiencing both population and economic decline. It is located in a part of Nova Scotia that is notable for its low levels of health status (Veugelers & Guernsey, 1999). For example, Cape Breton's cancer death rate is 25% higher than the national average, and the rates of death from heart disease and circulatory problems are 30% higher. Overall, Cape Breton has the highest age-standardized mortality rate in the Maritimes (Colman, 2003). Consequently, the two communities represent very different occupational and socio-economic profiles. Rates were not available for Glace Bay, therefore, the following statistics reflects the entire Cape Breton Regional Municipality. As expected, the unemployment rate is high at 19.4%. The gender split is 47% males and 53% females and the median age is 41.3. Forty-six percent of the population have a university or community college education and the average income is \$22,602.

Data Analysis

Chi-squared tests of association were used to examine relationships between categorical variables such as demographic (gender, age, and marital status) and socioeconomic (household income, employment status, and level of education) characteristics. These tests were only used with categorical data and between variables with cell counts of at least five, as the tests are not valid otherwise. In many cases low numbers restricted the analyses of various associations. Accordingly, where appropriate, the entire sample of caregivers was compared to the sample of non-caregivers to allow for higher numbers in the samples (controlling for age). The significance level for all Chi-square analysis was $P \leq .05$.

The associations investigated with the chi-square tests can be misleading if observed associations are due to factors other than caregiving. For example, caregivers were, on average, older than non-caregivers. Accordingly, an association between caregiving and health status might be due to the fact that caregivers are less healthy because they are older. To address this problem, statistical methods are used to investigate if the health status of caregivers is, on average, different among persons of the same age. This is referred to as "adjustment".

We used logistic regression analyses to estimate "adjusted" associations between caregiving and health status, health system utilization, and health practices. These associations were adjusted for age, sex, education, income and marital status. We adjusted for these variables because many studies have shown that they are associated with health status and caregiving.

The adjusted associations estimated by logistic regression are expressed as "odds ratios" (or "relative odds"). Odds ratios tell us how much higher or lower the odds of an outcome or characteristic are in one group compared to another. An odds ratio is the odds of the outcome in

one group divided by the odds in another group. If the odds are the same, the odds ratio will be equal to one. For example, suppose the adjusted association between caregiving and medication use was found to be 1.2. This would mean means that the odds of medication use among caregivers divided by the odds of medication use in non-caregivers is 1.2. Because the odds ratio is greater than 1.0, this means that the odds of medication use in caregivers is larger than the odds of medication use in non-caregivers. Specifically, it is 20% higher. If, on the other hand, we obtained an odds ratio of .85, this would mean that caregivers are only 85% as likely to use medication as non-caregivers

Non-parametric median tests were used to compare values of continuous variables. These variables, for example, included hours spent working at a job and hours spent volunteering. The analyses examined differences between caregivers and non-caregivers, and between caregivers in different locations.

Throughout the results section of this report, some results were reported that are referred to as non-significant. Therefore, although these results did not reveal significant relationships, that is $p \leq .05$, the authors felt that they were worth noting as a vehicle to raise issues for further research. Hence, caution should be exercised when extrapolating generalities surrounding these non-significant relationships.

Results

Glace Bay – Caregivers vs non-caregivers

There were a total of 1694 completed surveys from Glace Bay, which represented an 82% response rate. Of the 1694 respondents, 57.2% were female, and over 60% were aged 45 or older, with 80% of the sample over 35 years of age. More than 40% of the respondents indicated that their household income was a least \$35,000 or more per year. With respect to education level, over 50% of all respondents indicated that they had completed Grade 12, and 29.5% reported that they had earned a university degree or community college certificate or diploma, compared with 55.4% province-wide. Of the 1694 respondents from Glace Bay, 1018 (60.1%) reported being married or living common law. Of all Nova Scotians, 40.3% were married or in common law relationships in 2002.

Unpaid caregivers represented 12.2% (206) of all the respondents from Glace Bay. These caregivers were providing care for an elderly relative or friend, or an adult child, who lived either with them or outside their home, for which they were not receiving financial remuneration. Most caregivers indicated that they were providing care for someone who lived with them. There was a significant difference in gender between caregivers and non-caregivers with women comprising the majority of the caregivers (67.5%) and 55.8% women comprising the non-caregiver's sample ($p=0.002$). There were no significant differences between the income or education levels of caregivers and non-caregivers. However, there was a significant difference in the marital status of caregivers and non-caregivers with 69.4% of caregivers reporting being married or living common-law, as opposed to 58.8% of non-caregivers ($p=0.003$). There were significant differences in age between caregivers and non-caregivers, with more than a third

(34.8%) of caregivers falling within the 45-54 year age group compared to 22.4% of non-caregivers in the same age category ($p < .01$). In contrast, the proportions of caregivers and non-caregivers aged 55 and over were almost identical, at 35.5% and 34.8%, respectively.

As an indication of employment status, respondents were asked questions concerning their 'main activity.' Available responses for this question included: employed, unemployed, student, homemaker or retired. Of all caregivers in Glace Bay, 29.6% were employed, 20.9% were homemakers, and 23.8% reported to be retired. Comparatively, non-caregivers reported that slightly over 35% were employed, 13% were homemakers, and over 30% were retired. These results were significantly different from caregivers ($p = 0.003$).

For the purpose of examining health status, the sample was stratified by age. Younger (aged 44 or under) caregivers perceived their health status to be poorer than non-caregivers with 21.9% of caregivers indicating poor or fair health as opposed to only 7.7% of non-caregivers, and 64.1% of non-caregivers reported their health as 'excellent' or 'very good', as opposed to only 45.3% of caregivers. This result indicated a significant difference between perceived health status of the two groups ($p < .01$). For older (aged 45+) caregivers, however, the differences in perceived health status were not significantly different from non-caregivers. While not statistically significant, logistic regression analysis yielded an odds ratio of 1.307, meaning that the odds of reporting a higher personal health rating (as opposed to a lower health rating--i.e. reporting 'excellent' or 'very good' as opposed to 'good', or 'good' as opposed to 'fair' or 'poor') were 31% greater for non-caregivers than caregivers.

Physical health was also measured by examining the results related to activity limitations. A larger proportion of younger (aged 15-44) caregivers reported having activity limitations due to long-term mental or physical health problems. That is, there were significantly more young caregivers (26.6%) that reported activity limitations than non-caregivers (12.1%, $p < .01$). For the older respondents, however, the difference in activity limitations was not statistically significant; approximately 30% of both caregivers and non-caregivers aged 45 and older reported some activity limitations due to long-term health problems.

For the entire Glace Bay sample (both caregivers and non-caregivers), only 23.8% of the respondents reported limited activity levels. Males had significantly (38%) greater odds than females of being limited in their activities. In addition, homemakers, retirees, and unemployed respondents had significantly higher odds than employed respondents did (153%, 238%, and 349%, respectively) of having their activities limited because of health conditions. Age and low income were also contributing factors in limiting a respondent's activities. Respondents aged 45-64 (93% higher than the 65+ age group) and those in the lowest income category (132% higher than those in the \$50,000+ income group) had the highest odds of being limited in their activities due to chronic health problems.

Medication use was also examined in relation to health care status. Respondents were asked to indicate their usage of a variety of drugs on a scale of daily, weekly, monthly, or never at all, of 20 prescription and over-the-counter drugs. In general, the results showed that for the majority of drugs caregivers did not differ from non-caregivers in their use of medications. However, there were some significant differences between the groups in a few of the drug types. Younger

(aged 15-44) Glace Bay caregivers took more anti-inflammatory medication than non-caregivers, with 49.2% of younger caregivers taking this medication between one to seven times per week as opposed to 32.1% for the non-caregiver group ($p=.023$). The proportion of older caregivers taking painkillers daily (55.2%) was not significantly higher than that of older non-caregivers (50.0%).

There was no significant difference between caregivers and non-caregivers with respect to taking asthma medications at least once per week, 3.7% and 2.6% respectively. The responses from caregivers who reported taking asthma medications weekly were not sufficient to distinguish between older and younger respondents in this instance.

The findings also suggested that caregivers take more anti-depressant medication than non-caregivers. The results revealed that approximately twice as many caregivers (10.2%) took anti-depressants on a daily basis as compared to non-caregivers (5.6%). A larger proportion of caregivers than non-caregivers took sleeping pills on at least a weekly basis, 5.3% and 2.9% respectively. Although these differences were not statistically significant, the p -values were only slightly above our significance level. However, it should be noted that this result is based on very low numbers, since over 93% of all Glace Bay respondents reported never taking sleeping pills.

As expected, examination of the differences between caregivers and non-caregivers with respect to stress revealed that caregivers reported greater levels of stress than the non-caregiver group. The results indicated that significantly more caregivers than non-caregivers felt that they did not accomplish the things they set out to do (59.3% vs. 45.9% for non-caregivers, $p<.01$), worried that they could not spend enough time with family or friends (47% vs. 36%, $p=0.003$), and felt that they were constantly under stress to accomplish more (49% vs. 34%, $p<.01$), than non-caregivers. Logistic regression analysis for stress levels revealed similar results as indicated in the cross-tabulations. That is, caregivers had significantly (155%) greater odds of reporting higher stress levels than non-caregivers. Respondents were also asked to indicate the degree of control that they felt they had over their lives. Upon analysis, the odds of reporting less control over their lives were less than half as high (47%) for non-caregivers as compared to caregivers.

There were several questions that addressed issues in relation to depression and emotional health, and asked respondents to comment on these areas for the month prior to the survey. While most (86.9%) respondents from both groups did not report that they felt sad, caregivers differed from non-caregivers on various questions relating to these issues. There was a significant difference in the proportion of caregivers (19.5%) and non-caregivers (12%) who reported feeling sad most or some of the time ($p=0.015$).

In addition, regression analysis revealed that non-caregivers had significantly higher odds than caregivers of reporting greater happiness (by 65%). Caregivers were also significantly more likely than non-caregivers to report that they were, all or most of the time, more restless (33.3% vs. 24%, $p=0.009$), felt more hopeless (13.1% vs. 7.1%, $p=0.005$), and worthless (4.5% vs. 1.5%, $p=0.006$). In addition, slightly over 25% of caregivers compared to 14.9% of non-caregivers reported that they felt that that “everything was an effort” ($p<.01$).

The respondents were also asked to indicate whether they felt depressed in the twelve months prior to the survey. The results showed that 20.6% of caregivers indicated that they felt

depressed or blue in the last twelve months compared with only 15% of non-caregivers ($p=.048$). Again, it should be recognized that although the cell sizes were greater than five (5), the analyses were based on a low sample size. Nonetheless, the odds ratios revealed that, although not statistically significant, non-caregivers have 23% lower odds of being depressed than caregivers. Although being a caregiver did not statistically increase the odds of feeling blue or sad, the regression analysis did reveal that being unemployed, having a low income, and being aged 45-64 significantly increased the odds of being depressed for a period of two weeks or more, by 63%, 260%, and 119%, respectively. Caregivers were also less likely to report a high satisfaction with their lives. Odds ratio results indicate that the odds of reporting high life satisfaction were 73% higher for non-caregivers as compared to caregivers.

The literature suggests that caregivers may differ from non-caregivers with respect to their health behaviours and health practices. Questions concerning doctor or other health care professional visits, preventive health practices, and health behaviours were examined. Respondents were asked to indicate the number of health care visits in the last twelve months. There were significant differences between caregivers and non-caregivers in the frequencies of their contacts with physicians. The majority of non-caregivers (59.1%) had contact with a physician two times or fewer in the year preceding the survey, whereas the majority of caregivers (52.9%) had contact with physicians 3 or more times in that year ($p=0.012$). Caregivers were also significantly more likely to have visited a mental health professional more often in the past year ($p=0.031$). Although not statistically significant, more caregivers had consulted a mental health professional at least once in the past year (29.1% vs. 22.9%), and more had done so three or more times (23.8% vs. 19.9%).

Regression analysis revealed that the odds of contacting a physician more often were almost 23% lower for non-caregivers than for caregivers. Again, although not significant, it is interesting to note that caregivers have higher odds of consulting a mental health professional (by 65.3%), and visiting outpatient or emergency departments (by 46.6%) than non-caregivers. There was no difference in the odds between caregivers and non-caregivers for contacting other health care professionals.

A large proportion of all Glace Bay respondents reported that they visited a health professional less than twice in the year previous to the survey - physician (36.4%), other health care practitioner (18%), mental health professional (2.9%), or emergency/outpatient department (24.8%). Most individuals (77%) reported that they had not visited a mental health professional in the past 12 months. This result did not differ between caregiver and non-caregiver groups. Gender was a significant variable in relation to the odds of consulting a physician. That is, males had significantly lower odds than females of consulting a physician more often (by 32.9%). In addition, retirees and those respondents that reported being unemployed had significantly higher odds (by 66.2% and 54.0%, respectively) than employed respondents of consulting a physician more often.

Questions concerning health practices included questions on whether the respondents had a mammogram or pap smear, or had their blood pressure checked in the year previous to the survey. Caregivers did not differ significantly from non-caregivers with respect to their preventive health practices. Controlling for age and gender, when appropriate, the results

indicated that both groups were similar with respect to whether they received pap smears and mammograms in the last year. Regression analyses also revealed that there were no differences between caregivers and non-caregivers in the odds of receiving pap smears or mammograms. Results indicated that caregivers and non-caregivers were significantly different with respect to whether they had their blood pressure checked ($p=0.037$). Accordingly, 74.5% of non-caregivers had their blood pressure checked within the last year as opposed to 86.9% of caregivers. Logistic regression results showed that non-caregivers had significantly (124%) higher odds than caregivers of not getting their blood pressure checked at least once in the year previous to the survey.

The questions concerning health behaviours also included questions on exercise and smoking behaviours. There were no differences between groups with respect to their exercise routines with 67.5% indicating that they exercised at least once per week. The results of Chi-square analyses showed that there were no significant differences in the proportion of caregiver and non-caregivers who reported smoking – 31.7% and 28.9% respectively.

Social support and community participation were also deemed important to our analyses. Respondents were asked to indicate their level of social support and their ability to participate in community activities. Questions concerning these areas included their frequency of participating in religious/spiritual and community events and their contact with neighbours and family. Caregivers and non-caregivers were similar in their attendance at religious/spiritual events. However, the results suggest that there were differences between groups with respect to their social support. The findings revealed that caregivers were more likely to have more frequent contacts with their neighbours than non-caregivers, with most caregivers (74.4%) reporting that they had contact with their neighbours at least once per week as opposed to 69.4% of non-caregivers ($p=0.048$).

Respondents were also asked questions concerning their availability for participation in community/volunteer activities. Although not significant, more caregivers (34.5%) reported that they had participated in unpaid volunteer activities in the last 12 months than non-caregivers (28.3%). Of those respondents (both caregivers and non-caregivers) that did not do any volunteer work, the main reasons were not enough time (38.0%) and health problems (22.1%). There were no significant differences between caregivers and non-caregivers in reasons for not volunteering.

Kings County – Caregivers vs non-caregivers

In general, the results from Kings County were similar to those of Glace Bay. The total number of surveys completed was 1859 with a response rate of 92.8%. Of the total number of respondents, nearly 55% were female and 73% were married or living with a common-law partner. Kings County respondents were slightly younger than those of Glace Bay with nearly 57% of those that responded reporting that they were 45 years and older ($p=0.008$). The most common age group in Kings County was 35-44 (24.8%), whereas the 45-54 year old age-group (24.6%) was the most common one in Glace Bay. With respect to income and education, Kings County reported slightly higher levels on both variables than did Glace Bay ($p<.01$). More than

65% of the respondents reported a household income of \$35,000 or more per year, and slightly more than 40% had completed a university degree or community college diploma or certification program. These last differences may, in part, be due to the younger population of Kings County.

Of the 1869 respondents from Kings County, 221 (11.8%) reported that they were providing care without financial remuneration for a family member or friend. Similar to Glace Bay, most caregivers were women (60.9%), which was significantly different from the non-caregiver group that were 53.9% female ($p=0.051$). There were no significant differences between the marital status of either group with 72.7% of non-caregivers and 75.6% of caregivers reporting being married or living with a common-law partner. Caregivers were significantly older than the non-caregiver group, with 71.7% of caregivers reporting to be at least 45 years or older compared to less than 55% of non-caregivers in the same category ($p<.01$). There were significant differences in the household incomes of caregivers and non-caregivers. Caregivers' household incomes tended to be lower than non-caregivers', with 18.9% of caregivers reporting an income of less than \$20,000 compared to only 12.8% non-caregivers in this income category ($p=0.005$). In addition, only 66.5% of caregivers reported an income of at least \$35,000 as opposed to 57.0% of non-caregivers. Caregivers and non-caregivers reported similar education levels. That is, approximately 40% of both caregivers and non-caregivers reported that they had completed a university degree or community college certificate or diploma program. As an indication of employment status, respondents were asked to indicate their 'main activity.' The possible choices included employed, unemployed, student, homemaker, or retired. Results from the Kings County sample indicated that there was a significant association between 'main activity' and caregiving ($p=0.058$). In general, caregivers were less likely to be employed (46.1% vs. 50.9%) and more likely to be retired (27.9% vs. 22.8%) than non-caregivers.

Kings County respondents were asked the same questions as Glace Bay respondents concerning their perceived health status, health behaviours and practices. Similar to Glace Bay respondents, young (aged 15-44) caregivers and non-caregivers differed significantly with respect to their perceived health status. While 14.5% of young caregivers reported poor to fair health status, only 8.7% of young non-caregivers fell in this category. Additionally, 64.7% of young non-caregivers and only 48.4% of young caregivers reported that their health status was very good or excellent ($p=0.034$). These differences occurred between older (aged 45+) caregivers and non-caregivers as well, with 44.3% of non-caregivers reporting 'very good' or 'excellent' health as opposed to only 39.4% of caregivers. However, for older respondents, these differences were not statistically significant. The results of the regression analysis revealed that non-caregivers had significantly higher (41.3%) odds as compared to caregivers of reporting better health.

As an indication of health status, medication use and the effect of chronic health conditions on activity levels were also examined in our analyses. The results indicated that 'limited activity' was a significant problem for younger caregivers, with 21.3% reporting that they had limited activity due to chronic mental/physical health problems compared to only 10.0% of non-caregivers ($p=0.007$). Although a larger proportion of older (aged 45+) caregivers reported activity limitations (26.6% vs. 23.7% of older non-caregivers), this difference was not significant.

In general, Kings County caregivers were similar to non-caregivers in their use of medication for most drug types. However, there were some differences. Significantly more young (age 15-44) caregivers than non-caregivers (39.4% vs 34.7%) used anti-inflammatory at least weekly ($p=0.031$). There were also significant differences in the use of sleeping pills between groups, with more than twice as many caregivers as non-caregivers (9.6% vs. 3.8%) who reported taking sleeping pills on a daily and weekly basis ($p=0.050$). Low cell counts here prohibit controlling for age. Kings County caregivers also reported taking more stomach remedies than non-caregivers, with nearly 12% of caregivers who reported taking stomach remedies daily, compared to only 7% of non-caregivers ($p=0.05$). Again, low cell counts for stomach remedy use prohibit additional subcategorizing of the respondents by age.

Results from questions concerning respondents' stress levels were also analyzed for Kings County. Similar to Glace Bay, Kings County caregivers often felt that they could not accomplish what they wanted (62%) as compared to 52.2% of non-caregivers ($p=0.006$). Also, 49.3% of Kings County caregivers felt that they did not have enough time to spend with family/friends as opposed to 39.5% of non-caregivers ($p=0.006$). In addition, caregivers felt that they were constantly under stress to accomplish more compared to non-caregivers (47.5% vs. 35.4%; $p=0.001$). Similarly, non-caregivers had 38% lower odds than caregivers of rating their lives more stressful. That is, caregivers had significantly greater odds of rating their lives more stressful than non-caregivers. For the purpose of this analysis, the level of control over one's life can reflect feelings of stress.

The results revealed significant differences in indicators of emotional health between Kings County caregivers and non-caregivers. The findings from Chi-square analyses indicated that a higher proportion of caregivers were nervous (26.1% vs. 18.5%, $p=0.03$) and felt worthless (10.7% vs. 5.7%, $p=0.001$) at least some of the time as compared to non-caregivers. Caregivers did not differ from their non-caregiver counterparts with respect to feelings of hopelessness or restlessness, or with feeling that everything was an effort. Also, caregivers did not differ significantly from non-caregivers with respect to feeling sad or blue within the year previous to the survey (16% and 12.6%). Although not significant, non-caregivers had lower odds (by 19.7%) than caregivers of reporting a two-week period of depression or sadness in the year preceding the survey. Conversely, non-caregivers had significantly (by 48%) higher odds as compared to caregivers of reporting greater happiness in their lives.

For the purpose of these analyses, the number of times respondents visited a health care professional was considered to be an indication of health system usage. Kings County caregivers and non-caregivers did not differ significantly in frequency of health care visits. That is, caregivers did not contact health care professionals significantly more (or less) than non-caregivers. Similarly, regression analyses revealed that there was no significant difference between caregivers and non-caregivers in their odds of contacting a physician or other health care professionals more frequently than non-caregivers.

The sample of Kings County respondents indicated that a large proportions visited doctors (43%), other health care professionals (28.7%), emergency or outpatient departments (25.2%), and mental health professions (2.88%) no more than twice per year.

Questions on health behaviours and practices, including preventive practices, were also asked of the Kings County respondents. Female caregivers and non-caregivers, controlling for age, reported similar patterns of preventive health practices. Likewise, the results of the odds ratios showed that for females, there were no significant differences between caregivers and non-caregivers in the odds of having had a pap smear or mammogram in the year previous to the survey. The results revealed that there was a similar pattern for caregivers and non-caregivers with respect to having their blood pressure checked.

Exercise activities and smoking behaviours were also examined as indicators of health behaviours. Chi-squared test results showed that, between caregivers and non-caregivers, there were no significant differences with respect to their exercise activities. Similarly, the odds ratio of 0.968 indicates that caregivers and non-caregivers had nearly identical odds of participating in exercise. The analyses of smoking behaviours revealed that there were no significant differences between the groups with 17.2% of non-caregivers smoking at the time of the survey as compared to 21.5% of caregivers.

As previously explained, social support and community participation were considered important issues for these analyses. These areas comprised questions concerning the respondent's ability to participate in religious/spiritual and community events. The results revealed that there were no differences between caregivers and non-caregivers with respect to the frequency with which they attended spiritual/religious functions. However, there were significant differences between the groups with respect to their contact with relatives who did not live with them; eighty percent of Kings County caregivers responded that they had contact with their relatives at least once per week as opposed to only 73% of non-caregivers ($p=.050$). However, there was no significant difference between the groups with respect to contact with their neighbours. Similar to Glace Bay respondents, the results showed that both caregivers and non-caregivers in Kings County participated equally in volunteer activities. However, caregivers more than non-caregivers reported that time constraints and health problems were the major reasons why they did not participate more in volunteer work.

Comparison of Caregivers

The total number of respondents for both Kings County (1874) and Glace Bay (1694) was 3568. In general, for the total sample, the respondents were similar in both communities by gender – 57.2% female for Glace Bay and 55.1% in Kings County. The results indicated that there were significant differences between the two communities with respect to marital status. That is, 72% of the total sample in Kings County indicated they were married as opposed to only 60.2% in Glace Bay ($p<.01$). In addition, there were significant differences with respect to income, education level, employment status, and age.

Overall, Kings County respondents were more likely to be employed (50.2%) than those in Glace Bay (34.5%; $p<.01$). In addition, a higher proportion of Glace Bay (29.9%) respondents reported being retired than those in Kings County (23.6%). However, Kings County respondents tended to be slightly younger than those of Glace Bay and this could have accounted for the differences.

From a range of answers – employed, unemployed, student, homemaker or retired- respondents were asked to indicate their ‘main activity.’ Of the entire caregiver sample, most caregivers indicated that they were either unemployed (38.1%) or retired (25.9%) or homemakers (17.7%). However, there were significant differences in the employment status of caregivers between the two communities. A higher proportion of caregivers in Kings County were employed (46.1%) or retired (27.9%), as opposed to Glace Bay, where 29.6% of caregivers were employed and 23.8% were retired ($p<.01$).

There were no significant differences in the proportion of caregivers in each community. The results indicated that there were 206 caregivers in Glace Bay and 221 in Kings County representing 12.1% and 11.8% of the sample, respectively. In addition, caregivers were similar with respect to gender and age with women representing 57.5% of caregivers in Glace Bay and 60.9% in Kings County. Most caregivers (70.2% across both communities) reported that they were over 45, as compared to 57.2% of non-caregivers. However, there were significant differences between the two communities with respect to caregiver’s household income ($p=0.008$). Nearly 42% of caregivers in Kings County reported an income below \$35,000, while slightly over 59% reported being in the same household income category in Glace Bay ($p=0.01$).

There were no significant differences in the education levels between caregivers in the two communities. However, there were a higher percentage of caregivers in Kings County who reported they had completed university or community college than in Glace Bay - 39.7% and 29.6% respectively. Of all 427 caregivers, most were married or living in a common-law relationship (72.6%) which did not reflect a significant difference between the communities with respect to the marital status of caregivers.

Caregivers in both communities reported similar health status, with 41.8% of caregivers in Glace Bay reporting excellent or very good health and nearly 41% in Kings County reporting the same health status. An examination of activity limitations due to a chronic health problem as an indicator of health status was incorporated in our analysis of caregivers. Again, there were no significant differences between caregiver groups with respect to their ‘limited activity levels due to physical/mental health problems’ and this was similar for the both community caregiver samples. Only 27.6% of all caregivers reported that they had limited activity due to a long-term illness. However, regression analysis revealed that for the entire sample of respondents from both communities, non-caregivers had significantly higher (37.5%) odds than caregivers of reporting better health. Furthermore, non-caregivers had significantly lower odds (by 23.6%) than caregivers of being limited in their activities due to a chronic health problem.

Respondents were asked to indicate, from a list of possible chronic health problems, the disease(s) from which they suffered. For the entire sample of caregivers and non-caregivers in both communities, the five most reported chronic diseases were: arthritis/rheumatism; high blood pressure; back problems excluding arthritis; allergies excluding food allergies; and, migraine headaches. However, the results suggested that caregivers were more likely to suffer from certain types of chronic diseases compared to non-caregivers. That is, twice as many caregivers suffered from migraine headaches, stomach or intestinal disorders, and urinary incontinence than non-caregivers, and nearly three times as many caregivers as non-caregivers suffered from bowel disorders.

Respondents' medication use was also examined as an indicator of health status. In general, caregivers in Kings County did not differ from Glace Bay with respect to their medication use. The results indicated that, for both groups of caregivers, they used anti-inflammatories (49.9%) tranquilizers (3.6%), heart medicine (7.8%), sleeping pills (7.6%), and stomach remedies (17.6%), between one and seven times per week. Nonetheless, there were some differences with a few of the drugs listed. Although the results did not appear to be significant, Glace Bay caregivers used anti-depressant medications twice as much on a daily basis as Kings County caregivers, 10.2% and 4.8% respectively. There were no differences between groups with respect to those caregivers who took anti-depressants on a weekly or monthly basis, or those that reported never taking them at all. In comparison to this result, there was a difference between Kings County and Glace Bay caregivers with respect to asthma medication use. The results indicated that Kings County caregivers (7.6%) used asthma medication on a daily basis over twice as much as Glace Bay caregivers (3.2%). Again, the results were not significant. However, there were significant differences in the use of blood pressure medication between caregiver groups. Glace Bay caregivers used blood pressure medication more often than Kings County, 29.6% and 17.1% respectively ($p=0.011$).

The results showed that there were no differences between caregivers on indicators of both stress and emotional health. In general, both groups felt similar with respect to their feelings of: sadness (2.6%); nervousness (5.6%); restlessness (6.7%); hopelessness (2.7%); worthlessness (6.9%), and feelings that everything was an effort (6.9%), all or most of the time. In fact, between 70.5% and 89.5% of all caregivers reported that they did not experience these feelings. Although there were no between caregiver group differences with respect to stress, the results revealed that many caregivers were stressed. For the entire sample of Glace Bay and Kings County, caregivers had higher odds of reporting less control in their lives than non-caregivers. For all caregivers, 60.7% reported that they could not accomplish what they wanted, 48.2% indicated that they worried that they did not spend enough time with their family or friends, or that they were constantly under stress trying to accomplish more.

The results concerning the respondent's happiness in their lives were also considered an indication of emotional health. The odds ratio results revealed that, for the entire sample of both communities, non-caregivers had significantly higher odds (by 55%) of reporting happiness in their lives than caregivers. For all respondents in both Kings County and Glace Bay, there was no difference in the odds of reporting happiness in their lives between the two communities.

Health system use, health behaviours and practices were examined controlling for age and sex where appropriate. These questions included doctor or other health care professional visits, preventive health practices, and healthy/high risk behaviours. Glace Bay caregivers reported that they visited their physicians significantly more often than Kings County caregivers ($p=0.004$). Thirty-seven percent of Glace Bay caregivers reported that they visited their physician "3-12 times per year" while only 30% of Kings County indicated this. The values for visiting their physicians were collapsed and after this procedure it was revealed that three times more Glace Bay caregivers than Kings County caregivers visited their physicians equal to or more than thirteen times per year (15.5% and 5.7%, $p=0.004$).

Consistently, Glace Bay caregivers visited other health care professionals, mental health professionals, and emergency/outpatient departments significantly more often than Kings County caregivers ($p < .01$ to $p = 0.010$). In addition, there were significant differences between caregiver groups with respect to 'being sick in bed more than a day' with 21.8% of Glace Bay and 5.7% of Kings County caregivers reporting being ill enough to be in bed for more than a day ($p = 0.001$).

With respect to examining the between community samples (the entire sample), the results were unlike those of the between community caregiver samples. In fact, the odds ratio revealed that as a whole, Kings County respondents had similar odds of visiting their physicians as Glace Bay. Furthermore, for the total sample of caregivers and non-caregivers, odds ratios analyses showed that, non-caregivers had significantly lower odds (by 83.2%) than caregivers for the number of times they contacted a mental health professional. Analysis of the entire sample revealed that non-caregivers had significantly lower odds (by 27.5%) than caregivers of visiting an outpatient department or hospital emergency than caregivers. Again, it is cautioned that these numbers, in some cases, are based on low cell counts. Every effort has been made to collapse categories in order to provide a higher cell count, and no cell with a count of less than five has been reported.

An examination of health practices and behaviours revealed that both groups of caregivers were very similar on these indicators. Both caregiver groups indicated that they had mammograms (63.3%) and pap smears (60.8%) within the last year. In addition, there were no between group differences with respect having their blood pressure checked. Nearly 13% of all caregivers reported that they had their blood pressure checked with the last 12 months. However, odds ratios revealed that non-caregivers had significantly lower odds (by 38.2%) than caregivers of not having had their blood pressure checked in the year previous to the survey. Upon examination of respondents' exercise patterns, caregivers reported similar exercise behaviours. That is, 27.4% of caregivers exercised greater than three times per week, 38.2% one to three times per week, and 34.4% less than once week. In addition, there were no differences in the exercise patterns caregivers and non-caregivers for the total sample. However, respondents from Glace Bay had significantly (22%) higher odds than those of Kings County of exercising more.

Smoking patterns were also considered as part of the analyses of health behaviours. The results indicated that caregivers in Glace Bay (31.7%) smoked significantly more on a daily basis than caregivers in Kings County (21.5%, $p = 0.050$). Logistic regression results showed that, for the sample as a whole (both caregivers and non-caregivers), Glace Bay respondents had significantly higher (by 55.8%) odds of smoking than those of Kings County.

Social support and caregiver's ability to participate in voluntary activities were also germane to our analyses. Results were significant between caregiver groups for those respondents who were in contact with family members who did not live with them ($p = 0.020$), and for frequency of contact with neighbours ($p < .01$). Glace Bay caregivers reported that they had more contact with neighbours and relatives than Kings County caregivers. Eighty-three percent of caregivers in Glace Bay reported having contact with relatives at least one to seven times per week as opposed to 80% of Kings County caregivers. However, when questioned about their contact with neighbours the results showed a larger difference between groups. Nearly 85% of Glace Bay caregivers reported that they visited their neighbours at least one to seven times per week as

compared to 64.4% of Kings County caregivers. With respect to volunteer work, a higher proportion of Kings County caregivers (52.5%) reported that they volunteered for an organization in the last twelve months, compared to only 34.5% of Glace Bay caregivers. However, both groups of caregivers similarly reported that the main reasons for not volunteering were lack of time (69%) and health problems (15.4%).

Time-Use, Caring and Health

Increasingly, researchers and policy makers are recognizing the importance of time in understanding quality of life. Traditionally, the focus on time has been on time spent in paid work, deemed to be the essence of productive activity. However, it is now clear that that focus omitted a very important component of productive time, time allocated to housework childcare and volunteer activities. Just as paid work produced goods and services that contributed to well being, the omitted activities also made a very significant contribution.

Four major uses of time can be identified. These include contracted time, committed time, necessary time, and free time. Contracted time refers to time engaged in as part of a contract for employment or as time allocated to educational activity. Committed time refers to time allocated to maintaining family commitments such as meal preparation, housekeeping, or household maintenance. Necessary time is time required for self-maintenance such as eating, sleeping, resting and personal activities. Time that does not fall into these three categories is denoted free time. Examining these four types of time use can provide considerable insight into the lives of individuals.

First, it will be noted in Table A and Table B that contracted or paid work time appears relatively low on a daily basis. The reason for this is that the time is calculated as an average day over seven days of the week even though workers typically work only five. Also, the work time presented is an average over the total population while typically only a portion of the population is engaged in the labor force. If 60% of the population was in the workforce and they worked a five-day week, one would expect there to be 42% (.60 times .70) of the population engaged on an average day. In Kings County 43% were engaged in paid work on an average day while in Glace Bay only 29% were so engaged. These realities account for the low average daily time allocated to contract work in both sites and the considerably low value for Glace Bay.

In the following tables we examine, for both Glace Bay and Kings County, the impact of two life situations on the time use of men and women. The first shows the impact of having children, and hence the necessity of caring for them, on the four categories of time use. The second shows how the respondent's health contributes to, or is affected, by their use of time.

In Glace Bay, males with children allocated about 10.5 hours per day to necessary (personal) activities, 2.3 hours to contracted work, and 3.1 hours to committed time, with 6.4 hours of free time per day. In contrast, women with children devoted 11 hours to necessary time, 1.9 hours to contracted time, 4.4 hours to committed time, and had 5.4 hours of free time. In Glace Bay, the presence of children had no significant affect on the contracted or work time of respondents of either gender. However, children did significantly increase the committed and, hence, total

productive time of both males (about 1 hour per day) and females (about 1.5 hours). As a consequence, the free time of both males and females was reduced by about an hour per day.

There was a clear association, in Glace Bay, between one's perceived state of health and their contracted work time. Individuals perceiving their health as very good or excellent, worked in paid work one and a half hours or more per day more than did those who perceived their health to be good, fair or poor. However, for men the difference was fully accounted for by reduced participation in work on diary day. In contrast, while there was reduced participation in paid work on diary day by women, those women who did work averaged a half hour less paid work per day. Also, individuals perceiving their health as being good, fair or poor, allocated approximately one-half hour more than respondents citing very good or excellent health, to committed (domestic) work. Similarly, they allocated approximate one-half hour more to free time activities and significantly more time (4/10ths of an hour for men and 8/10ths of an hour for women) to necessary activities.

Table A: Time-use, Caring and Health: Glace Bay

Time (Hours)		Do you have children?		Respondents Health	
		Yes	No	Very Good/ Excellent	Good/ Fair/Poor
Necessary Time	Male	10.5	10.9*	10.4	10.8*
	Female	11.0	10.9	10.6	11.4*
Free Time	Male	6.4	7.3*	6.3	6.9*
	Female	5.4	6.7*	5.4	5.9*
Contracted Time	Male	2.3	2.5	3.2*	1.7
	Female	1.9	2.2	2.9*	1.1
Committed Time	Male	3.1*	1.9	2.6	3.0*
	Female	4.4*	2.7	3.7	4.3*
Total Productive Time	Male	5.4*	4.3	5.7*	4.6
	Female	6.2*	4.8	6.6*	5.3

* Significant difference at .05 level of significance.

In Kings County the presence of children had no significant effect on the allocation of necessary time or free time by either males or females, as shown in Table B. This is contrary to the situation in Glace Bay. Also, contrary to Glace Bay, the presence of children significantly reduced the time allocated to contracted (paid work) in Kings County. The presence of children reduced males work time by an average of 4/10 of one hour per day and females paid work time by 1.3 hours per day. Total productive time was increased for both males and females. However, only in the case of females was the increase statistically significant.

With respect to the impact of perceived health on time allocation, the pattern follows very closely that observed in Glace Bay. Those in excellent or good health spend less time on necessary activities and on free time activities, more time on contracted activities and significantly more time on productive activities. The only deviation from the Glace Bay pattern

is the fact that this group spends significantly less time on committed activities. There is no significant difference in time allocated to committed activities by this group. See Table B, page 32.

Table B: Time-use, Caring and Health: King's County

Time (Hours)		Do you have children?		Respondents Health	
		Yes	No	Very Good/ Excellent	Good/ Fair/Poor
Necessary Time to Male		10.6	10.6	10.4	10.9*
	Female	11.0	11.2	10.8	11.4*
Free Time	Male	5.4	5.7	5.1	5.9*
	Female	5.2	5.4	5.0	5.6*
Contracted Time	Male	4.3	4.8.*	5.1*	3.7
	Female	2.6	3.9*	3.4*	2.3
Committed Time	Male	2.6*	1.8	2.3	2.5
	Female	4.2*	2.5	3.8	3.9
Total Productive	Male	6.9	6.6	7.4*	6.2
Time	Female	6.8*	6.4	7.2*	6.2

* Significant difference at the .05 level of significance.

Discussion

The purpose of this report was to examine caregiver characteristics, health status, and health behaviours and practices in two Nova Scotian communities. Compared to other surveys of this kind, such as the Nova Scotia Health Survey and the General Social Survey, actual numbers of caregivers were high in relation to the population (211 in Kings County, and 206 in Glace Bay). Despite these numbers, there were some difficulties encountered with cell sizes being below five. Therefore, where appropriate, values were re-coded to allow for more robust analyses.

Caregivers

There have been various studies describing the characteristics of caregivers. For this study, the caregivers from each community were examined for similarities and differences on a variety of demographic variables that allowed a profile of caregivers to be created. Our results indicated that 11.8% of the sample of Kings County (KC) and 11.8% of Glace Bay (GB) respondents were caregivers. These proportions are similar to those of a Canadian study by Cranswick (1997) who reported that 12.06% of the Canadian population provided unpaid care to someone with long-term health problems. The proportion of women to men caregivers was slightly lower in our sample (67.48%-GB and 60.91%-KC) for both communities than the reported 69% in the Canadian study. Additionally, the caregivers in our sample were older than the national sample.

Caregivers in both communities reported similar education levels with most completing high school, and slightly more completing university and community college in Kings County as

compared to Glace Bay. However, there were some differences between the communities. Most caregivers reported being unemployed, retired or homemakers, with caregivers in Kings County showing higher proportions of the sample being employed and retired. Caregivers in Kings County were also slightly younger as compared to those of Glace Bay. Caregivers in Kings County reported slightly higher income levels, but the lower employment rate and slightly older population in Glace Bay may explain this.

In summary, most caregivers from both communities were women over 45 years of age, and were married or living in a common-law relationship, and these results are similar to the national findings. These results partially supported ‘hypothesis 1’ that caregivers were more likely to be female, and married, and in an older age group. However, ‘hypothesis 1a.’ was not supported in that caregivers from both communities were similar in age. Many caregivers reported a variety of main activities; the majority of caregivers were unemployed, retired, or homemakers with less than 50% reporting that they were employed. However, we hypothesized that caregivers would have lower income and education levels than non-caregivers and this was not supported by our results. Caregivers and non-caregivers had similar education and income levels. In addition, the fact that nearly 50% of caregivers were employed was also higher than expected.

Health Status

The burden of caregiving has long been recognized as an important issue in relation to the health outcomes of caregivers. Caregiver’s adverse psychological and physical outcomes due to their caregiving responsibilities have been supported in some studies. Our results also provide support that caregivers have significantly lower perceived health status than non-caregivers. Furthermore, these results were consistent between the two communities with caregivers in both communities reporting a lower perceived rating of health.

Germane to our study of health status is caregivers’ limited activity levels imposed by chronic health problems as a reflection of physical health. Our results supported the notion that caregivers have more activity limitations than non-caregivers, and this may reflect poorer physical health status. Nonetheless, we could not determine in this study whether these limitations were a result of their caregiving responsibilities or had been present prior to assuming their caregiving responsibilities.

Many studies refer to negative emotional and mental health effects on caregivers in relation to the burden of caregiving. Our results support the view that caregivers have higher stress levels than non-caregivers. In fact, the findings revealed that caregivers experienced feelings of nervousness and worthlessness, and felt more stressed and time pressured than non-caregivers. In addition, our findings suggested that non-caregivers had higher odds of reporting happiness in their lives than caregivers. These findings are similar to those by George and Gwyther who found that caregivers experienced three times more stress than a comparison population. The findings of this study are comparable to those of others that report on the negative emotional health (Snow-Spracklin, 1998) of caregivers due to their caregiver responsibilities.

Medication can also mirror factors associated with health status. Although there appeared to be a dearth of literature surrounding medication use and caregiving, we believe that the results found

in this study are an important issue for future caregiver research. In general, caregivers used more anti-inflammatory medication, anti-depressants, sleeping pills, stomach remedies, and asthma medications than non-caregivers. It could be maintained and certainly not too presumptive to suggest, that these findings may be reflective of high stress levels and perceived poorer emotional health reported by caregivers in both communities.

Between the communities, caregivers in Glace Bay reported using more anti-depressants than Kings County. Comparatively, Kings County caregivers used asthma medications nearly twice as much on a daily basis than Glace Bay caregivers. Although we were unable, from the data available, to examine associations to explain the difference associated with asthma medications, it may be due to environmental factors rather than being a caregiver.

In summary, our findings partially support ‘hypothesis 2’ in that caregivers report poorer emotional health with respect to stress and other factors than non-caregivers. Nonetheless, ‘hypothesis 2’, in part, was not supported by our results. That is, caregivers did not report similar physical health status than non-caregivers. Our findings suggested that caregivers reported more physical limitations than non-caregivers, although the reason for these limitations could not be credited to their caregiving responsibilities. In addition, caregivers reported higher use of medications associated with emotional or psychological health issues compared to the non-caregiver population. This idea coincides with our findings that caregivers have high stress levels and report more emotional health issues than our comparable population.

Health Care Utilization

Many studies have suggested the idea that a higher level of morbidity in caregivers could translate into higher health care utilization. Few studies have thoroughly investigated this question. Of those that have the majority appear to find that, in general, caregivers do not visit their physician more often than a comparative population. However, stratifying by types of physicians or health care workers it appears that caregivers visit psychiatrists and internal medicine consultants more often than comparable non-caregivers (Baumgarten et al. 1997). Our findings also supported the notion that, in general, caregivers and non-caregivers did not differ with respect to their health care utilization and this was similar in both communities. Nonetheless, our findings did indicate that, although not significant, there appeared to be a tendency for caregivers to have higher odds of visiting health care professionals and emergency/outpatient department, or staying overnight in a health care facility, more frequently than non-caregivers.

However, when the entire sample of caregivers and non-caregivers was examined it revealed that caregivers visited mental health professionals more frequently than non-caregivers. These findings are quite similar to those of Baumgarten in that she found that caregivers visited psychiatrists more often than non-caregivers.

Between community results for the entire sample also revealed conflicting results. The results indicated that, as a whole, the frequency of physician visits was similar for Kings County and Glace Bay respondents. However, odds ratios revealed that Glace Bay had lower odds of visiting other health care providers than Kings County. This result may be indicative of the

differences in the types of health care services in the communities. As explained in the community descriptions, the community of Kings County is slightly larger and has more access to a variety of health care services than Glace Bay, which is more isolated. Furthermore, the between community caregiver sample analysis revealed that, controlling for age, Glace Bay caregivers reported that they visited their physicians and other health care professionals more often than Kings County.

On the surface, similar health care visiting patterns between caregivers and non-caregivers appears to be contradictory to our findings that caregivers report poorer health status than non-caregivers. That is, based on their reported poorer health status, it would be reasonable to assume that caregivers would have a higher frequency of visiting health care professionals. However, there are several plausible explanations for these findings. First, we did find that caregivers are stressed and feel that they cannot accomplish what they feel they need to, and therefore it could be assumed that they may not have time to visit their health care provider more than they indicated. Consequently, caregivers would not show a higher frequency of visits. Second, caregivers may feel that their symptoms could not be alleviated by professional treatment, and therefore, do not seek help. Third, it could be suggested the responsibilities of caregiving can reflect an implicit selection process in that only those people that become caregivers are those that are physically and mentally capable of maintaining a caregiving role. Therefore, those people that require high levels of health care utilization either give up, or never undertake, caregiving responsibilities. Of course, frequency of visits to health care providers may always depend on the types of health care services available in a given area. A lack of physician services could also account for the inability of caregivers to seek medical care. Although we were not able to control for this confounding factor, future research should consider the resources available in the community under study.

In general, our results supported ‘hypothesis 3’ in that caregivers and non-caregivers had similar health care utilization patterns. However, when investigating the between community differences, the results supported ‘hypothesis 2a’ in that Glace Bay caregivers utilized health care services more frequently as compared to Kings County, and this held true when controlling for age. Additionally, our results also indicated that Glace Bay reported higher utilization rates than Kings County with respect to visits to mental health professionals. It is suggested that further study in this area could address some of the reasons why caregivers’ reported poorer health status is not reflected in their utilization patterns and the types of services available in the specific areas.

Health Behaviours

Our results indicated that, with only one exception, there were no differences between caregivers and non-caregivers with respect to preventive health behaviours. The only exception to this finding is that Glace Bay non-caregivers had their blood pressure checked more often than caregivers, and only a small portion of the entire sample indicated this. Consequently, we can conclude that ‘hypothesis 4’ was supported by our results. These results were similar to those found by Scharlach (1997) who investigated differences between caregivers and a comparison group on a variety of health behaviours such as exercise, nutrition, and smoking. Nonetheless, the between caregivers group analysis revealed that caregivers in Glace Bay smoked more

frequently than Kings County, but that Glace Bay caregivers exercised more often than Kings County.

Social Support

Social support as an intervening factor in caregiver emotional health has been investigated by Snow-Spracklin (1998). Studies examining social support in caregiver's lives vary because of the conceptualization of social support. For the purposes of our study we examined associations with the caregivers ability to: (1) partake in community and religious events; (2) visit/contact with neighbours; and, (3) to visit/contact relatives who did not live with them. According to our results both caregivers and non-caregivers participated in religious events and community volunteer activities in similar patterns. Nonetheless, between caregivers, Kings County caregivers were able to participate in voluntary activities more often than Glace Bay caregivers. Both groups indicated that they did not participate in voluntary activities because of health problems and lack of time. However, differences were revealed in the respondents' relationships to their neighbours. Glace Bay caregivers had contact with their neighbours more frequently than non-caregivers. Kings County caregivers had more frequent contact with relatives than non-caregivers. Between communities, caregiver differences indicated that Kings County had far less frequent visits with neighbours than Glace Bay.

From our results, it appears that all caregivers suffer from high levels of stress. Additionally, each community appears to have a unique method in which to seek social support, and this could act as an intervening factor in ameliorating stress for caregivers. We conclude that the types of social support used in each community vary. Glace Bay caregivers utilize neighbours more than Kings County and, and Kings County seek family or relatives more than Glace Bay. Several factors could account for these findings. Keefe and others found that rural caregivers use more informal supports than urban caregivers. Both these communities are considered rural areas of Nova Scotia and may not have formal services available as would be in the larger centres. Additionally, lack of transportation may also be a factor in the types of social support caregivers choose, or have to rely on, to relieve the burden associated with their caregiver responsibilities. Consequently, our results may be a reflection of caregivers using the informal supports of family and friends to alleviate stress and caregiver burden. These results may reflect the varying culture and family structures in each community. Additionally, Glace Bay has higher unemployment rates and an older population than Kings County. Some of these findings may reflect the out-migration of young people to seek employment in larger centers, and therefore are not available as a support to their family. Consequently, Glace Bay caregivers may have to rely on neighbours rather than family for their social support.

In summary, caregivers appear to rely on informal resources for social support. These social support patterns manifest themselves in a variety of ways in each community. However, we have also shown that caregivers use mental health services more than non-caregivers that may be an indication that some caregivers do access professional services to alleviate stress, or for other emotional health issues.

Suggestions for future research

One of the limitations of this study was the small numbers of caregivers and consequently the small cell sizes associated with it. When possible, values and groups were collapsed to allow for more robust analyses. However, much of the information gleaned from our results appears to compare to other national studies. Future research should include factors associated with: the resources available to caregivers in the communities under study; specific factors associated with the care-receiver's illness; the length of time in the caregiver role; and, the caregiver's health status before the caregiver role was undertaken.

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Appendix I

Statistics Canada Census 2001 Table

Table 1. Number of persons aged 15 and over, by unpaid hours spent providing care or assistance to seniors, Canada, 1996 and 2001

	1996		2001	
	Number of persons	%	Number of persons	%
Both sexes	22,628,920	100.0	23,901,360	100.0
No hours	18,905,475	83.5	19,555,605	81.8
Less than 5 hours	2,443,210	10.8	2,768,390	11.6
5 to 9 hours	735,680	3.3	925,900	3.9
10 or more hours	544,555	2.4	651,470	2.7
10 to 19 hours	..	..	327,100	1.4
20 or more hours	..	..	324,375	1.4
Women	11,606,470	100.0	12,274,570	100.0
No hours	9,382,045	80.8	9,703,440	79.1
Less than 5 hours	1,388,900	12.0	1,554,940	12.7
5 to 9 hours	473,650	4.1	584,470	4.8
10 or more hours	361,885	3.1	431,725	3.5
10 to 19 hours	..	..	216,690	1.8
20 or more hours	..	..	215,035	1.8
Men	11,022,455	100.0	11,626,790	100.0
No hours	9,523,430	86.4	9,852,165	84.7
Less than 5 hours	1,054,315	9.6	1,213,450	10.4
5 to 9 hours	262,035	2.4	341,425	2.9
10 or more hours	182,675	1.7	219,750	1.9
10 to 19 hours	..	..	110,410	0.9
20 or more hours	..	..	109,340	0.9
(1) Refers to the week preceding Census Day.				
.. not available for a specific reference period.				

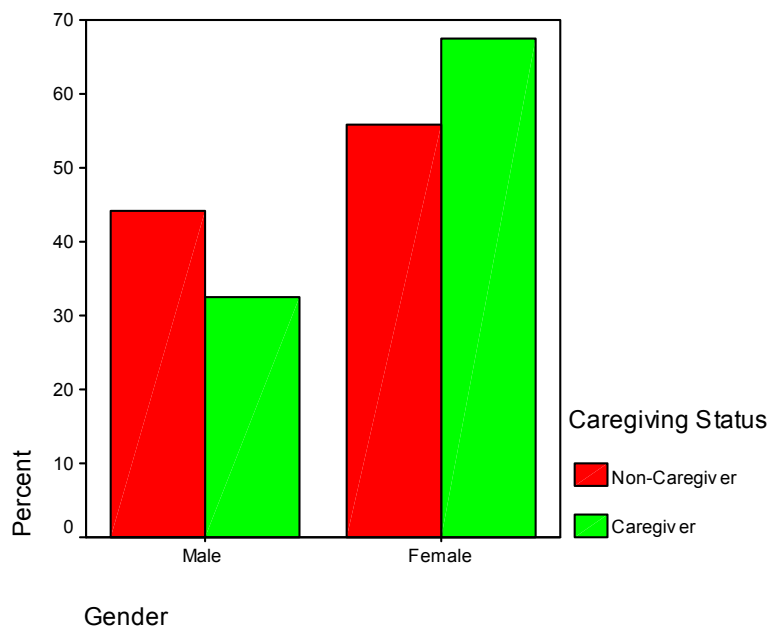
Appendix II

Occupation Types

Occupation Type	Frequency	Percent
Management	100	6.2%
Business, Finance & Administration	176	10.9%
Natural & Applied Sciences	34	2.1%
Health	185	11.4%
Social Science, Education, Government & Religion	207	12.8%
Art, Culture, Recreation & Sports	20	1.2%
Sales & Service	357	22.0%
Trades, Transport & Equipment Operators	148	9.1%
Primary Industries	64	4.0%
Processing, Manufacturing & Utilities	97	6.0%
Other	232	14.3%
Total	1620	100%

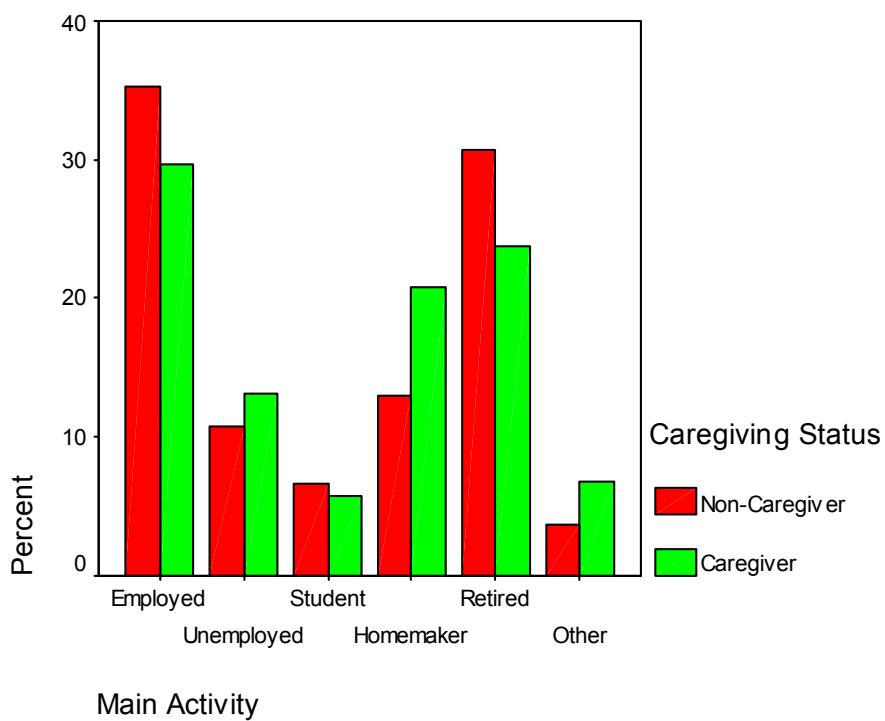
Appendix III Glance Bay Graphs

Figure 1: Gender



$p=0.002$

Figure 2: Main Activity



$p=0.003$

Figure 3: Education Level

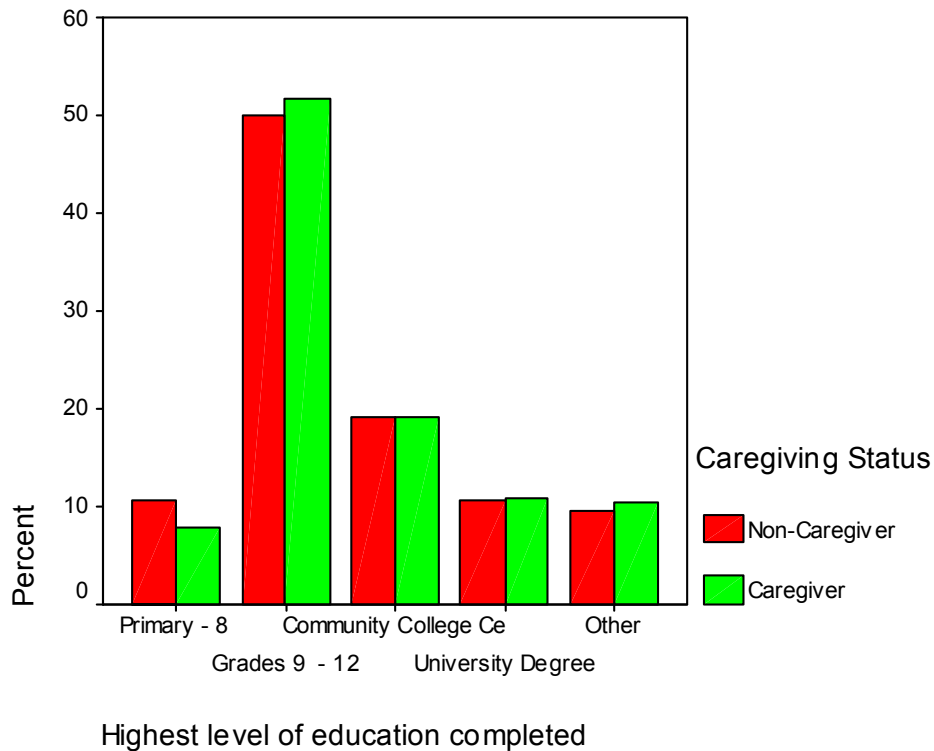


Figure 4: Income

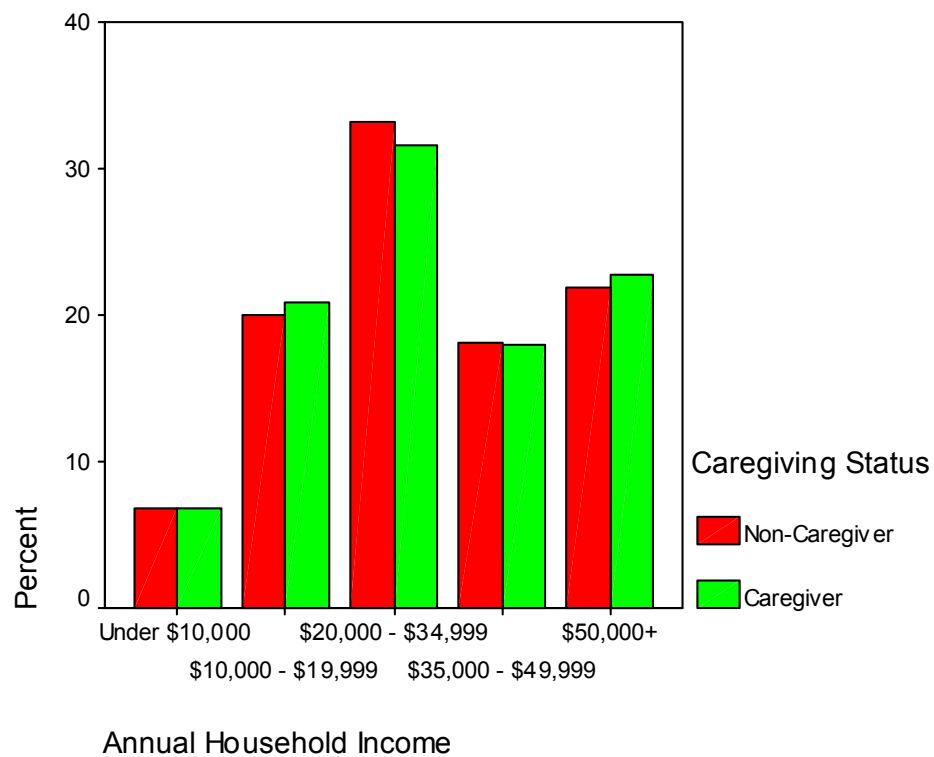
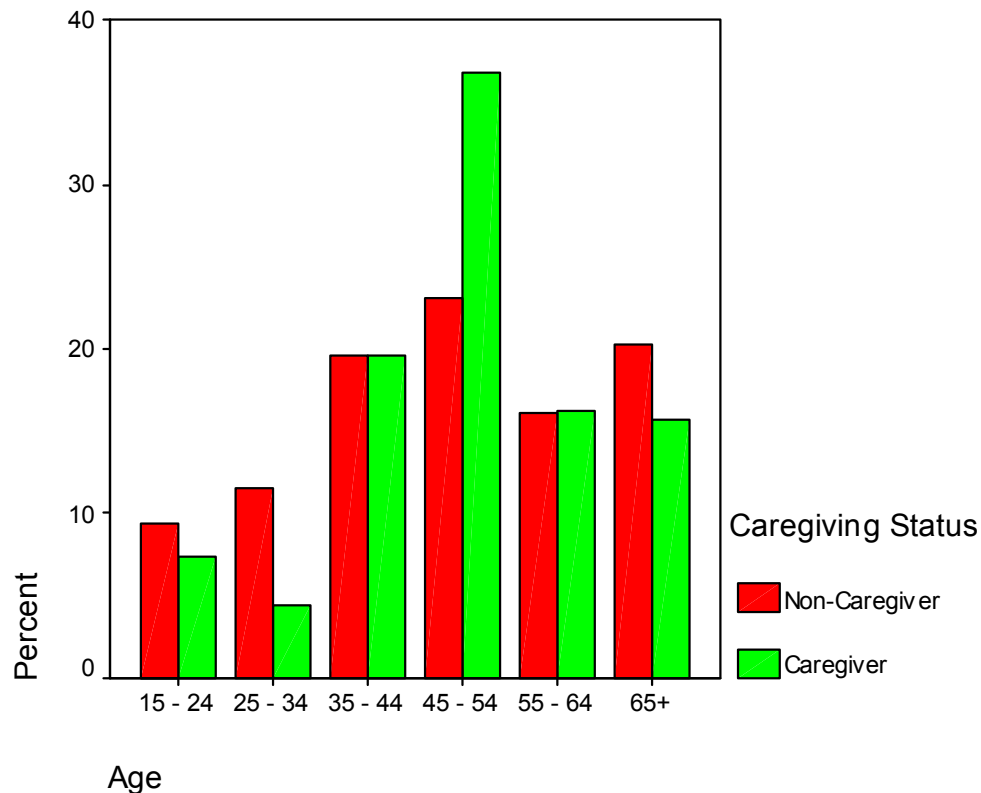
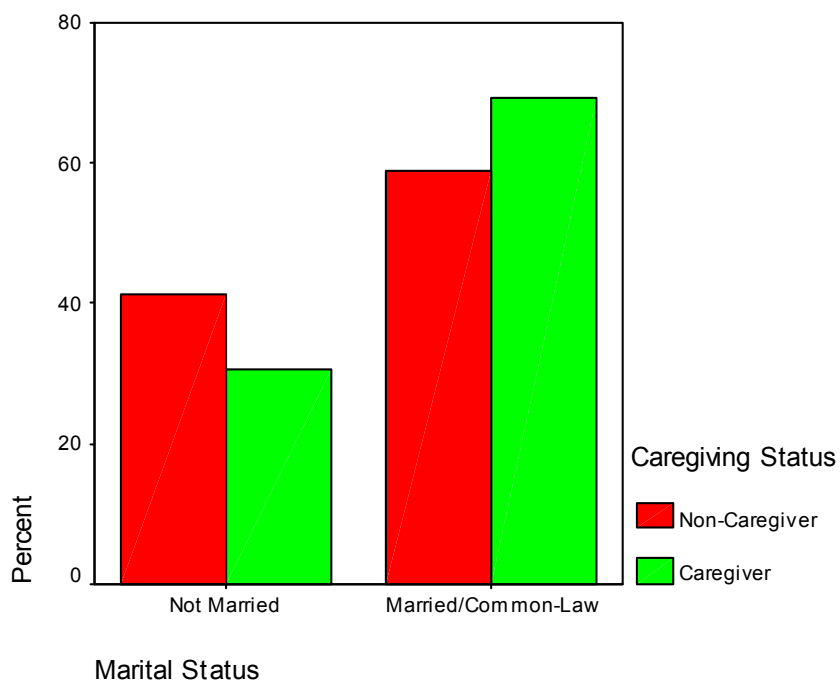


Figure 5: Age



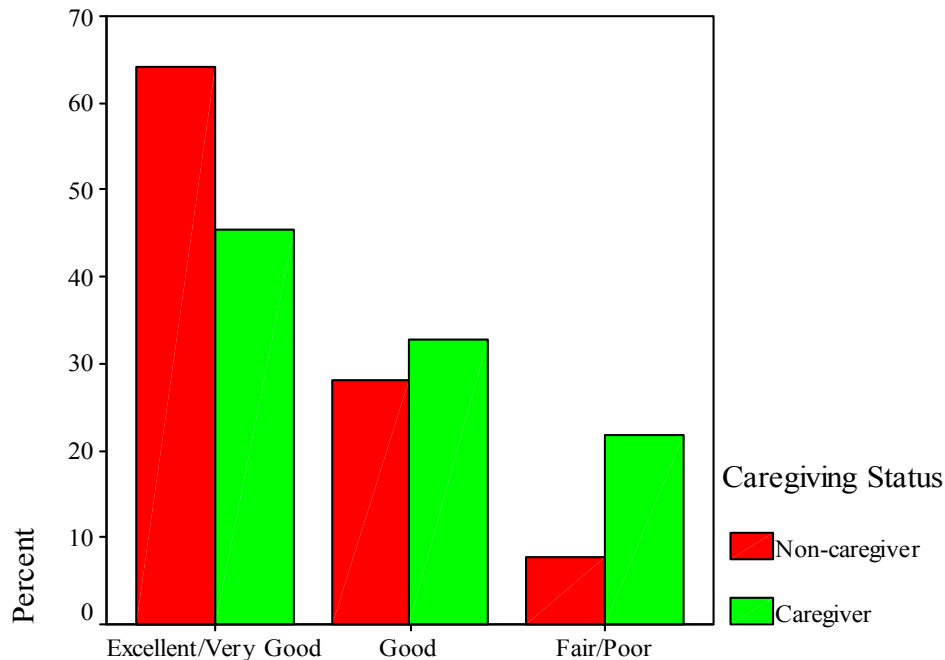
p=0.000

Figure 6: Marital Status



p=0.003

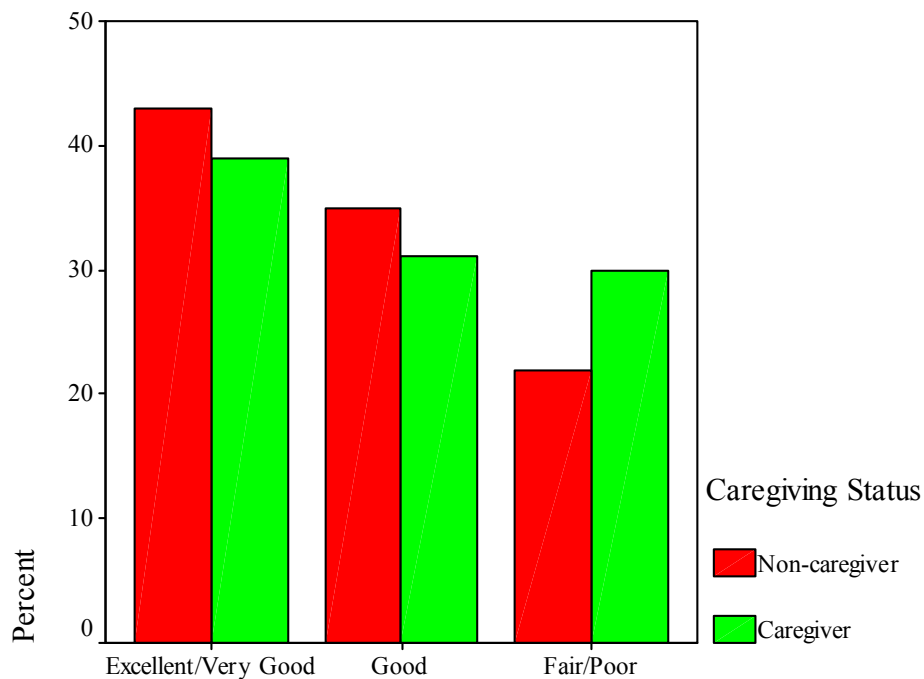
Figure 7: Perceived Health Status - Ages 15-44



Would you say your health is...

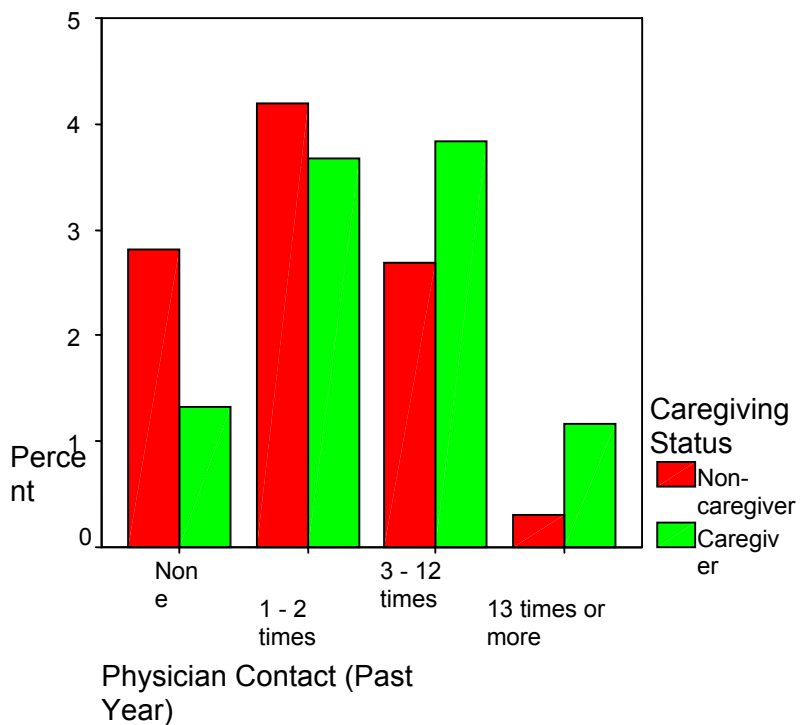
p=0.000

Figure 8: Perceived Health Status - Ages 45+



Would you say your health is...

Figure 9: Physician Contact (Past Year) - Ages 15-44



p=0.012

Figure 10: Physician Contact (Past Year) - Ages 45+

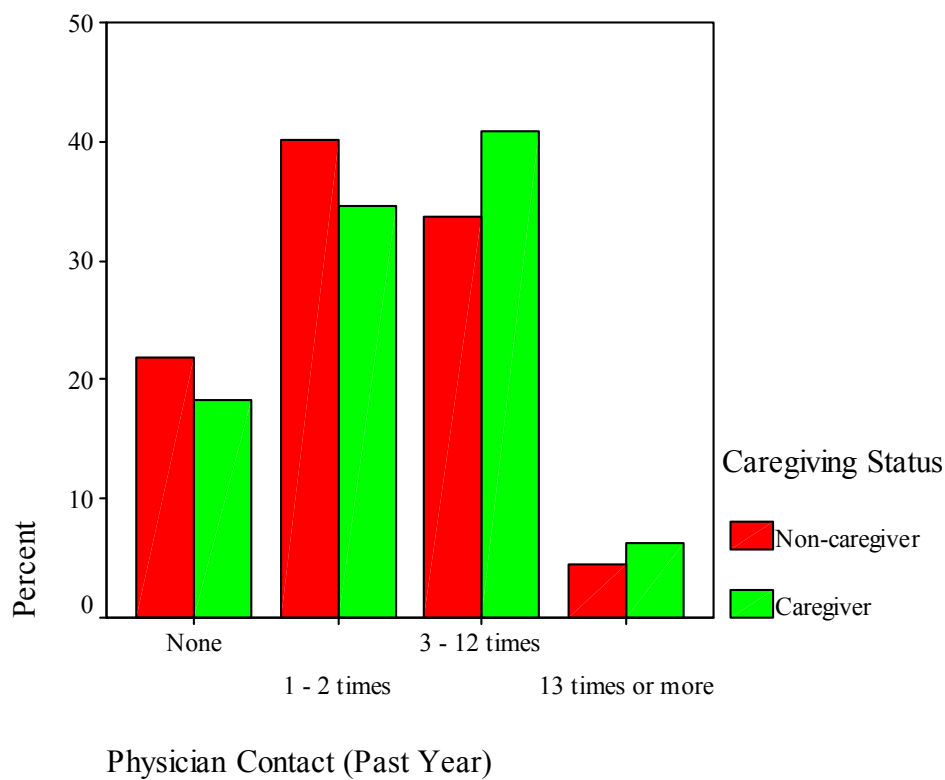


Figure 11: Visits to Outpatients/Emergency Room (Past Year) - Ages 15-44

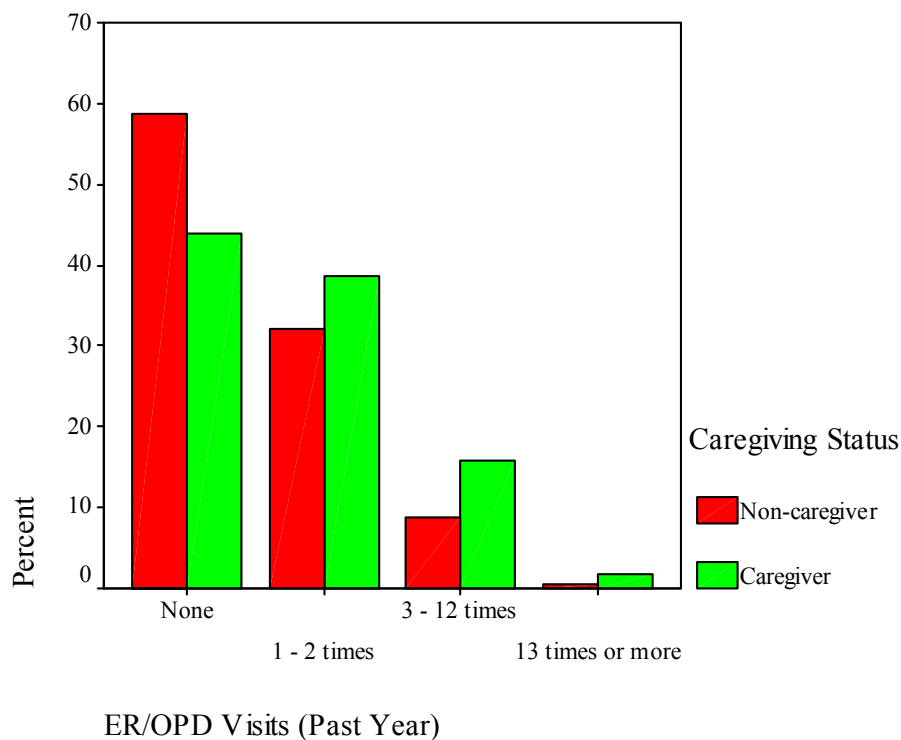


Figure 12: Visits to Outpatients/Emergency Room (Past Year) - Ages 45+

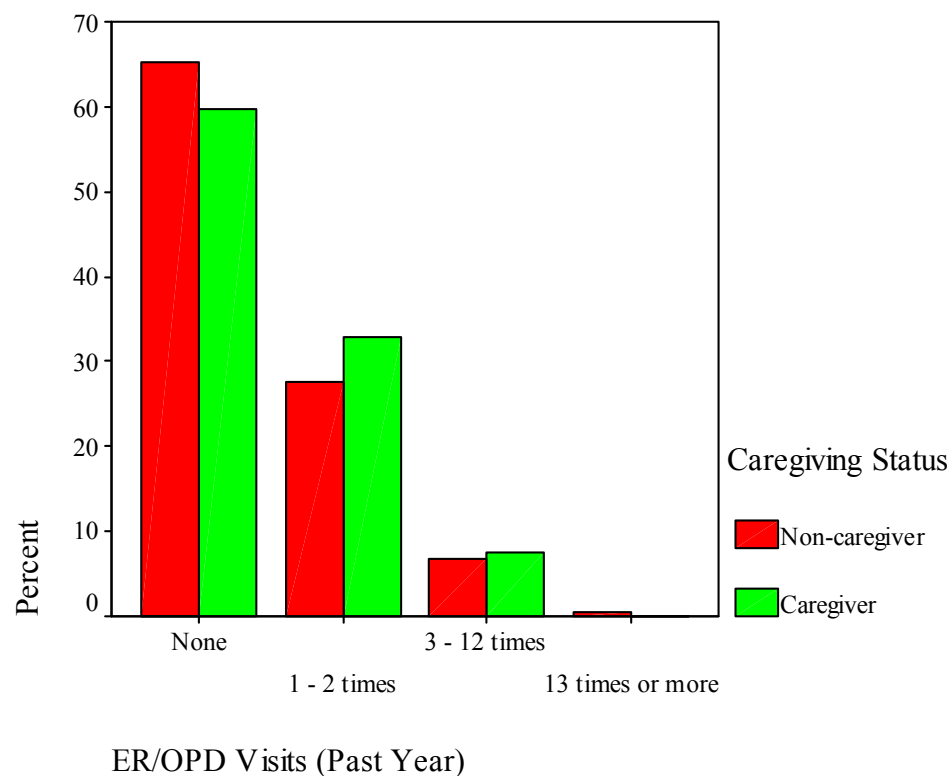
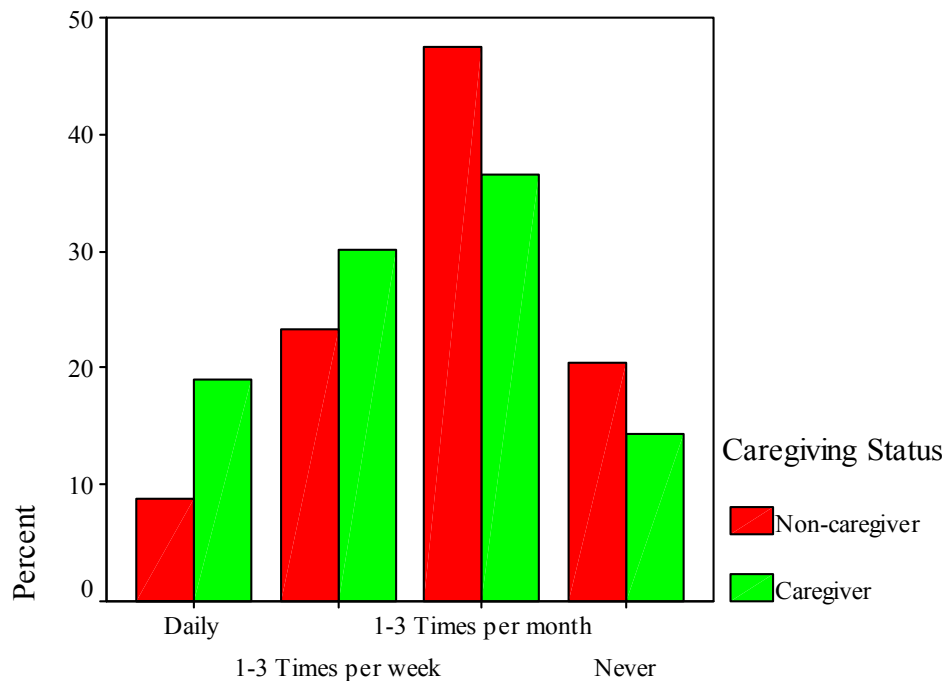


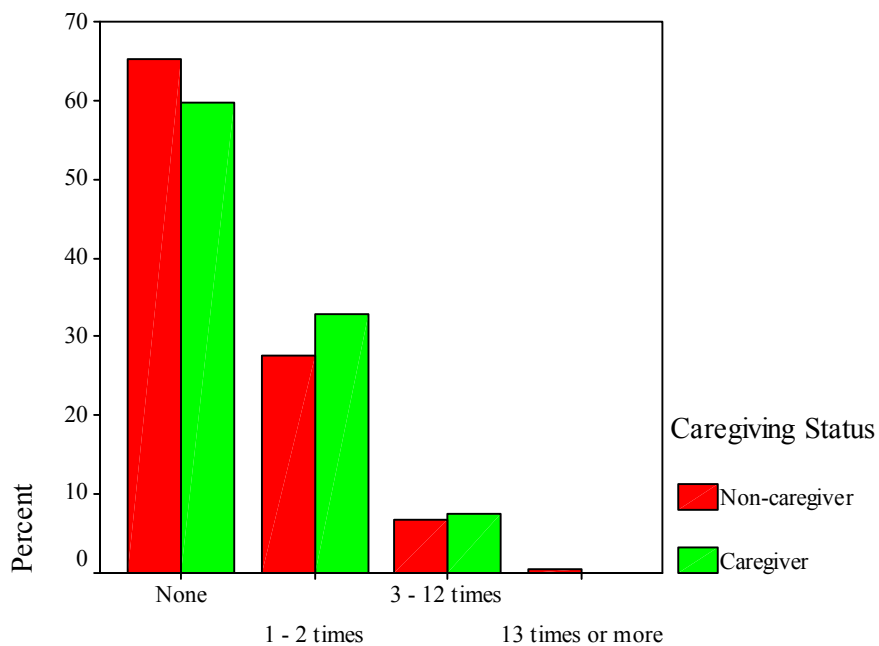
Figure 13: Pain Reliever/Anti-Inflammatory Use - Ages 15-44



Pain relievers like aspirin, Tylenol, arthritis medicine, anti-inflammat

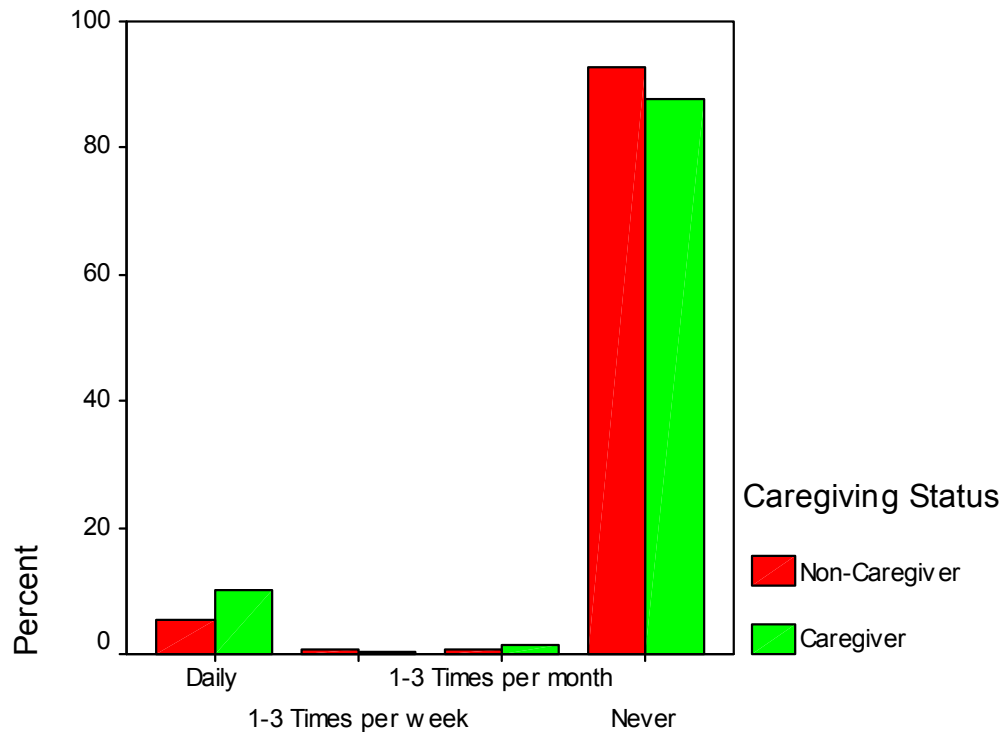
p=0.023

Figure 14: Pain Reliever/Anti-Inflammatory Use - Ages 45+



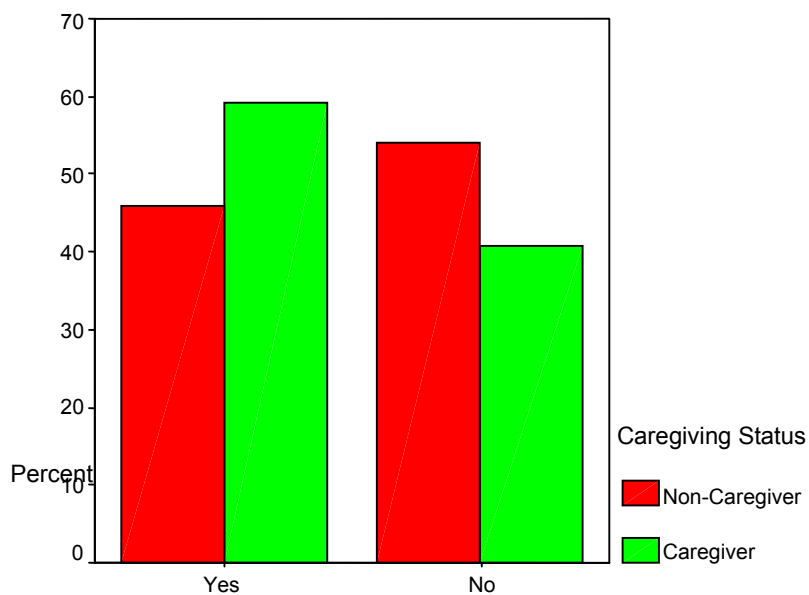
ER/OPD Visits (Past Year)

Figure 15: Anti-Depressant Use



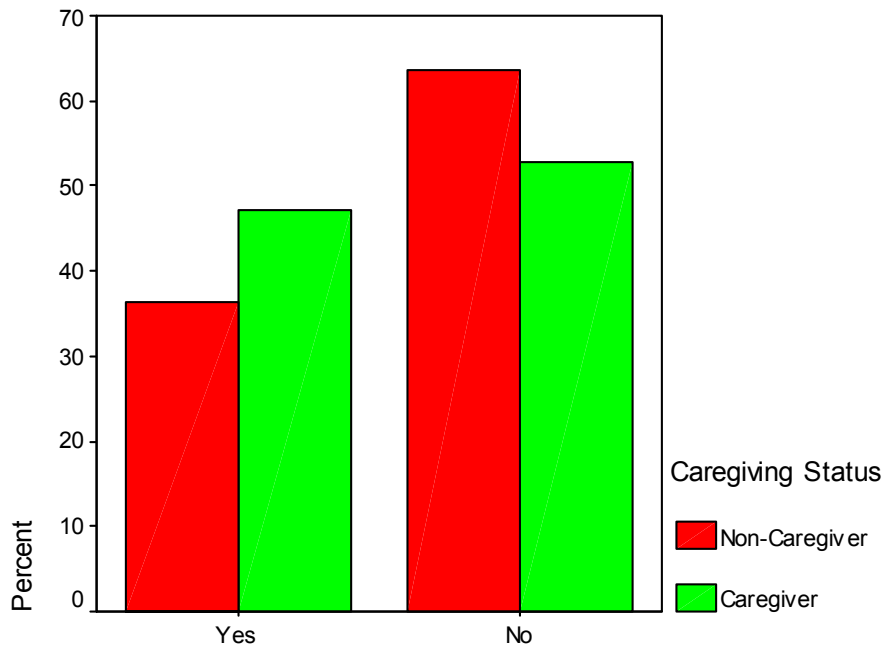
Anti-depressant use

Figure 16: “At the end of the day, do you often feel that you have not accomplished what you set out to do?” (p=0.000)



...feel that you've not accomplished what you set out to do?

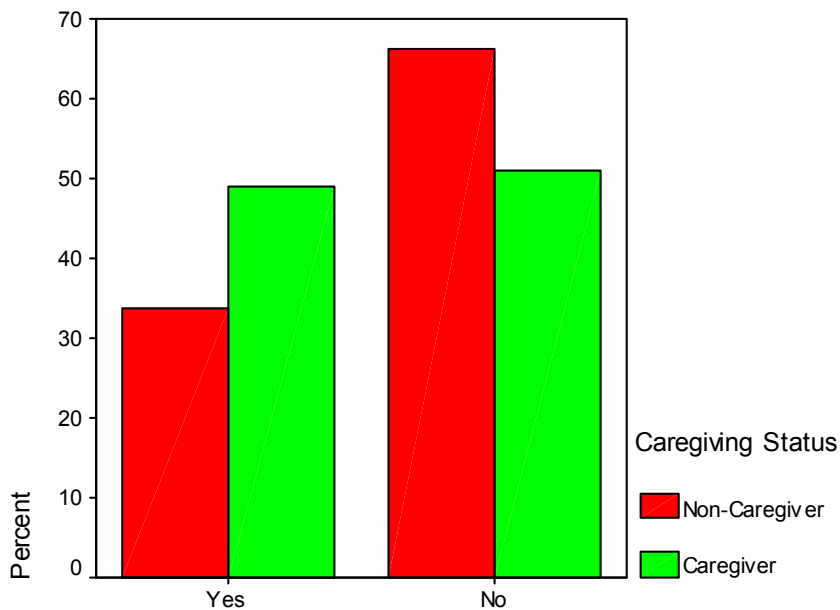
Figure 17: “Do you worry that you don’t spend enough time with your family or friends?”



...worry that you don't spend enough time with your family or friends

$p=0.003$

Figure 18: “Do you feel that you’re constantly under stress trying to accomplish more than you can handle?” ($p=0.000$)



Feel that you're constantly under stress trying to accomplish more

Figure 19: Exercise Levels - Ages 15-44

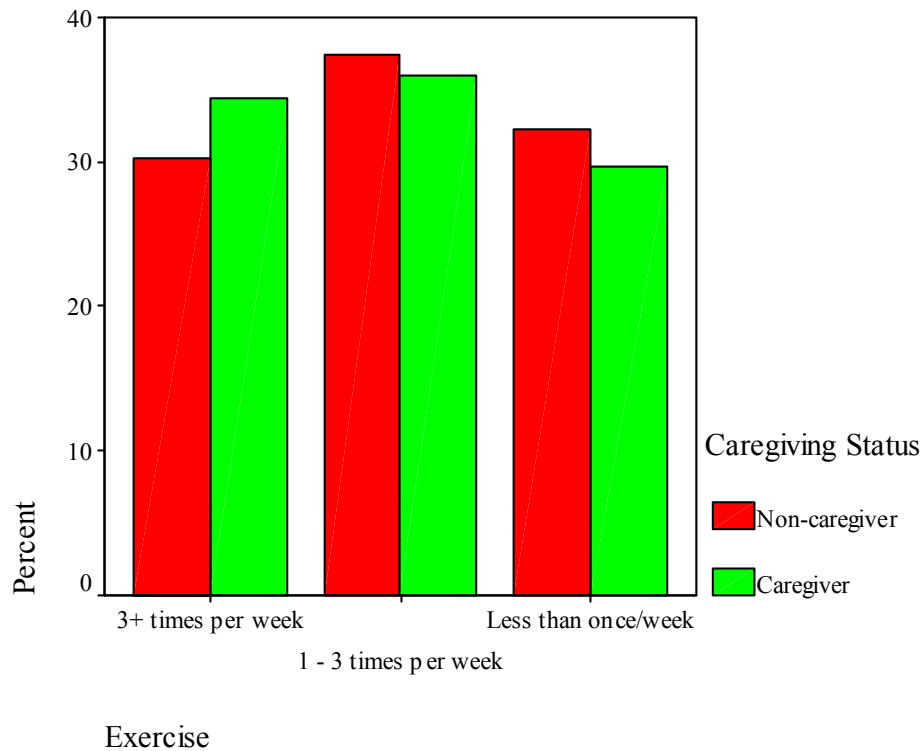
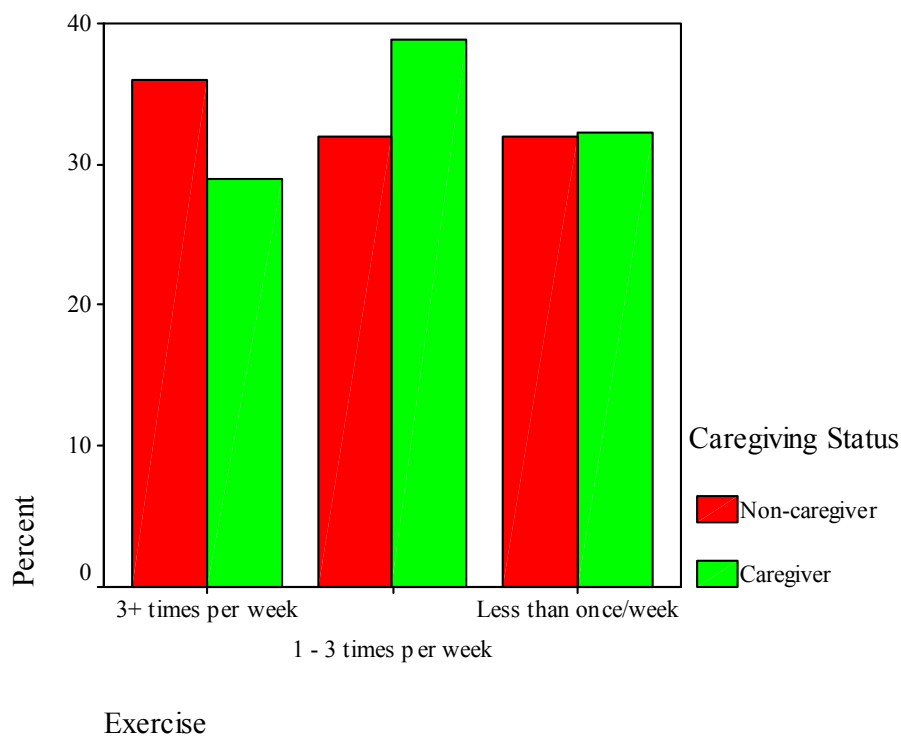


Figure 20: Exercise Levels - Ages 45+



p=0.021

Appendix IV Kings County Graphs

Figure 21: Gender

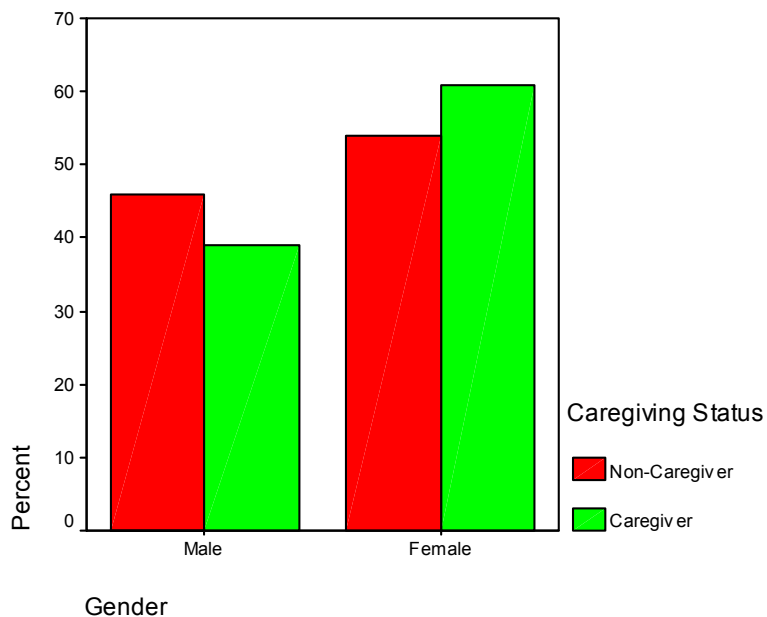


Figure 22: Main Activity

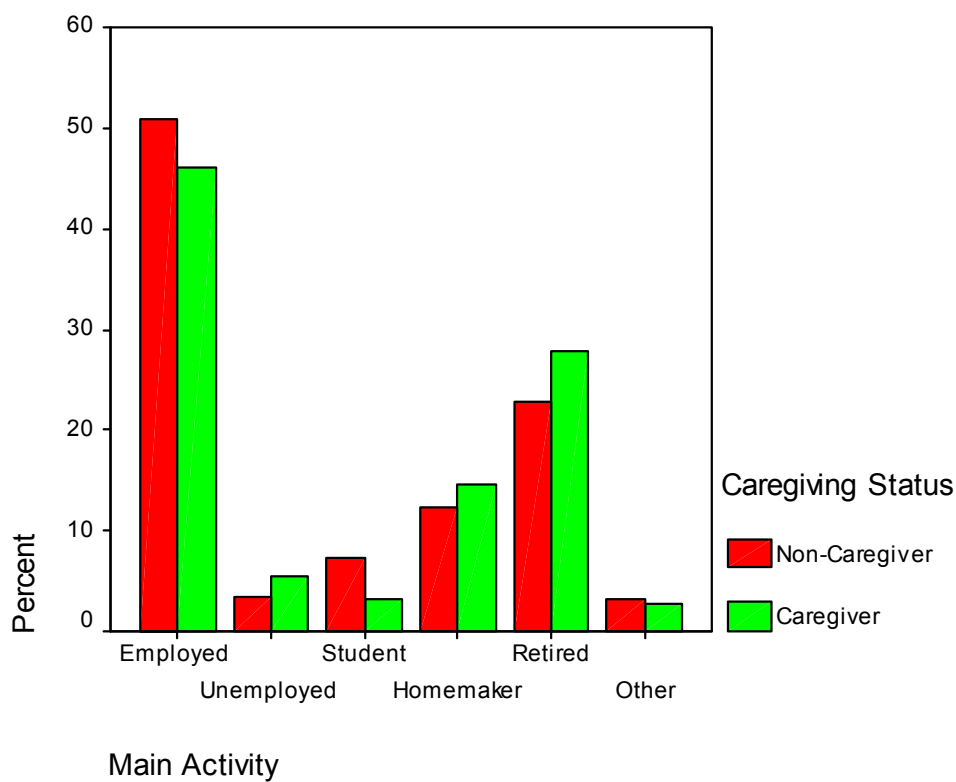


Figure 23: Education Level

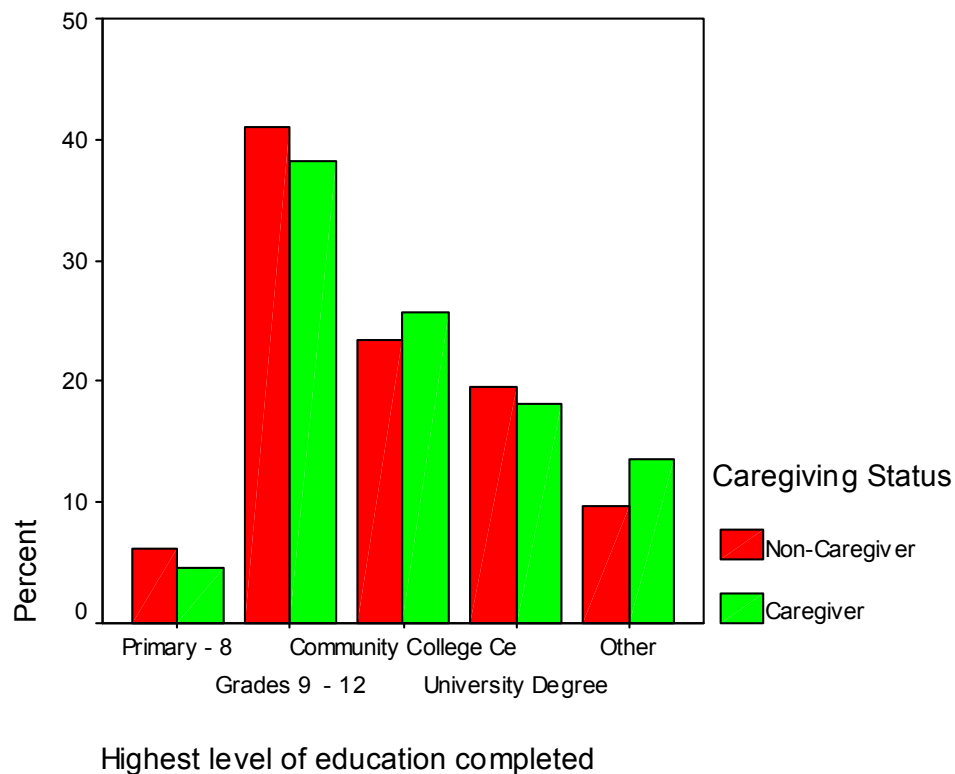
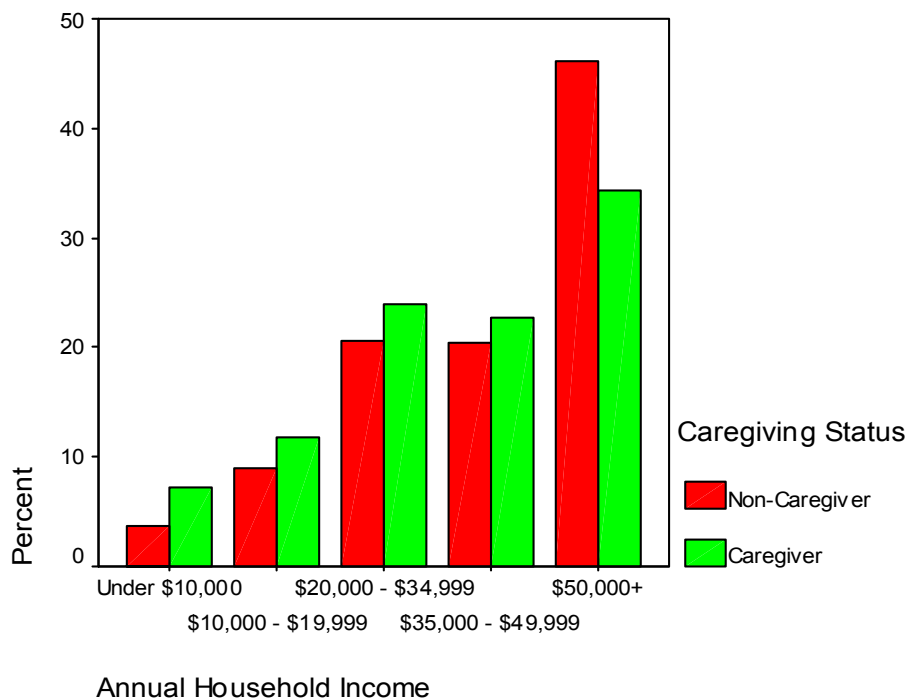
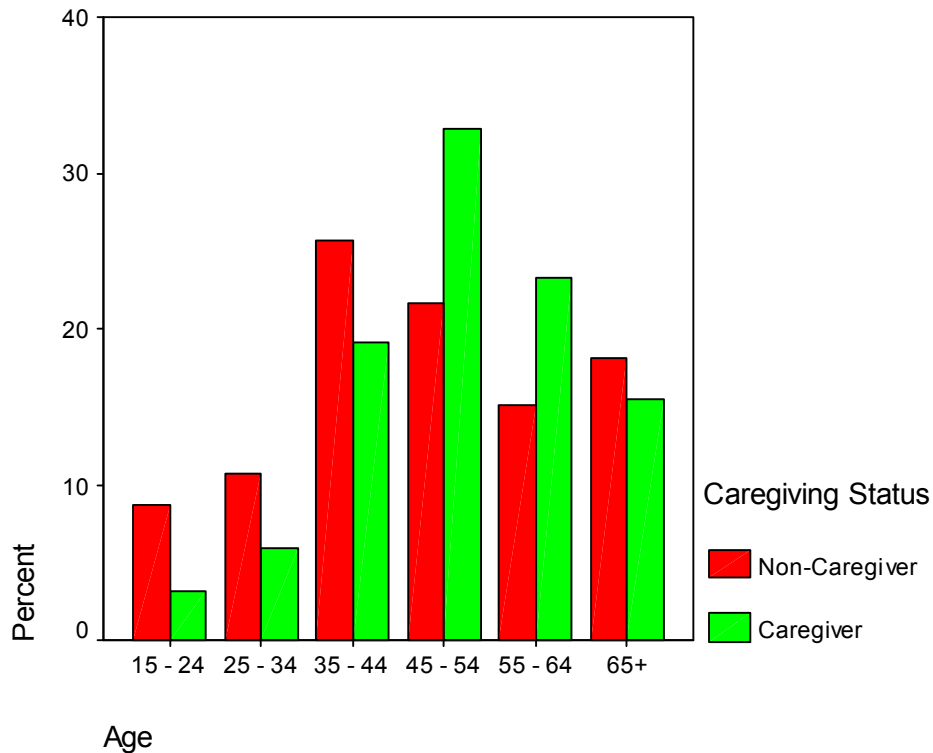


Figure 24: Income



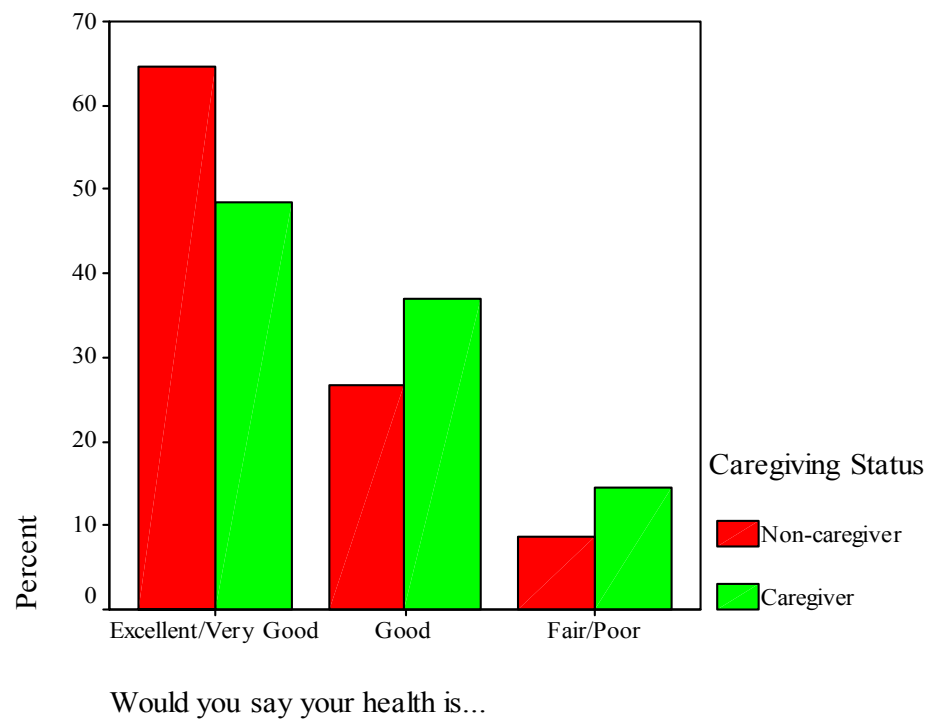
p=0.005

Figure 25: Age



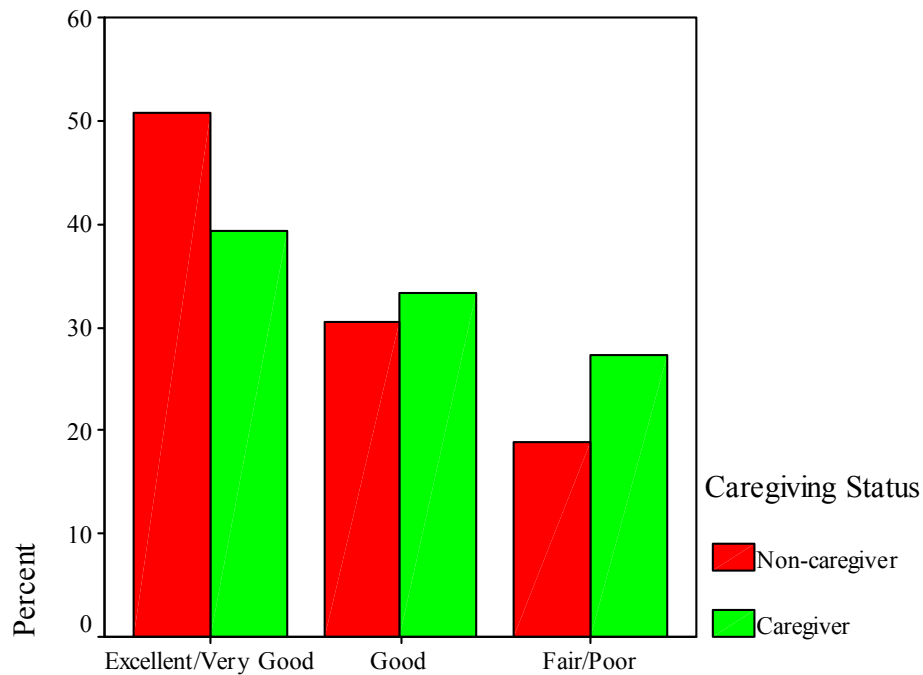
p=0.000

Figure 26: Perceived Health Status - Ages 15-44



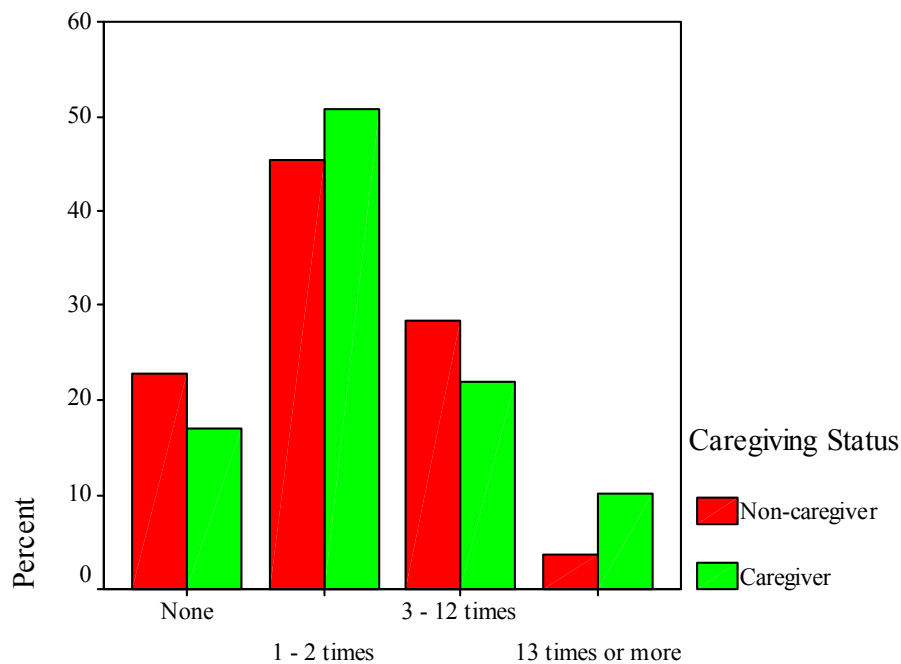
p=0.034

Figure 27: Perceived Health Status - Ages 45+



Would you say your health is...

Figure 28: Contact with Physicians (Past Year) - Ages 15-44



Physician Contact (Past Year)

Figure 29: Contact with Physicians (Past Year) - Ages 45+

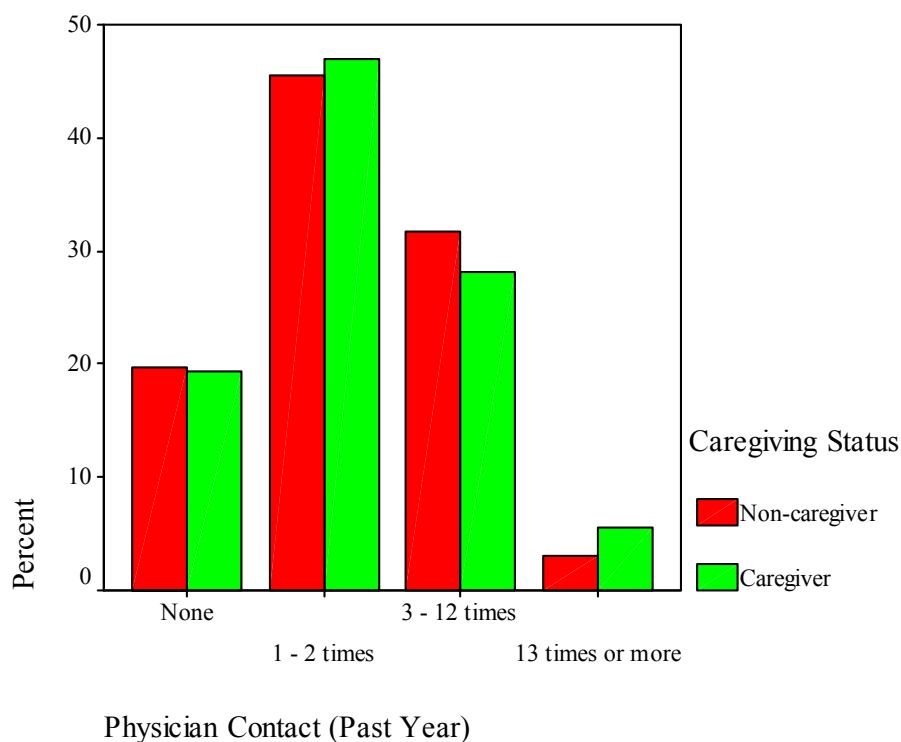


Figure 30: Pain Reliever/Anti-Inflammatory Use (Past Year) - Ages 15-44

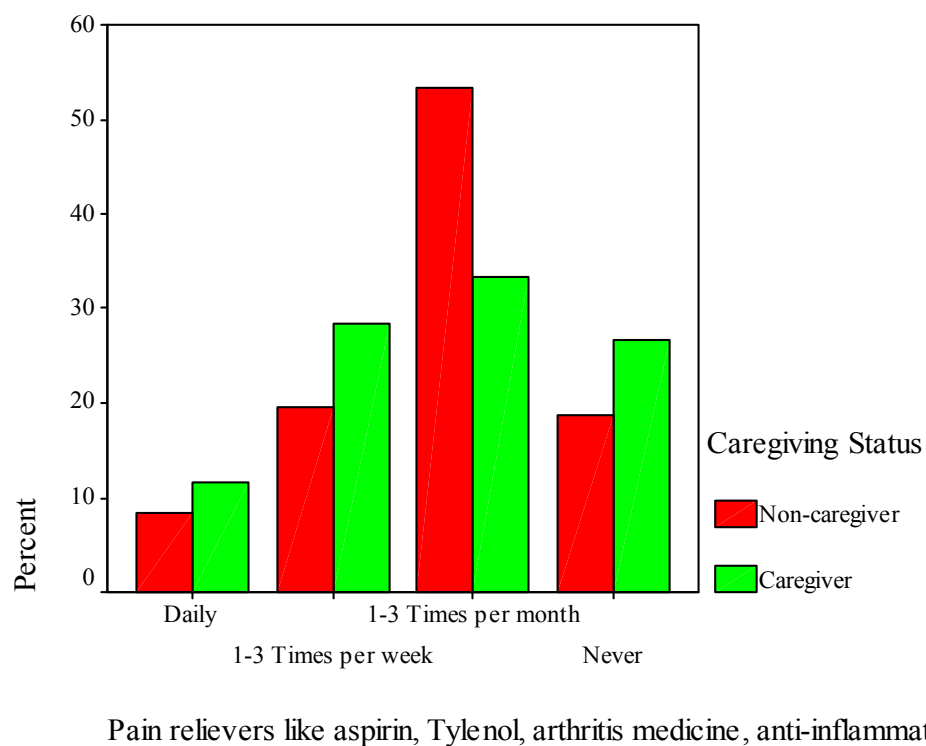
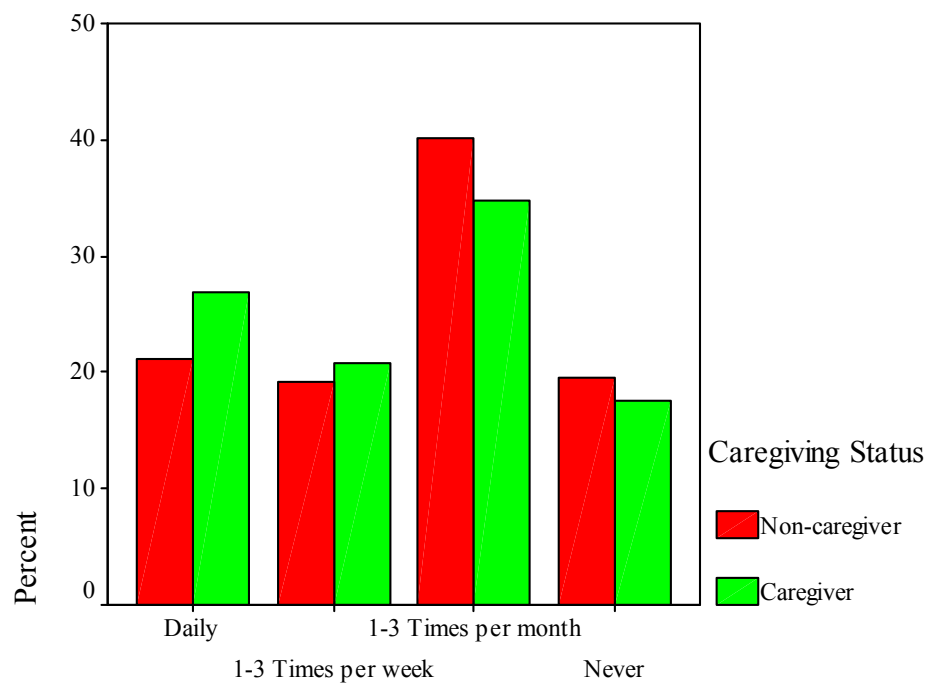
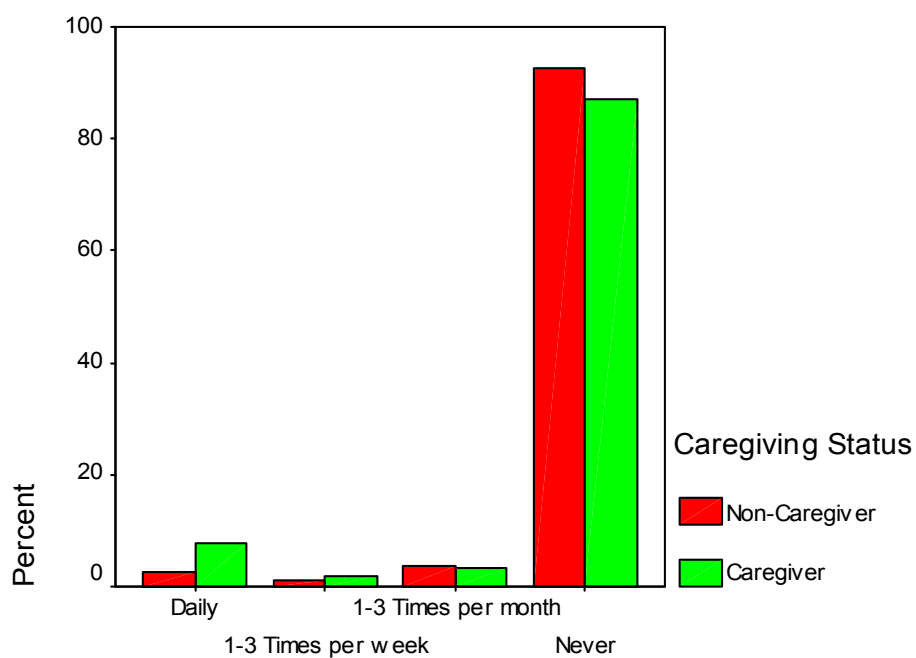


Figure 31: Pain Reliever/Anti-Inflammatory Use (Past Year) - Ages 45+



Pain relievers like aspirin, Tylenol, arthritis medicine, anti-inflammat

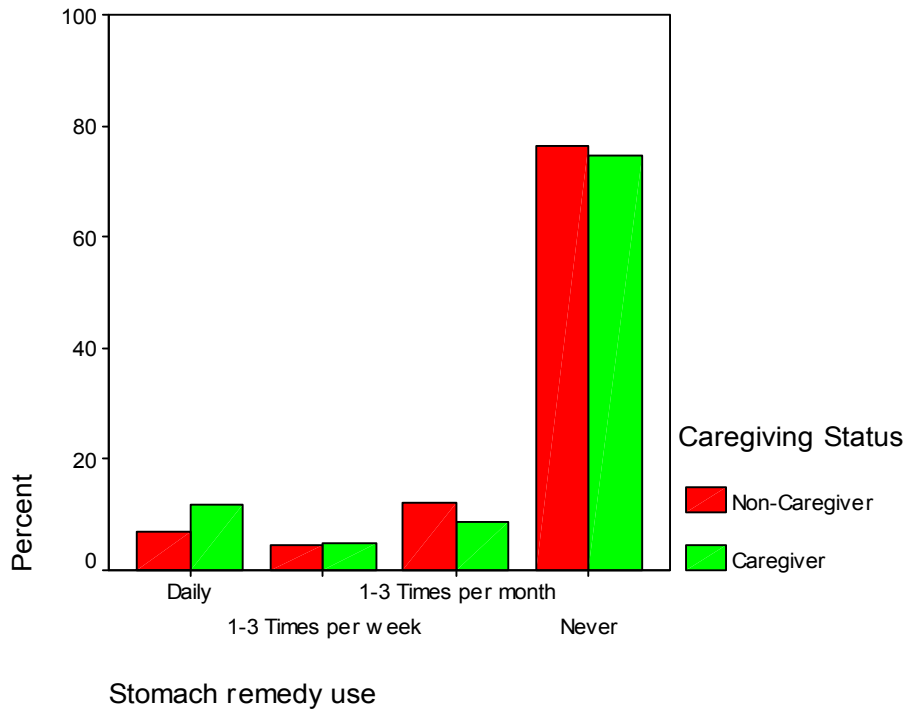
Figure 32: Sleeping Pill Use (Past Year)



Sleeping pill use

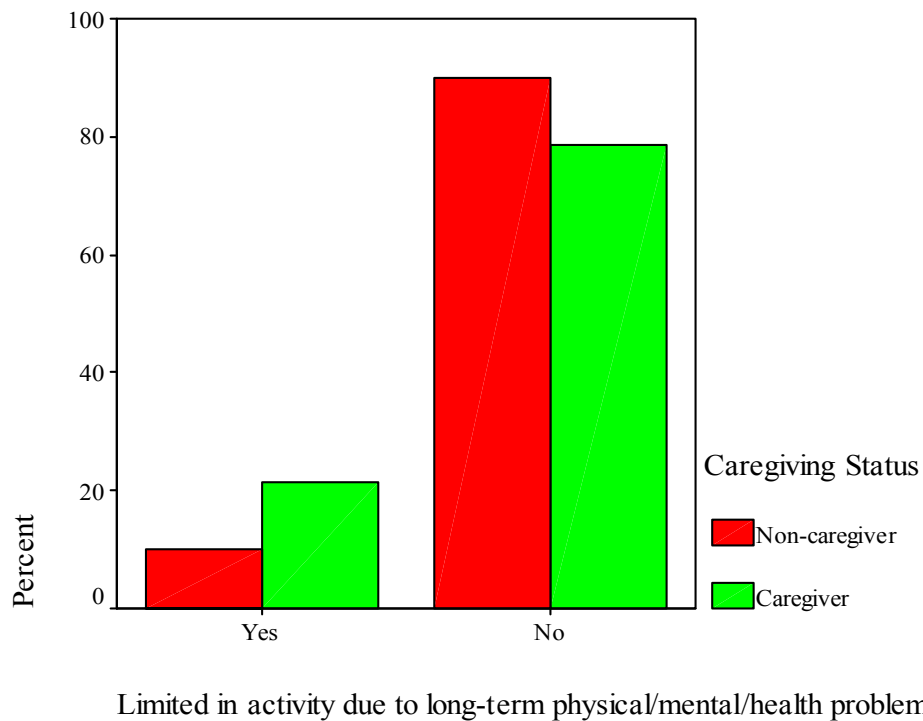
p=0.001

Figure 33: Stomach Remedy Use (Past Year)



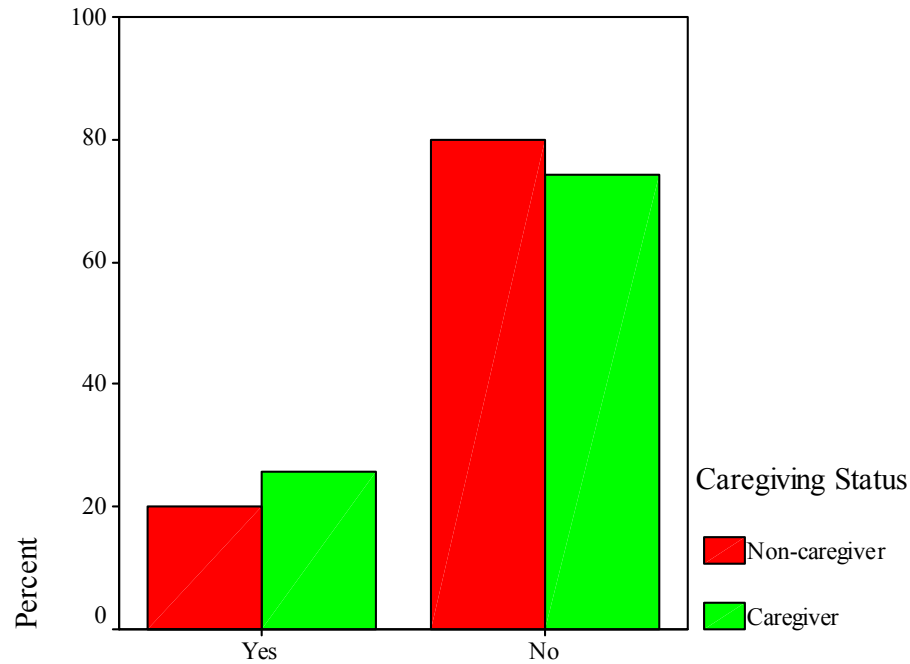
p=0.050

Figure 34: Activity Limitation - Ages 15-44



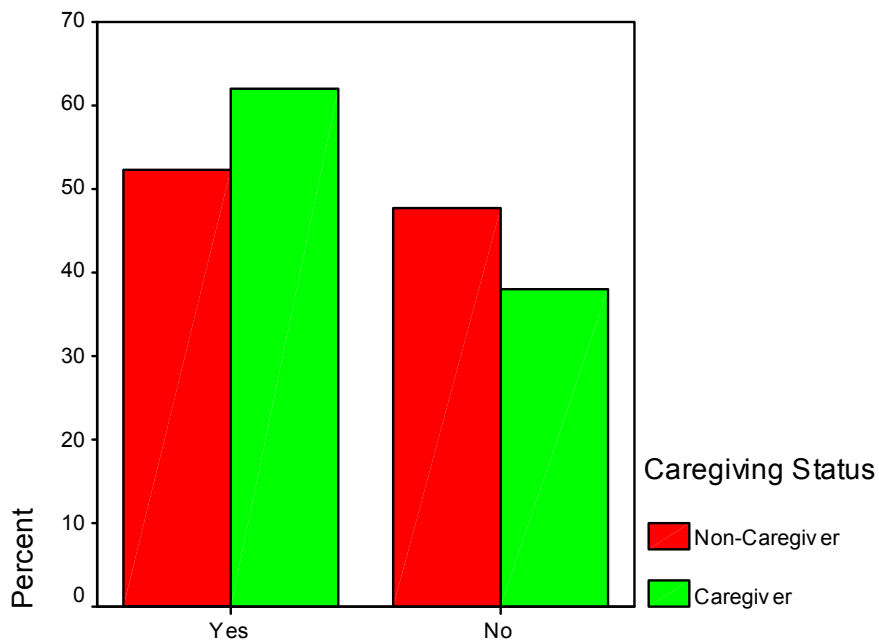
p=0.007

Figure 35: Activity Limitation - Ages 45+



Limited in activity due to long-term physical/mental/health problems?

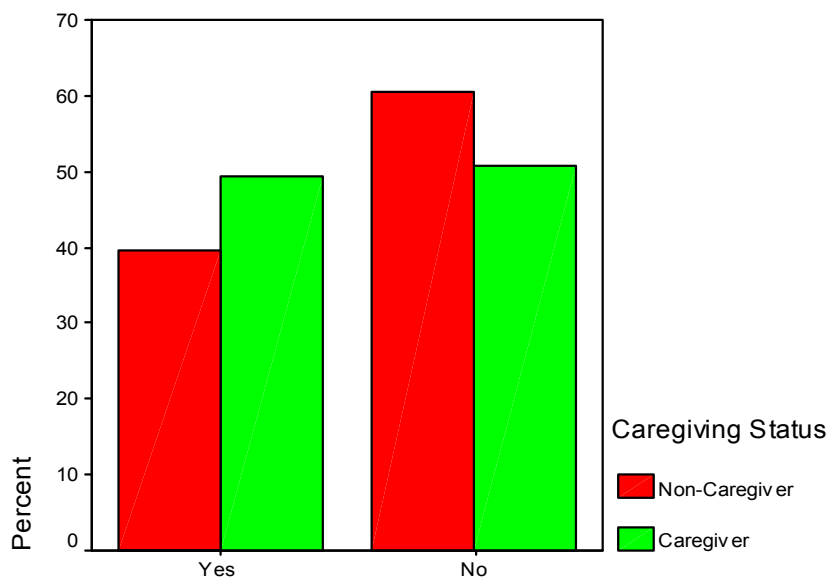
Figure 36: “At the end of the day, do you often feel that you have not accomplished what you set out to do?”



...not accomplished what you set out to do?

p=0.006

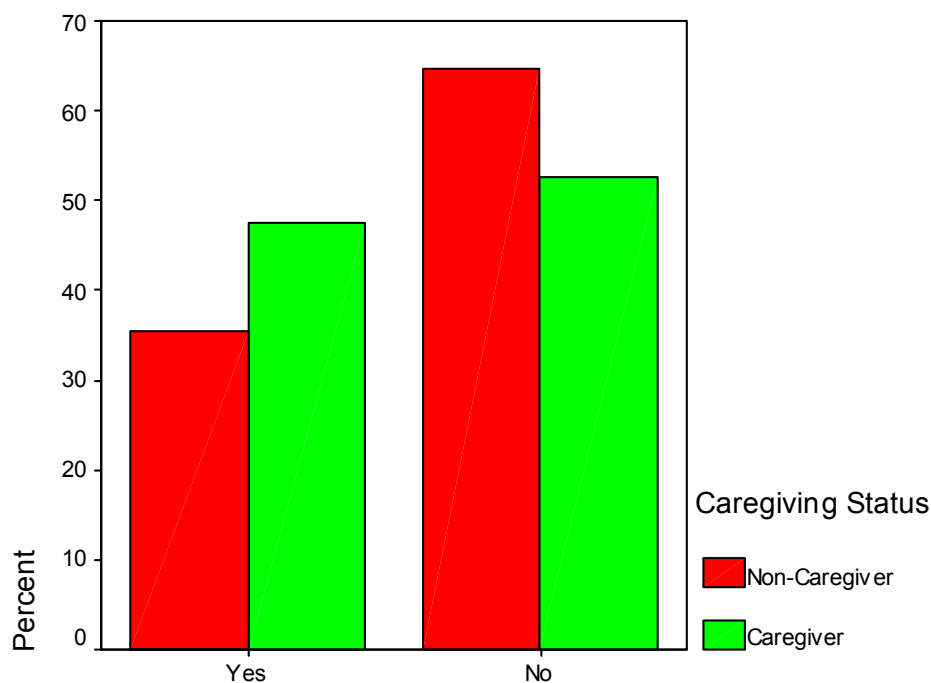
Figure 37: “Do you worry that you don’t spend enough time with your family or friends?”



...worry that you don't spend enough time with your family or friends

p=0.006

Figure 38: “Do you feel that you’re constantly under stress trying to accomplish more than you can handle?”



Feel that you're constantly under stress trying to accomplish more

p=0.001

Appendix V Caregiver Graphs

Figure 39: Gender

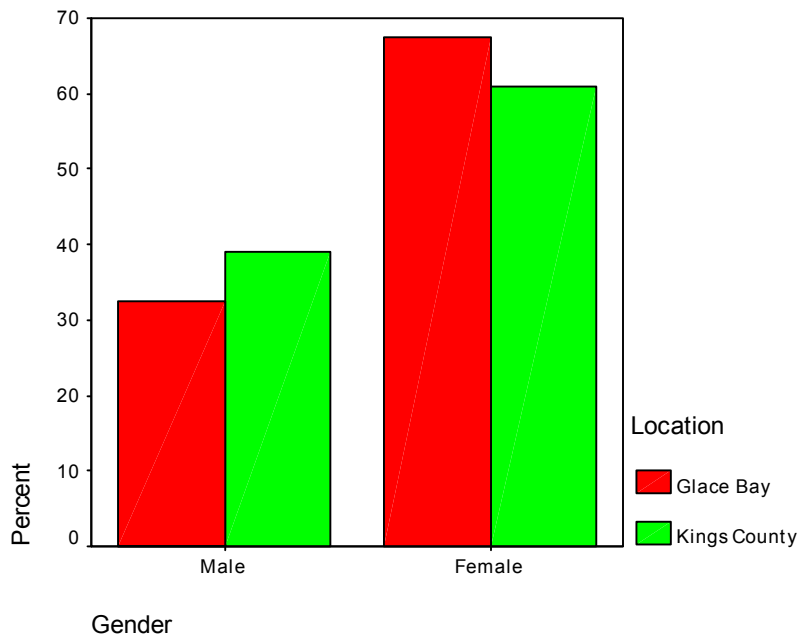
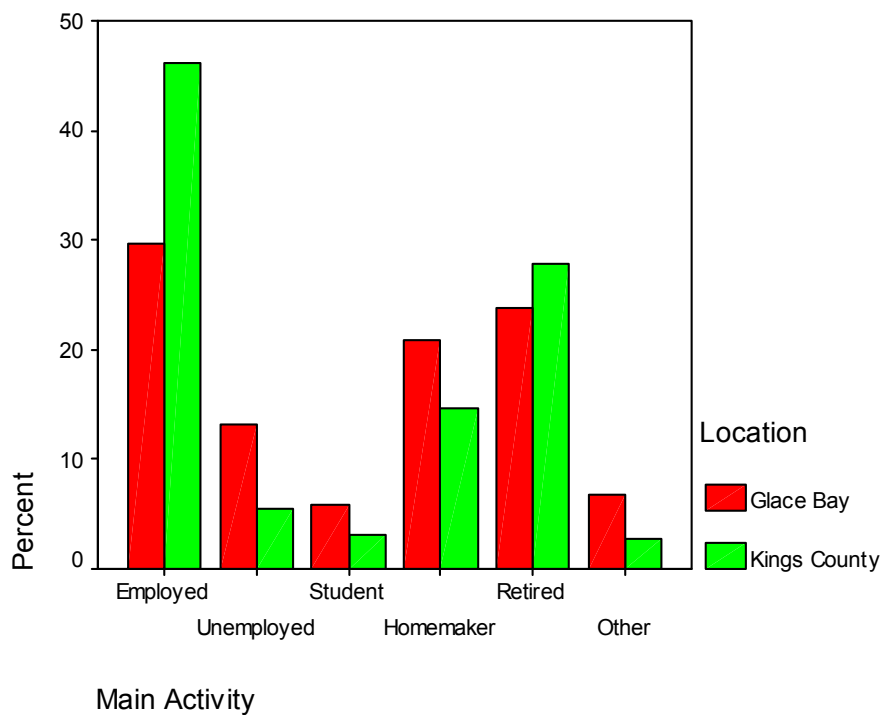


Figure 40: Main Activity



p=0.000

Figure 41: Education Level

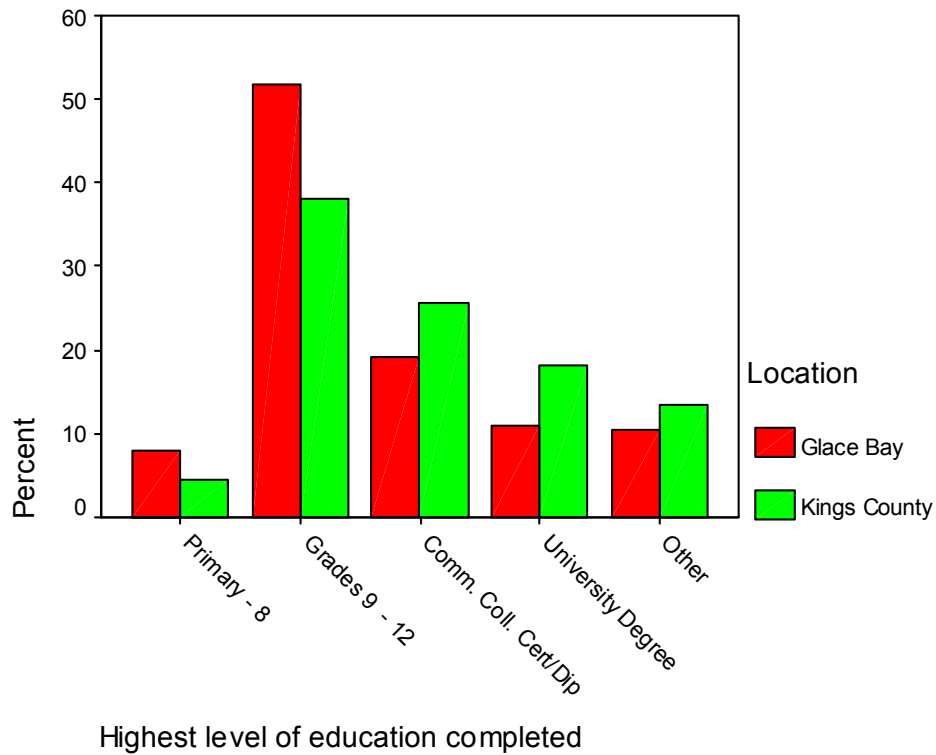
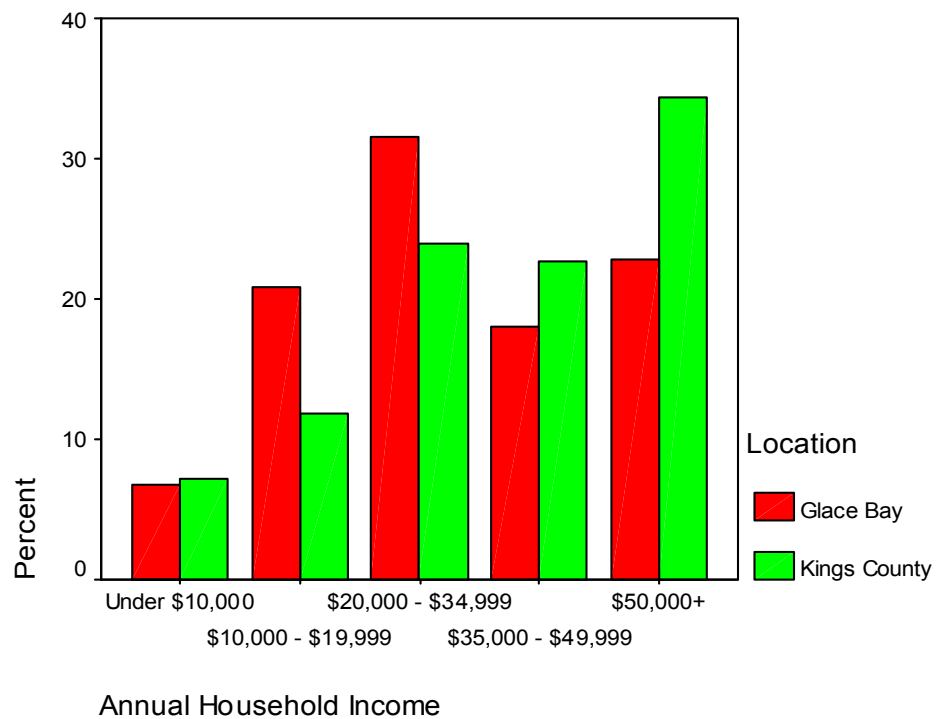


Figure 42: Income



p=0.018

Figure 43: Age

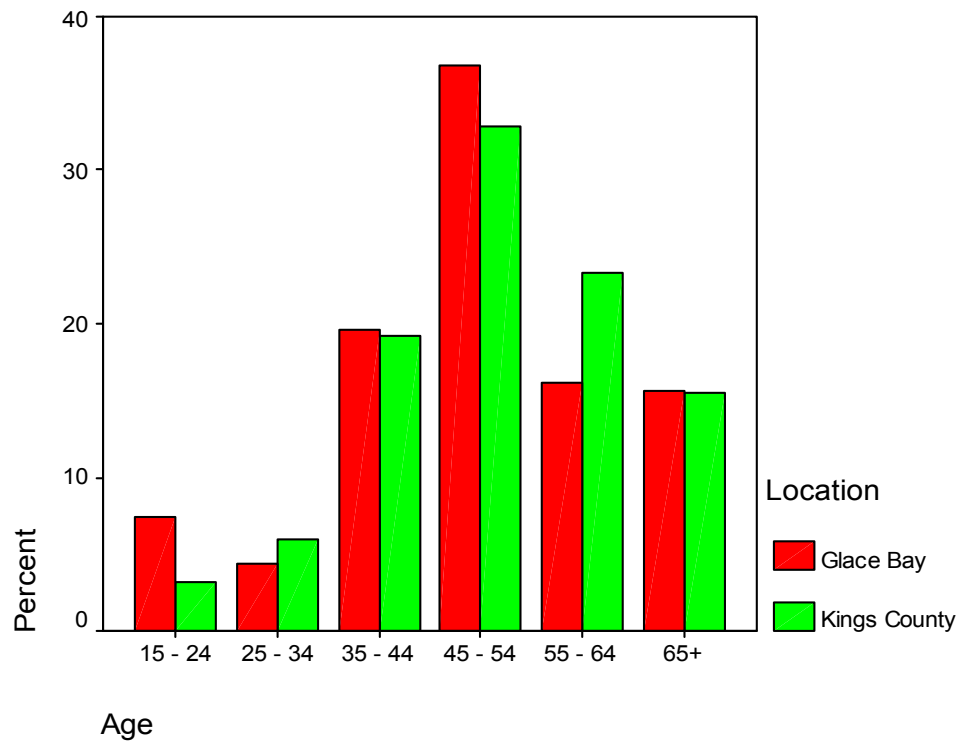


Figure 44: Marital Status

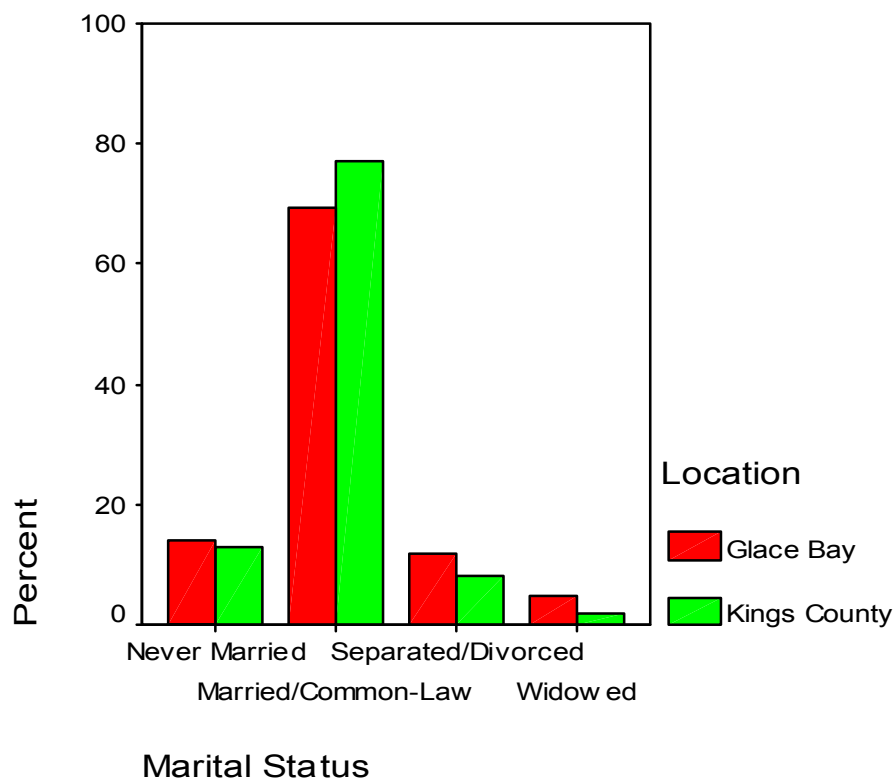
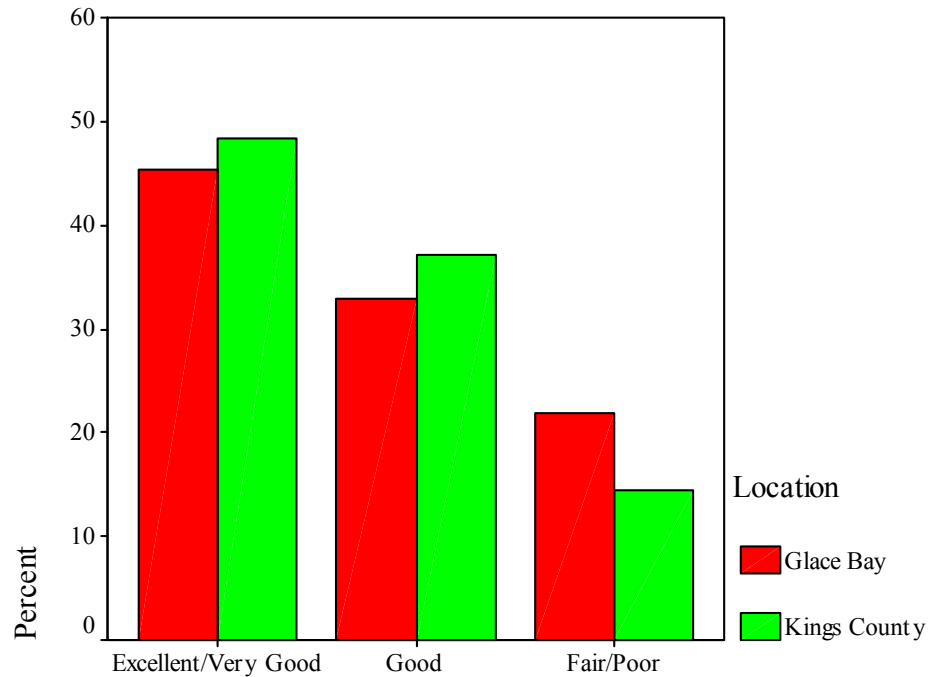
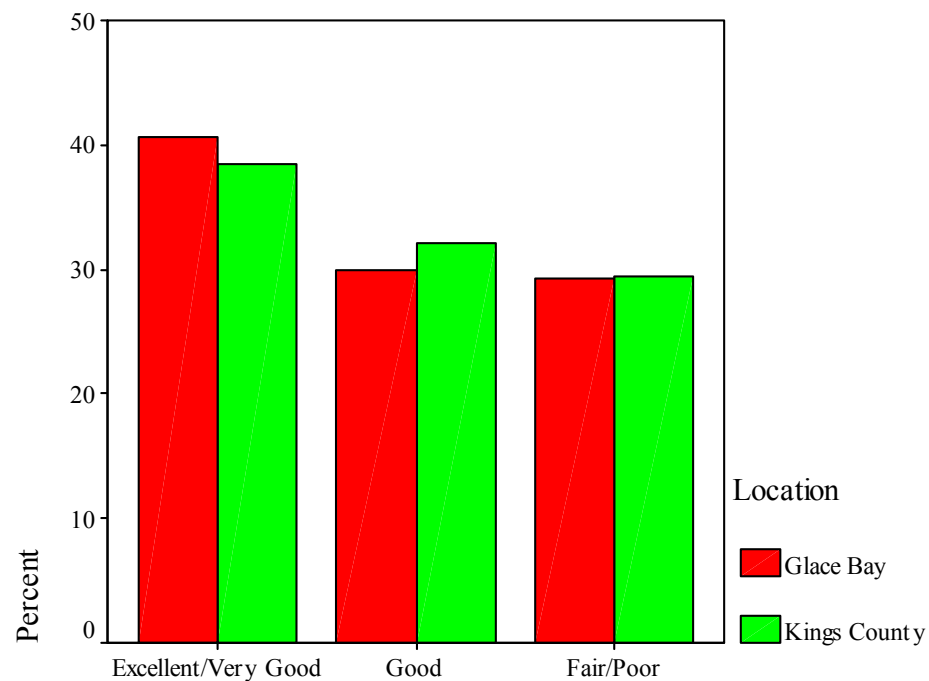


Figure 45: Perceived Health Status - Ages 15-44



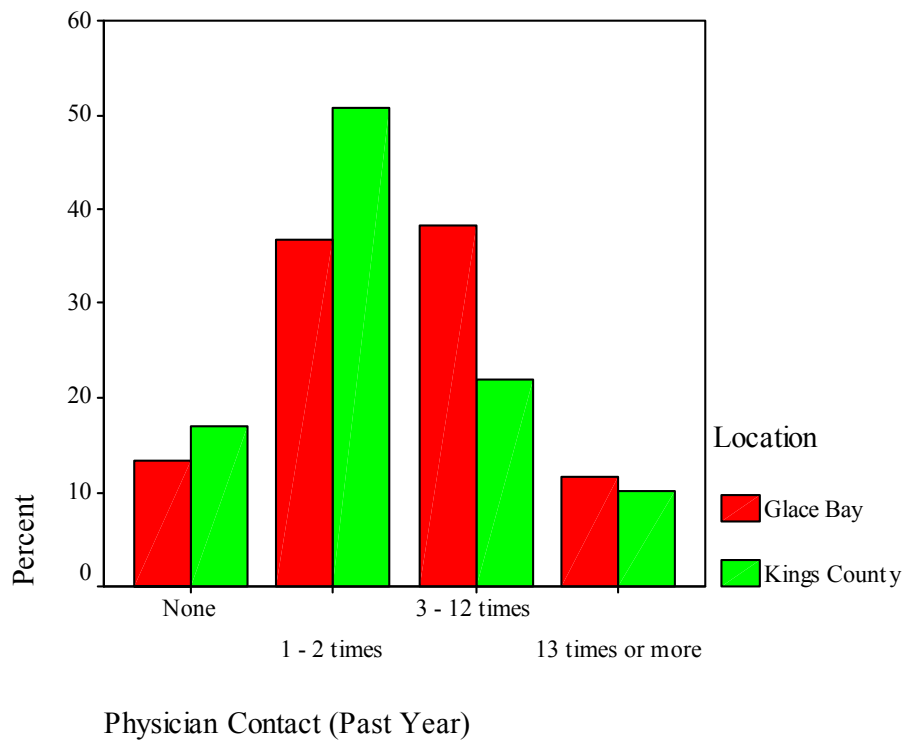
Would you say your health is...

Figure 46: Perceived Health Status - Ages 45+



Would you say your health is...

Figure 47: Physician Contact (Past Year) - Ages 15-44



p=0.004

Figure 48: Physician Contact (Past Year) - Ages 45+

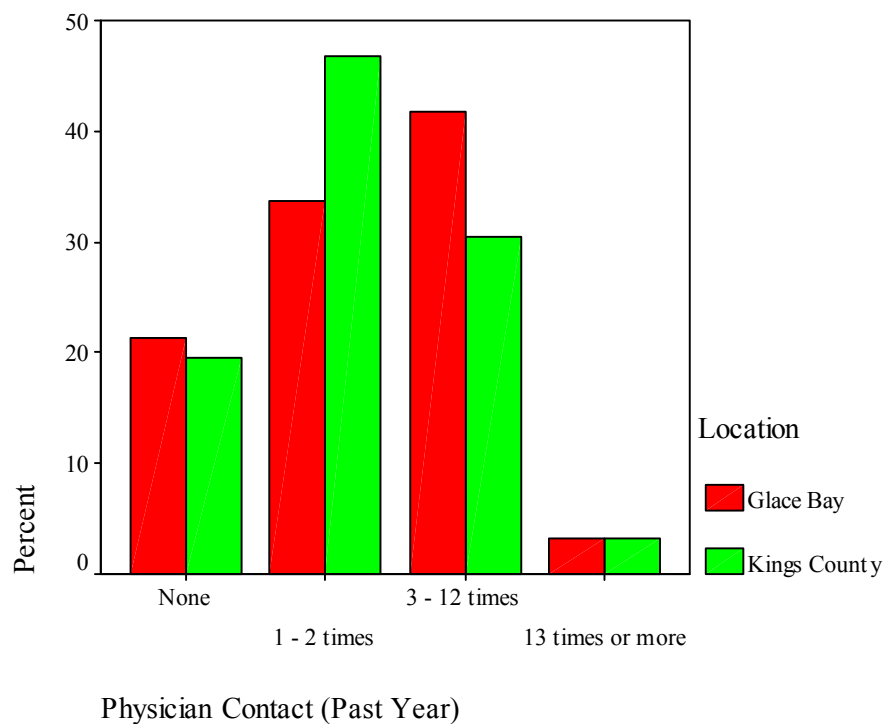
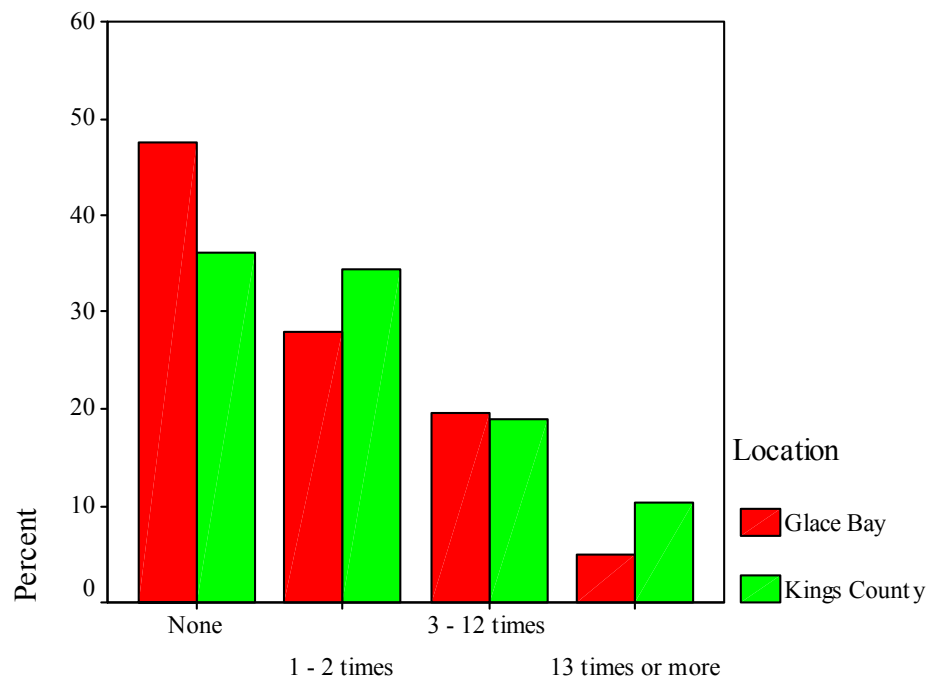
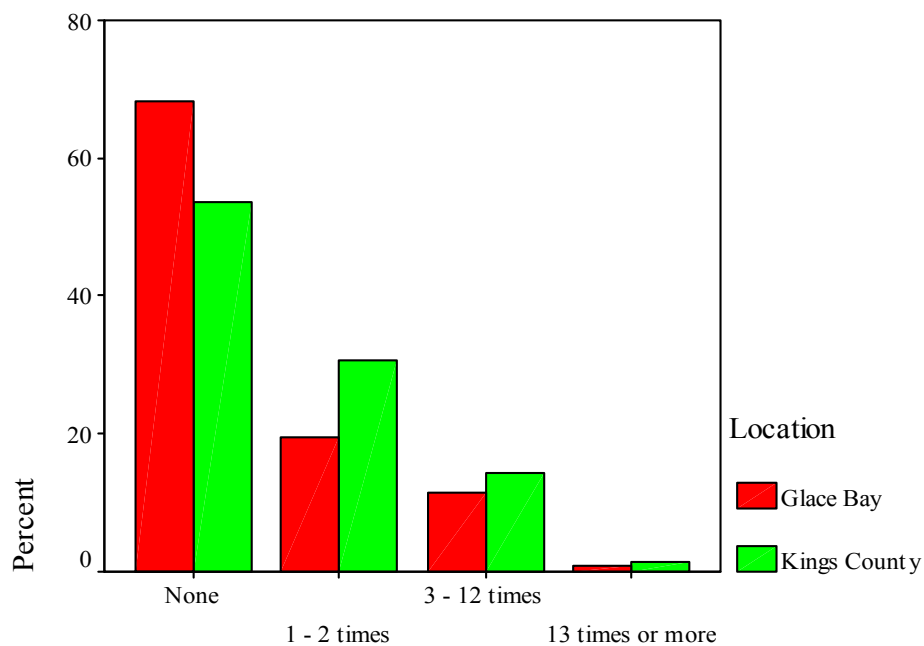


Figure 49: Contact with Other Health Professionals (Past Year): Age 15 - 44



Contact with Other Health Professionals (Past Year)

Figure 50: Contact with Other Health Professionals (Past Year): Ages 45+



Contact with Other Health Professionals (Past Year)

p=0.000

Figure 51: Time as Overnight Patient in Hospital or Nursing Home (Past Year)

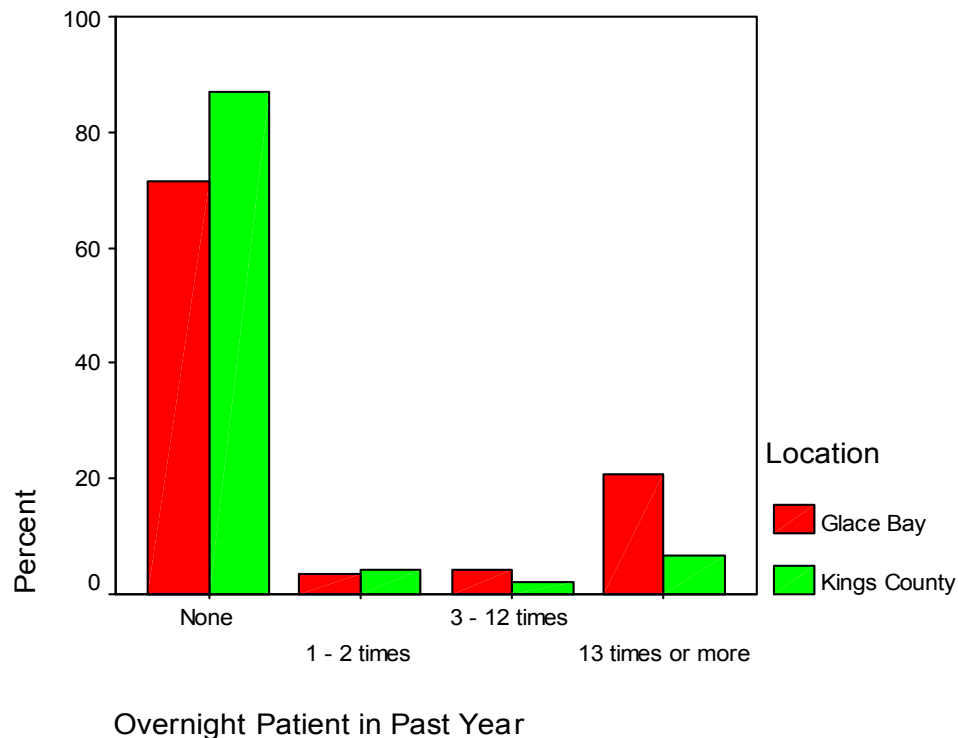


Figure 52: Visits to Emergency Room/Outpatients (Past Year)

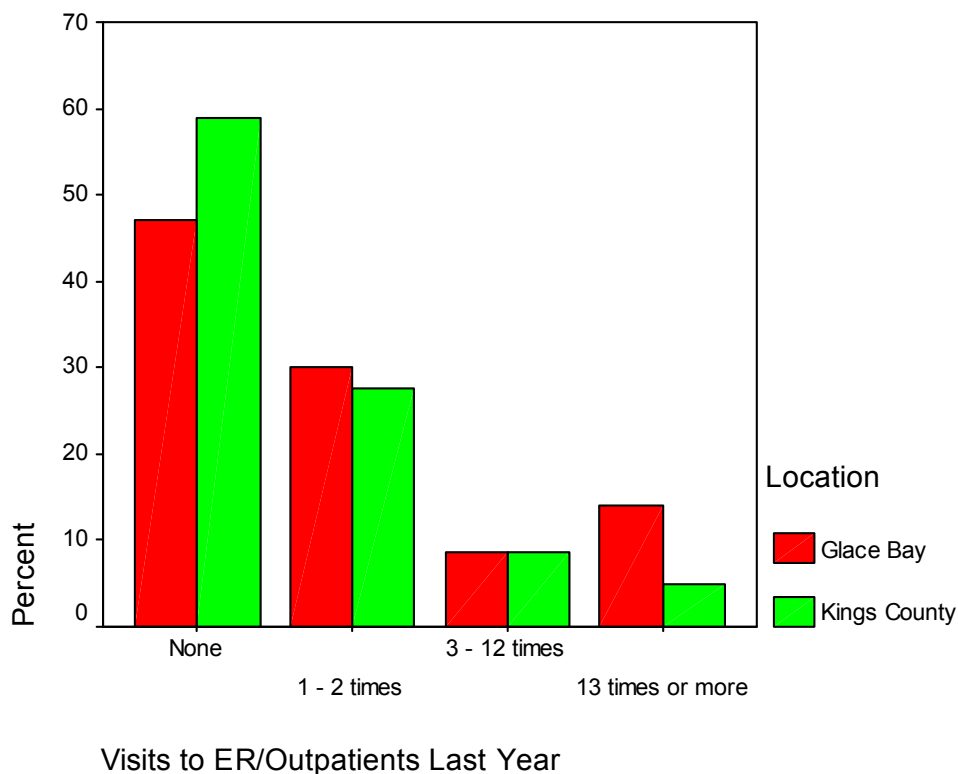
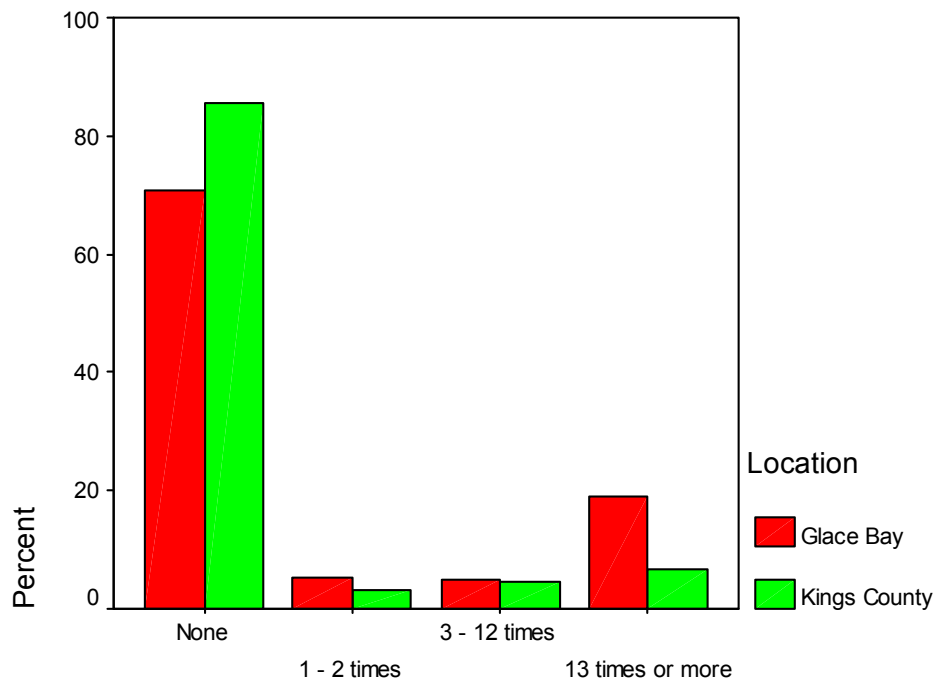
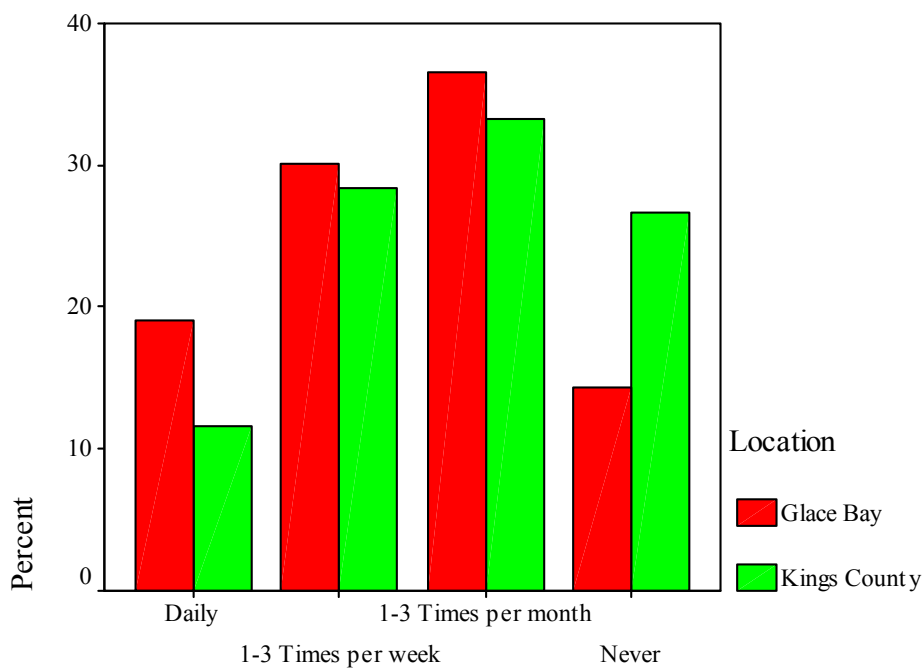


Figure 53: Consultations with a Mental Health Professional (Past Year)



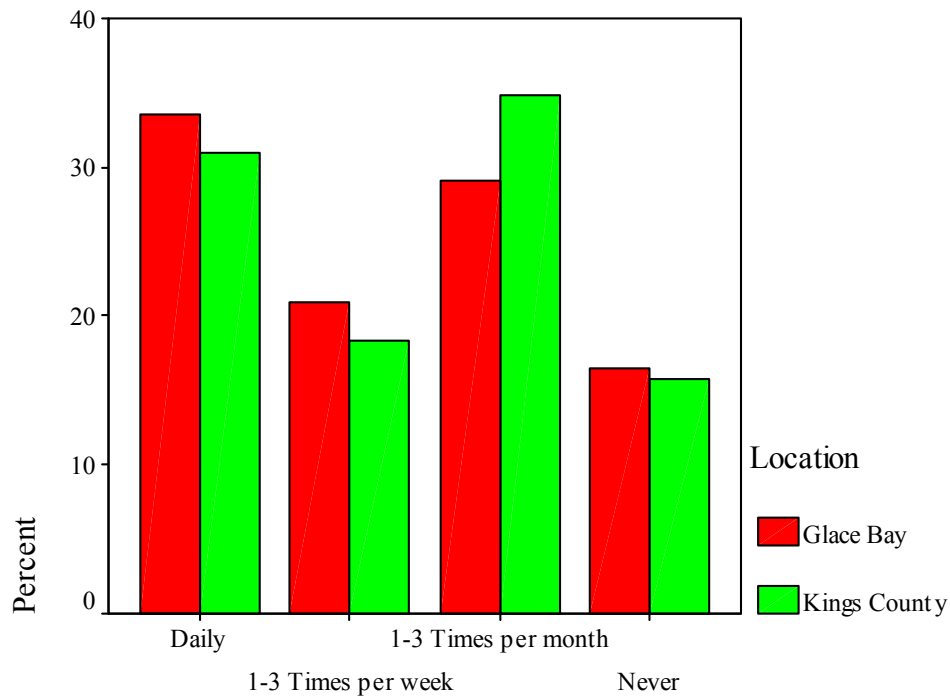
Consultations with Mental Health Professional in Past Year

Figure 54: Pain Reliever/Anti-Inflammatory Use (Past Year) - Ages 15-44



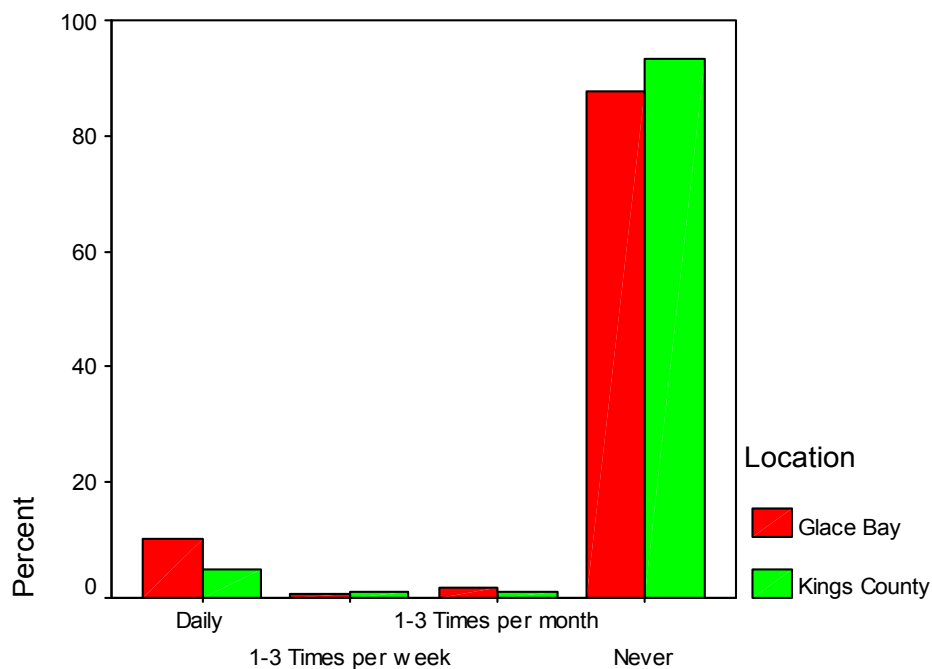
Pain relievers like aspirin, Tylenol, arthritis medicine, anti-inflammat

Figure 55: Pain Reliever/Anti-Inflammatory Use (Past Year) - Ages 45+



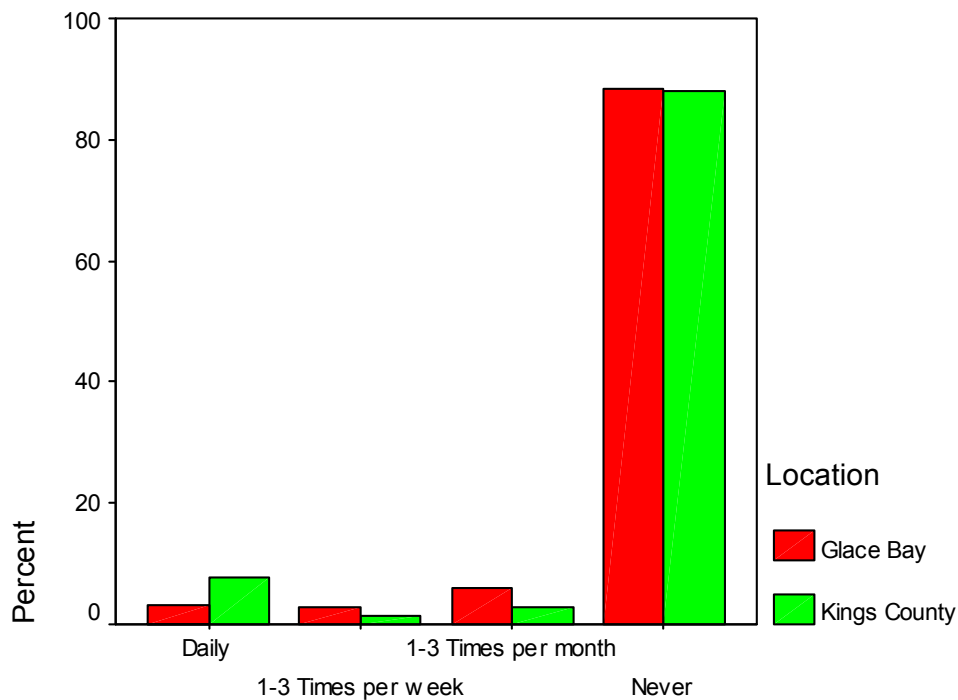
Pain relievers like aspirin, Tylenol, arthritis medicine, anti-inflammat

Figure 56: Anti-Depressant Use (Past Year)



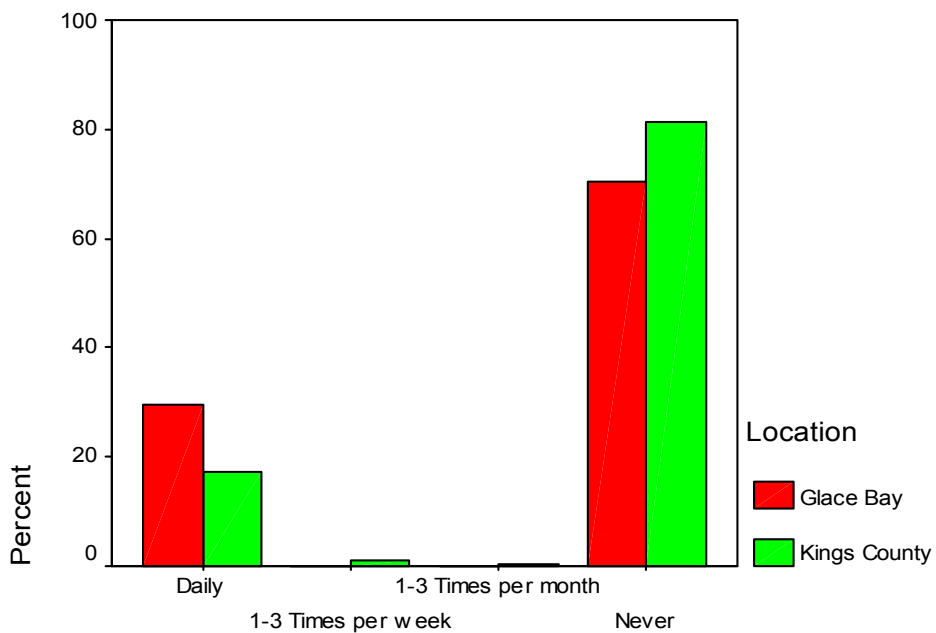
Anti-depressant use

Figure 57: Asthma Medication Use (Past Year)



Asthma medication use

Figure 58: Blood Pressure Medication Use (Past Year)



Blood pressure med. use

p=0.011

Figure 59: Sleeping Pill Use (Past Year)

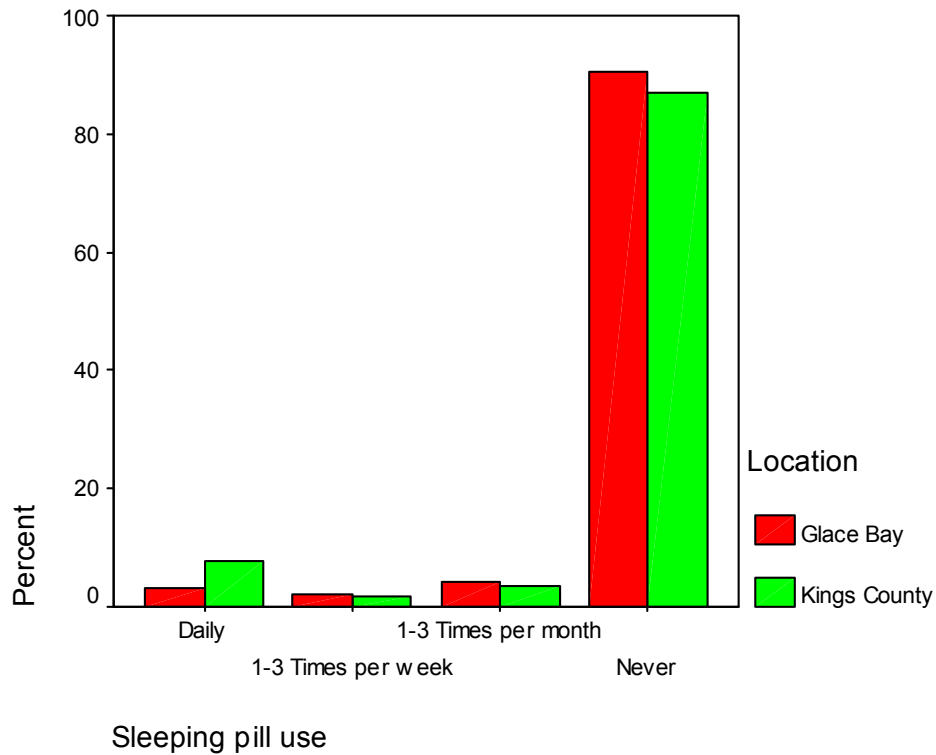


Figure 60: Stomach Remedy Use (Past Year)

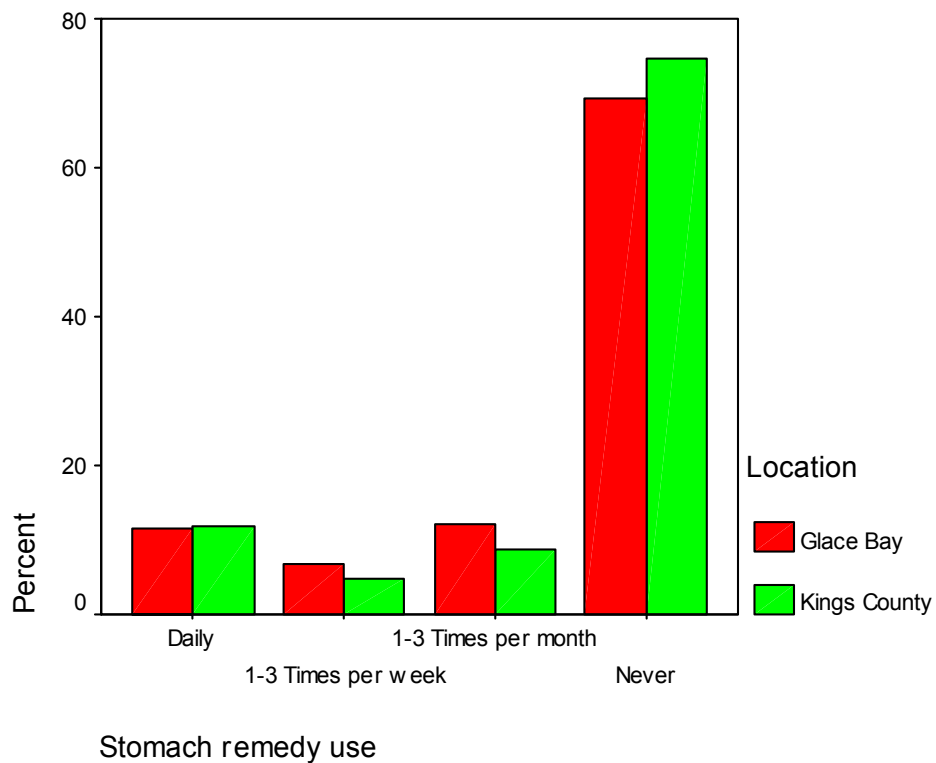


Figure 61: Activity Limitation - Ages 15-44

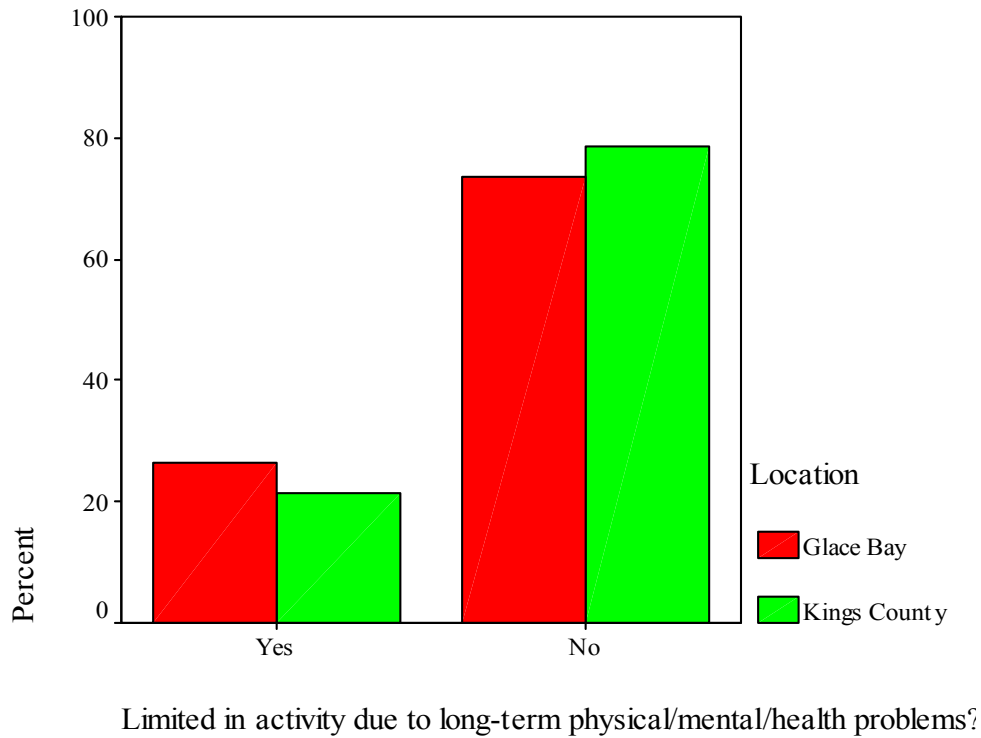


Figure 62: Activity Limitation - Ages 45+

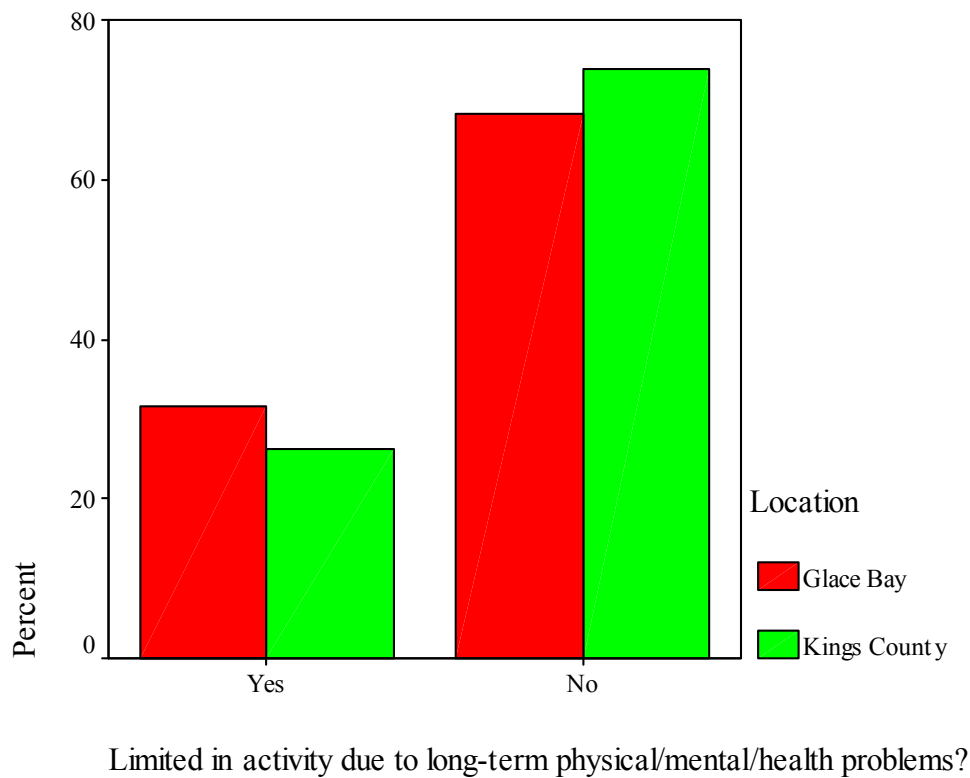


Figure 63: Amount of Exercise - Ages 15-44

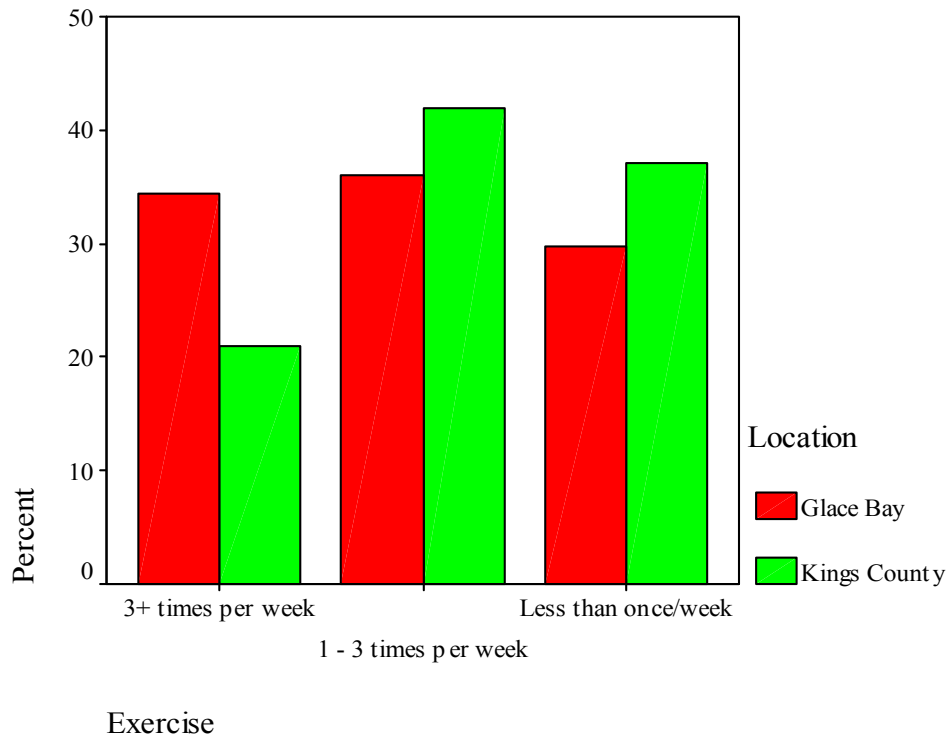


Figure 64: Amount of Exercise - Ages 45+

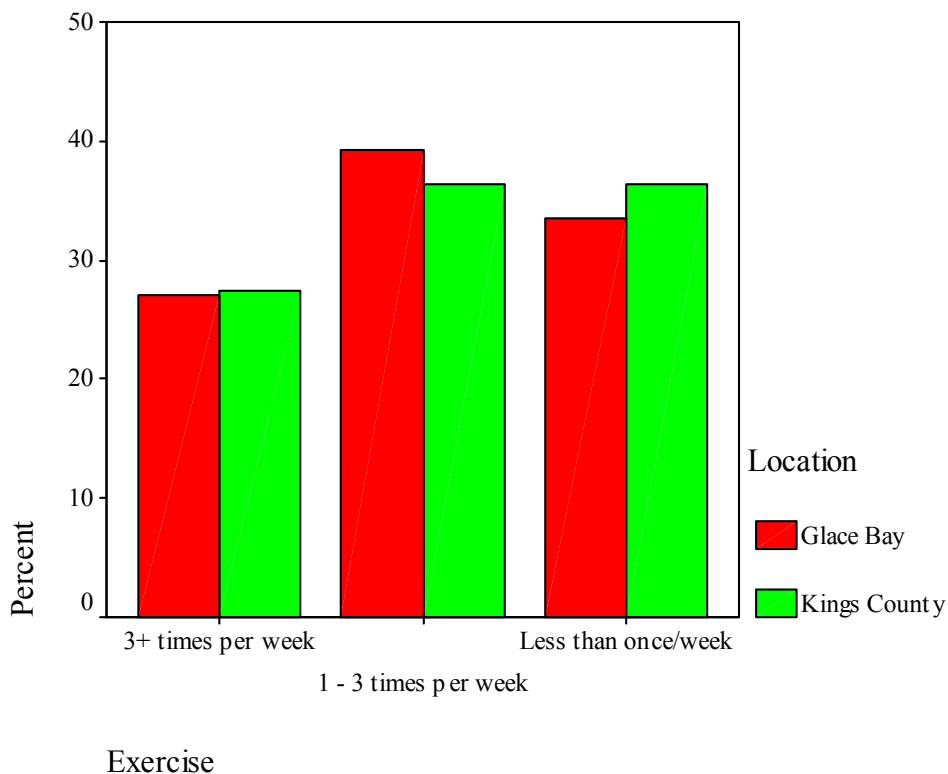
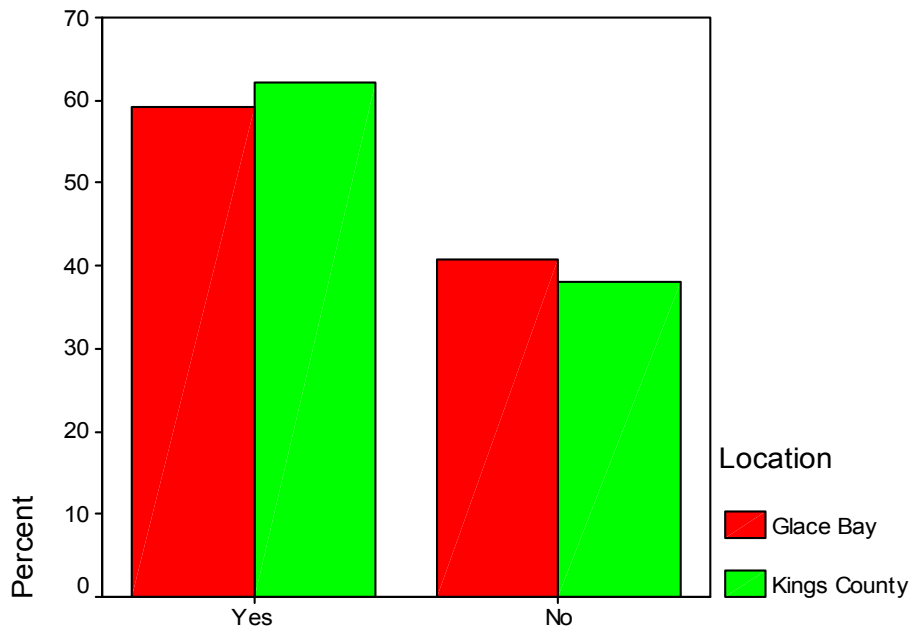
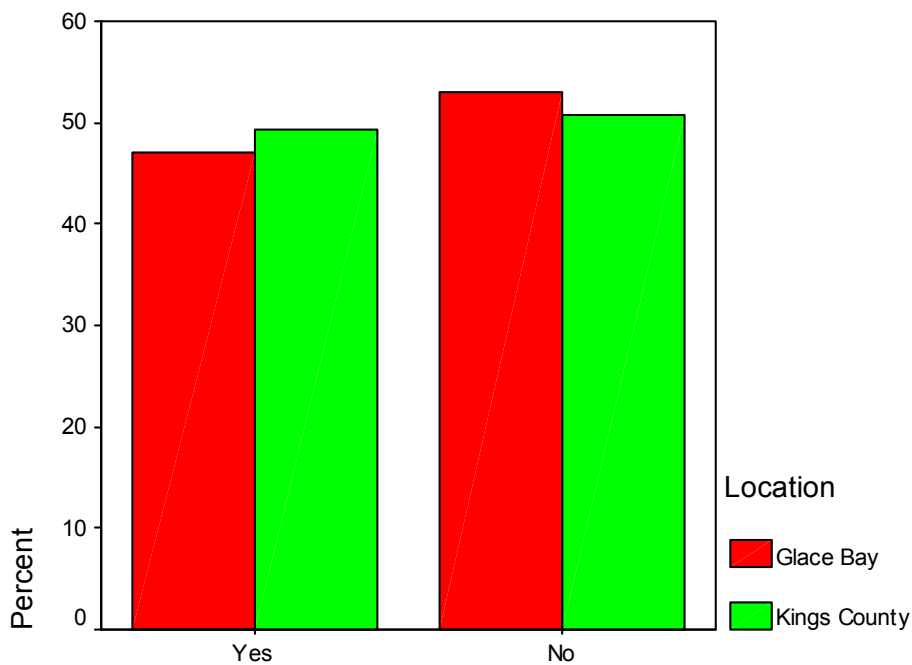


Figure 65: “At the end of the day, do you often feel that you have not accomplished what you had set out to do?”



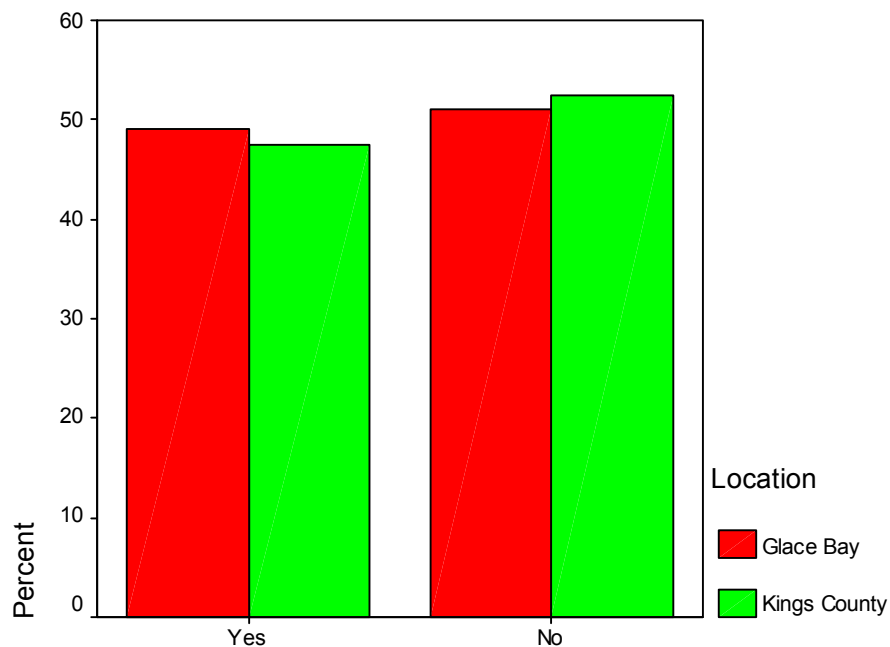
...feel that you have not accomplished what you'd set out to do

Figure 66: “Do you often worry that you don’t spend enough time with your family or friends?”



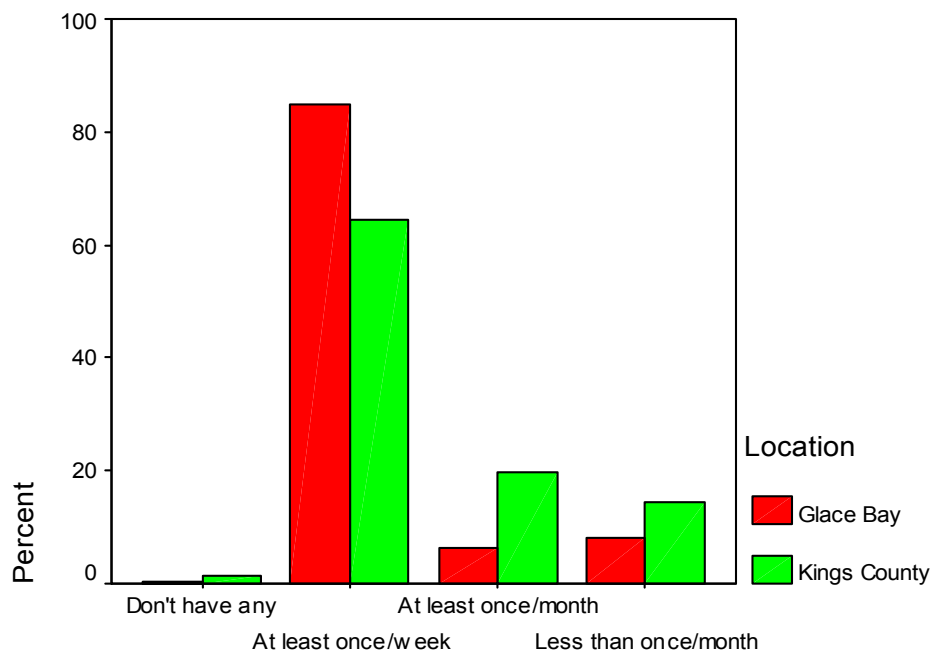
...worry that you don't spend enough time with your family or friends

Figure 67: “Do you feel that you are constantly under stress trying to accomplish more than you can handle?”



Feel that you're constantly under stress trying to accomplish more

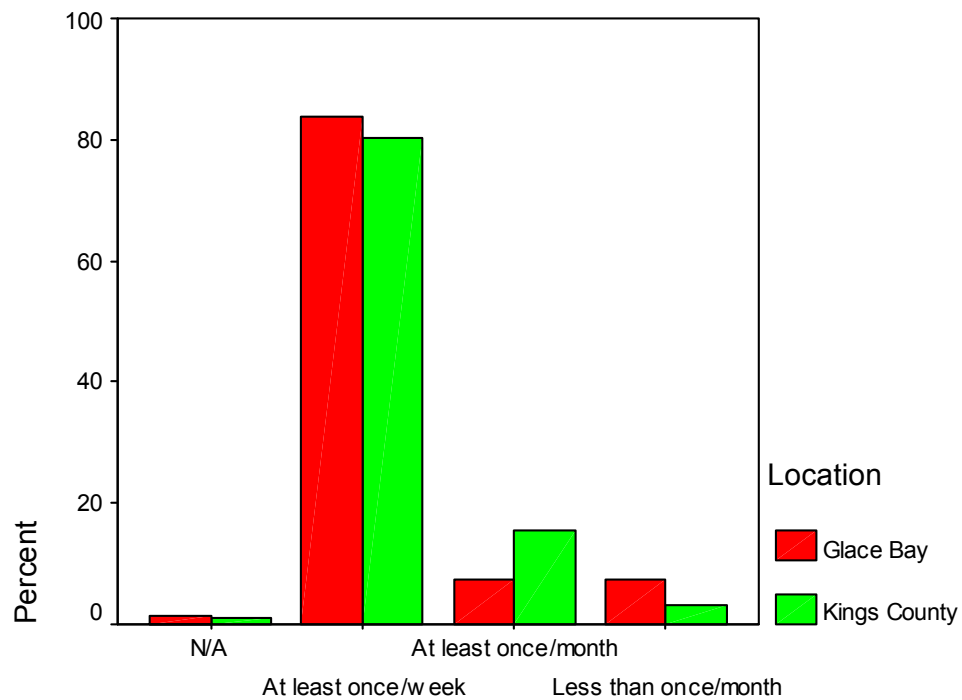
Figure 68: Contact with Neighbors (Past Year)



How often did you have contact with neighbors?

p=0.000

Figure 69: Contact with Non-Live-In Family (Past Year)



Contact with non-live-in family in past year

$p=0.000$

Appendix VI

Odds Ratios

Perceived Health Status

Groups	Odds Ratios	
	Glance Bay	Kings County
Males/Females	0.78 (0.63-0.97)*	0.86 (0.70-1.05)
Age 15-24/65+	3.28 (1.79-6.01)*	2.07 (1.00-2.29)*
Age 25-34/65+	2.15 (1.34-3.44)*	1.87 (1.17-2.99)*
Age 35-44/65+	1.46 (0.98-2.19)	1.92 (1.27-2.90)*
Age 45-54/65+	0.87 (0.61-1.23)	1.08 (0.73-1.60)
Age 55-64/65+	0.87 (0.63-1.20)	1.28 (0.91-1.78)
Income <\$10,000/\$50,000+	0.40 (0.25-0.64)*	0.17 (0.11-0.28)*
Income \$10,000 - \$19,999/\$50,000+	0.46 (0.32-0.65)*	0.45 (0.31-0.64)*
Income \$20,000 - \$34,999/\$50,000+	0.73 (0.54-0.98)*	0.64 (0.50-0.83)*
Income \$35,000 - \$49,999/\$50,000+	0.84 (0.60-1.16)	0.70 (0.55-0.90)*
Non-caregivers/Caregivers	1.31 ((0.98-1.74)	1.41 (1.07-1.86)*
Unemployed/Employed	0.54 (0.38-0.77)*	0.78 (0.48-1.27)
Student/Employed	0.75 (0.41-1.37)	2.96 (1.44-6.11)*
Homemaker/Employed	0.48 (0.34-0.67)*	0.64 (0.46-0.87)*
Retired/Employed	0.42 (0.30-0.58)*	0.68 (0.48-0.96)*
Grade 9-12/P-8	1.15 (0.83-1.59)	1.47 (0.97-2.23)
Comm. Coll./P-8	1.14 (0.77-1.69)	1.92 (1.22-3.03)*
University/P-8	2.06 (1.29-3.27)*	2.71 (1.70-4.34)*
Glance Bay/Kings County	1.17 (1.02-1.34)*	

* = Significant

Activity Limitation Groups	Odds Ratios	
	Glance Bay	Kings County
Males/Females	1.38 (1.04-1.83)*	0.99 (0.74-1.31)
Age 15-24/65+	0.37 (0.15-0.93)*	0.15 (0.04-0.66)*
Age 25-34/65+	0.82 (0.44-1.54)	0.55 (0.28-1.09)
Age 35-44/65+	1.04 (0.62-1.75)	0.81 (0.47-1.40)
Age 45-54/65+	1.93 (1.26-2.95)*	1.22 (0.73-2.02)
Age 55-64/65+	1.78 (1.22-2.61)*	0.69 (0.45-1.05)
Income <\$10,000/\$50,000+	2.32 (1.29-4.16)*	2.63 (1.44-4.81)*
Income \$10,000 - \$19,999/\$50,000+	1.62 (1.01-2.58)*	1.73 (1.07-2.79)*
Income \$20,000 - \$34,999/\$50,000+	1.04 (0.69-1.56)	1.52 (1.08-2.20)*
Income \$35,000 - \$49,999/\$50,000+	0.98 (0.63-1.55)	1.22 (0.84-1.75)
Non-caregivers/Caregivers	0.77 (0.53-1.10)	0.77 (0.54-1.11)
Unemployed/Employed	2.53 (1.58-4.05)*	1.67 (0.88-3.12)
Student/Employed	2.07 (0.81-5.28)	0.95 (0.23-3.93)
Homemaker/Employed	3.38 (2.13-5.34)*	1.91 (1.24-2.94)*
Retired/Employed	4.49 (2.89-6.98)*	2.63 (1.65-4.21)*
Glance Bay/Kings County	1.06 (0.88-1.28)	

Stress Level Groups	Odds Ratios	
	Glance Bay	Kings County
Age 15-24/65+	5.33 (2.57-11.02)*	3.22 (1.20-8.67)*
Age 25-34/65+	2.66 (1.50-4.74)*	5.51 (2.92-10.42)*
Age 35-44/65+	3.26 (1.96-5.41)*	4.58 (2.62-8.01)*
Age 45-54/65+	2.77 (1.78-4.30)*	4.00 (2.33-6.87)*
Age 55-64/65+	1.53 (1.05-2.23)*	1.61 (1.06-2.44)*
Income <\$10,000/\$50,000+	4.76 (2.65-8.56)*	1.60 (0.84-3.07)
Income \$10,000 - \$19,999/\$50,000+	2.84 (1.83-4.39)*	1.27 (0.79-2.04)
Income \$20,000 - \$34,999/\$50,000+	1.31 (0.92-1.87)	1.21 (0.86-1.69)
Income \$35,000 - \$49,999/\$50,000+	1.56 (1.05-2.31)*	1.03 (0.74-1.43)
Non-caregivers/Caregivers	0.39 (0.27-0.57)*	0.62 (0.43-0.91)*
Unemployed/Employed	0.78 (0.50-1.21)	1.02 (0.51-2.04)
Student/Employed	0.61 (0.30-1.24)	0.93 (0.36-2.38)
Homemaker/Employed	0.59 (0.38-0.92)*	0.91 (0.59-1.41)
Retired/Employed	0.43 (0.28-0.65)*	0.49 (0.31-0.79)*
Glance Bay/Kings County	0.76 (0.64-0.91)*	

* = Significant

Happiness	Odds Ratios	
Groups	Glance Bay	Kings County
Males/Females	0.78 (0.63-0.98)*	0.73 (0.59-0.90)*
Age 15-24/65+	0.61 (0.33-1.12)	0.45 (0.21-0.97)*
Age 25-34/65+	0.57 (0.35-0.95)*	0.37 (0.22-0.62)*
Age 35-44/65+	0.53 (0.34-0.82)*	0.40 (0.25-0.64)*
Age 45-54/65+	0.49 (0.33-0.73)*	0.45 (0.28-0.70)*
Age 55-64/65+	1.06 (0.73-1.55)	0.82 (0.55-1.21)
Income <\$10,000/\$50,000+	0.30 (0.18-0.50)*	0.71 (0.42-1.19)
Income \$10,000 - \$19,999/\$50,000+	0.34 (0.23-0.49)*	0.65 (0.44-0.97)*
Income \$20,000 - \$34,999/\$50,000+	0.54 (0.39-0.74)*	0.69 (0.52-0.91)*
Income \$35,000 - \$49,999/\$50,000+	0.48 (0.34-0.68)*	0.74 (0.57-0.97)*
Non-caregivers/Caregivers	1.65 (1.21-2.25)*	1.48 (1.10-2.00)*
Unemployed/Employed	0.70 (0.49-1.01)	0.49 (0.29-0.83)*
Student/Employed	1.08 (0.61-1.91)	1.33 (0.66-2.67)
Homemaker/Employed	1.10 (0.76-1.59)	0.87 (0.62-1.22)
Retired/Employed	1.04 (0.71-1.51)	0.83 (0.56-1.23)
Grade 9-12/P-8	0.86 (0.60-1.24)	1.04 (0.66-1.62)
Comm. Coll./P-8	0.96 (0.62-1.49)	1.17 (0.71-1.90)
University/P-8	0.94 (0.57-1.54)	1.32 (0.80-2.19)
Glance Bay/Kings County	1.03 (0.89-1.19)	

Depression	Odds Ratios	
Groups	Glance Bay	Kings County
Age 15-24/65+	1.44 (0.65-3.18)	2.91 (1.04-8.12)*
Age 25-34/65+	1.39 (0.69-2.79)	3.20 (1.50-6.85)*
Age 35-44/65+	2.19 (1.19-4.05)*	2.78 (1.37-5.64)*
Age 45-54/65+	1.88 (1.07-3.32)*	2.27 (1.13-4.54)*
Age 55-64/65+	1.56 (0.91-2.66)	1.44 (0.77-2.69)
Income <\$10,000/\$50,000+	3.60 (1.94-6.70)*	1.99 (1.05-3.76)*
Income \$10,000 - \$19,999/\$50,000+	2.48 (1.47-4.19)*	1.44 (0.84-2.48)
Income \$20,000 - \$34,999/\$50,000+	1.85 (1.17-2.93)*	1.53 (1.03-2.27)*
Income \$35,000 - \$49,999/\$50,000+	2.13 (1.32-3.45)*	1.25 (0.85-1.85)
Non-caregivers/Caregivers	0.77 (0.52-1.14)	0.80 (0.53-1.22)
Unmarried/Married-Common Law	1.34 (0.97-1.86)	1.46 (1.01-2.11)*
Unemployed/Employed	1.63 (1.03-2.58)*	1.61 (0.85-3.04)
Glance Bay/Kings County	1.05 (0.86-1.29)	

* = Significant

Satisfaction	Odds Ratios	
Groups	Glance Bay	Kings County
Males/Females	0.79 (0.63-1.00)	0.69 (0.56-0.85)*
Age 15-24/65+	0.54 (0.28-1.02)	0.68 (0.32-1.48)
Age 25-34/65+	0.50 (0.27-0.75)*	0.37 (0.22-0.62)*
Age 35-44/65+	0.35 (0.22-0.55)*	0.34 (0.21-0.53)*
Age 45-54/65+	0.42 (0.28-0.63)*	0.33 (0.21-0.52)*
Age 55-64/65+	0.76 (0.53-1.08)	0.74 (0.51-1.07)
Income <\$10,000/\$50,000+	0.15 (0.09-0.27)*	0.62 (0.36-1.07)
Income \$10,000 - \$19,999/\$50,000+	0.27 (0.19-0.40)*	0.54 (0.36-0.80)*
Income \$20,000 - \$34,999/\$50,000+	0.49 (0.36-0.67)*	0.64 (0.48-0.85)*
Income \$35,000 - \$49,999/\$50,000+	0.43 (0.31-0.60)*	0.62 (0.48-0.81)*
Non-caregivers/Caregivers	1.73 (1.24-2.39)*	1.31 (0.96-1.79)
Unmarried/Married-Common Law	0.62 (0.48-0.80)*	0.57 (0.43-0.76)*
Unemployed/Employed	0.69 (0.46-1.02)	0.33 (0.17-0.63)*
Glance Bay/Kings County	1.30 (1.12-1.50)*	

Physician Contact	Odds Ratios	
Groups	Glance Bay	Kings County
Males/Females	0.67 (0.55-0.83)*	0.66 (0.55-0.80)*
Non-caregivers/Caregivers	0.77 (0.57-1.02)	1.02 (0.78-1.34)
Employed/Unemployed	1.54 (1.09-2.17)*	1.02 (0.63-1.67)
Student/Unemployed	1.02 (0.61-1.73)	1.07 (0.56-2.03)
Homemaker/Unemployed	1.34 (0.95-1.88)	1.23 (0.90-1.66)
Retired/unemployed	1.66 (1.19-2.33)*	1.61 (1.14-2.28)*
Glance Bay/Kings County	1.02 (0.89-1.16)	

Mental Health Professional Contact	Odds Ratios	
Groups	Glance Bay	Kings County
Age 15-24/65+	4.58 (1.07-19.5)*	1.99 (0.40-9.80)
Age 25-34/65+	8.98 (2.50-32.3)*	4.54 (1.31-15.7)*
Age 35-44/65+	5.98 (1.73-20.7)*	5.86 (1.85-18.6)*
Age 45-54/65+	8.23 (2.59-26.1)*	5.46 (1.76-16.9)*
Age 55-64/65+	4.81 (1.51-15.3)*	1.95 (0.68-5.57)
Income <\$10,000/\$50,000+	2.42 (1.01-5.82)*	1.39 (0.55-3.50)
Income \$10,000 - \$19,999/\$50,000+	1.83 (0.84-3.89)	2.04 (1.02-4.08)*
Income \$20,000 - \$34,999/\$50,000+	1.05 (0.51-2.15)	1.70 (1.00-2.90)*
Income \$35,000 - \$49,999/\$50,000+	1.10 (0.51-2.34)	1.37 (0.81-2.32)
Non-caregivers/Caregivers	0.61 (0.35-1.05)	0.65 (0.38-1.10)

* = Significant

Appendix 4: Peace, Security and Wellbeing

Peace, Security, and Wellbeing: Preliminary results from the Glace Bay and King's County community health surveys

March 25, 2004

Prepared by:
Mark Raymond, Ph.D

Introduction

In 2001, Genuine Progress Index (GPI) surveys were randomly sent to residents of the town Glace Bay and the region of Kings County, Nova Scotia. The purpose was to measure quality of life and overall well-being. 1708 surveys were returned from Glace Bay, and 1898 surveys were returned from Kings County. Overall, an extremely high response rate was achieved even though the surveys were very lengthy.

Glace Bay is a community in industrial Cape Breton that is home to approximately 19,000 people and is part of the fourth largest urban area in Atlantic Canada. Kings County is somewhat different. The region is about one hour away from the city of Halifax and is residence to approximately 50,000 people. This report examines the similarities and differences between Glace Bay and Kings County with regard to peace and security issues. We pay particular attention to the relationship between victimization rates, views on justice, and views on current controversial issues like gun laws and marijuana legalization on the one hand and variables such as employment, income, and education levels that are recognized as common determinants of both population health and personal security.

The two areas in our study represent contrasting profiles of rural communities. Glace Bay is heavily invested in the mining industry. The area has recently suffered a major economic setback with the closing of area coal mining operations. Kings County is one of the more affluent rural areas in Nova Scotia with a strong agricultural base, as well as active logging, fishing, manufacturing and service industries.

Between 2001 and 2003, these two communities were involved in the design and implementation of a comprehensive community survey in partnership with GPI Atlantic and several other partners. The purpose of the survey was to collect baseline data for the monitoring of community well being and progress. The questionnaire survey was comprehensive, examining a variety of topics including:

- Household demographics
- Labour Force Activity
- Health
- Core Values
- Care giving
- Voluntary Activity and Community Service
- Personal Security and Crime
- Ecological Footprint
- Time Use

This paper will first look at some simple demographics and descriptive statistics. Then a more concentrated examination of crime and attitudes towards the justice system is undertaken. A more detailed analysis on topics such as gun control, legalizing marijuana and fairness in the

justice system reveals several interesting results. Finally we suggest several new areas of potential research and some readings for interested readers.

Despite the breadth of this overview we do come away with a few very precise pieces of information. Higher levels of education are significantly related to views on the legalization of marijuana and tougher gun control laws. Respondents with higher levels of education seem to favour tighter gun control laws and support the legalization of marijuana.

There is clear difference between Glace Bay and Kings County when we look at the rates of victimization and views on marijuana legalization, the need for tougher gun control laws and the need for tougher sentencing. One very interesting result, that should be examined more closely in future research is the difference that exists between genders in victim behaviour after being victimized. Despite there being no significant difference between the gender of victims in terms of victimization rates, females were more likely to alter their behaviour after being victimized than males. One can speculate reasons for this, and future research might consider an analysis of costs associated with these types of behavioural changes.

Employment status is, in general, not significantly correlated with views on justice, marijuana laws or gun laws. Only when Employment Status was categorized did greater detail emerge. Being a student was a significant predictor for all three dependent variables. Being a student was significantly correlated with views that a tougher stance on gun control was needed, that marijuana should be legalized and that justice system was fair to everyone.

Other than the significant relationship between being unemployed or retired and the view that marijuana should respectively be legalized or not, employment status did not play a statistically significant role for views on marijuana and gun laws as well as views on justice system fairness. Factors such as location, gender and education level seemed to play the largest role.

Demographics and Descriptive Statistics

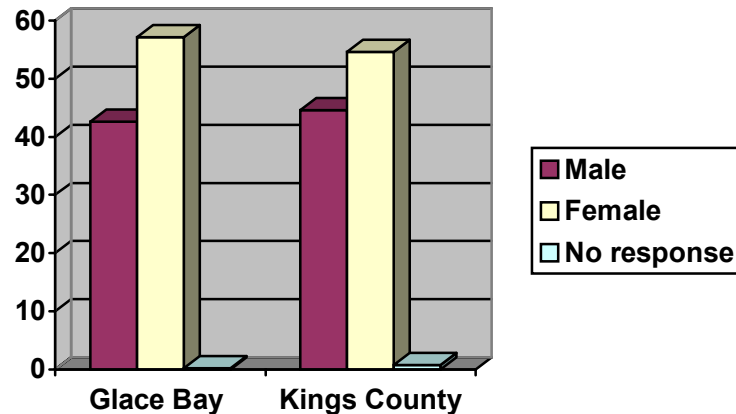
We begin our examination of the data with brief overview of some of the more general and stylized statistics. Tables 1 through 6 examine variable such as gender, age, household earnings, education levels and employment status. We did not note a significance difference in the gender distribution of respondents in the two locations is present. (Table and Figure 1)

Table 1: Gender of Respondents (in percentage)

Gender	Glace Bay	Kings County
Male	42.6	44.6
Female	57.1	54.6
No response	0.2	0.8

Pearson Chi-Square = 1.739 $p < 0.187$

Figure 1: Gender of Respondents (in percentage)



We did note a significance difference in the age distribution of respondents in the two locations. The Kings County sample contained a larger proportion in their late thirties, early forties and a smaller proportion in their early twenties. (Table 2 and Figure 2)

There was also a significant difference in the income distribution of the two sets of respondents, with a substantially larger proportion of Glace Bay residents in the lower income brackets. We note especially the percentage of residents with household incomes \$50,000 or greater. (Table 3 and Figure 3)

For education levels we observe that Glace Bay respondents also had a substantially lower proportion of respondents with higher levels of educational attainment. In Glace Bay almost sixty percent of the respondents did not have more than a high school education. For Kings County this figure is just over forty percent. (Table and Figure 4)

Table 2: Age Groups of Respondents (in percentage)

Age	Glace Bay	Kings County
15-19	3.5	5.5
20-24	5.5	2.5
25-34	10.6	10.0
35-44	19.4	24.6
45-54	24.4	22.7
55-64	16.2	15.9
65+	19.7	17.8
No response	0.5	1.0

Pearson Chi-Square = 42.494 $p < 0.000$

Figure 2: Age Groups of Respondents (in percentage)

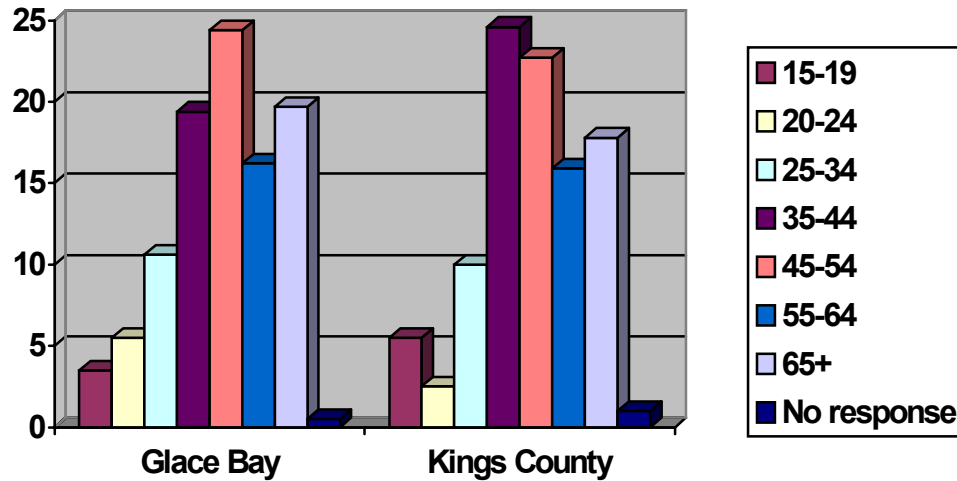


Table 3: Total Household Income Brackets of Respondents (in percentage)

Income Group	Glace Bay	Kings County
Less than10,000	6.7	4.2
10,000 - 19,999	18.5	9.0
20,000 - 34,999	26.5	19.2
35,000 - 49,999	17.9	20.5
50,000 or greater	20.2	41.1
No Response	10.01	5.9
Pearson Chi-Square = 255.064 p<0.000		

Figure 3: Total Household Income Brackets of Respondents (in percentage)

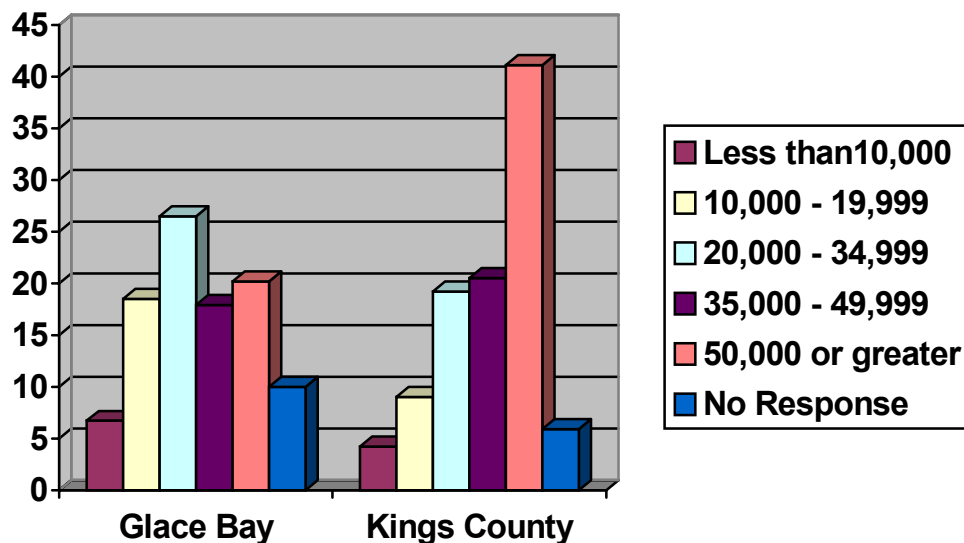
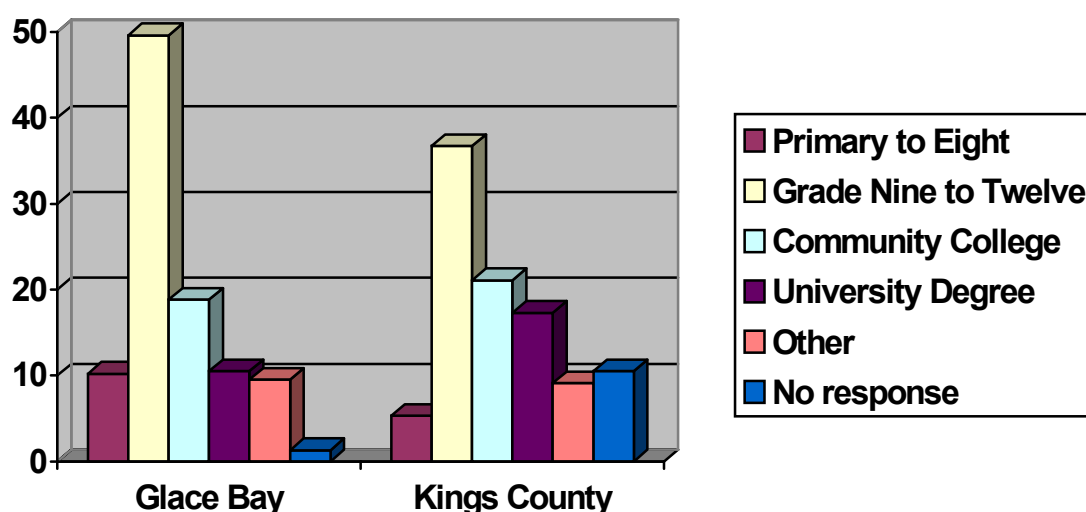


Table 4: Highest Level of Education Attained by Respondents (in percentage)

Education Level	Glace Bay	Kings County
Primary to Eight	10.2	5.3
Grade Nine to Twelve	49.6	36.7
Community College	18.8	21.1
University Degree	10.5	17.3
Other	9.5	9.1
No response	1.3	10.5
Pearson Chi-Square = 86.312 p<0.000		

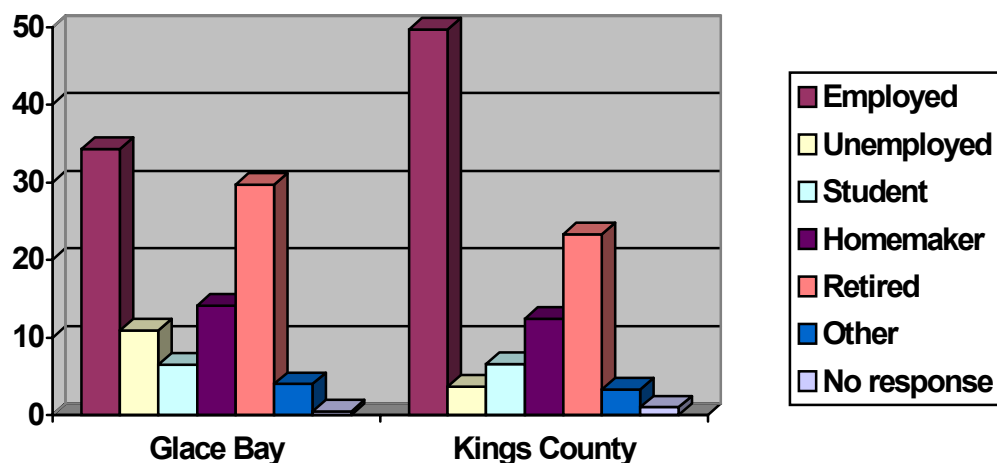
Figure 4: Highest Level of Education Attained by Respondents (in percentage)


Employment status for respondents in Glace Bay was also significantly different than in Kings County. Glace Bay had a substantially lower proportion of respondents employed and a substantially higher level of respondents that were retired. We note a key difference in the percentage of respondent reporting “unemployed” in Glace Bay and Kings County. (Table 5 and Figure 5)

Table 5: Employment Status of Respondents (in percentage)

Employment Status	Glace Bay	Kings County
Employed	34.3	49.7
Unemployed	10.9	3.7
Student	6.5	6.6
Homemaker	14.1	12.4
Retired	29.7	23.3
Other	4.0	3.3
No response	0.5	1.0
Pearson Chi-Square = 132.094 p<0.000		

Figure 5: Employment Status of Respondents (in percentage)



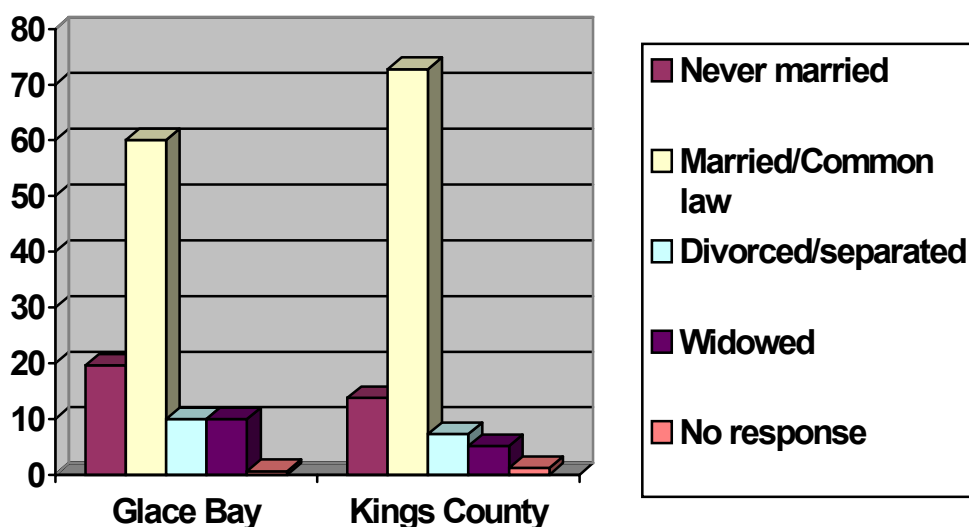
Kings County respondents also had a substantially higher proportion of respondents that were married or living common law and a significantly lower proportion of respondents that have never been married. This may be linked to the age distribution. (Table 6 and Figure 6)

Table 6: Marital Status of Respondents (in percentage)

Marital Status	Glace Bay	Kings County
Never married	19.6	13.7
Married/Common law	60.0	72.8
Divorced/separated	9.9	7.3
Widowed	9.9	5.1
No response	0.6	1.2

Pearson Chi-Square = 76.360 $p < 0.000$

Figure 6: Marital Status of Respondents (in percentage)



Analysing Crime and Attitudes

Next, we turn our attention to a more specific analysis of crime and attitudes towards the justice system. First we note a most basic statistic; have you been a victim of crime in the past 60 months? Respondents from Kings County had a significantly higher rate of victimization than respondents from Glace Bay. The rate in Kings County is almost double that of Glace Bay. (Table and Figure 7)

However, when queried about whether or not their business was victimized, the results are less conclusive. We note the relatively small sample size and the time difference (12 months verses 60 months). For business victimization, there is not a significant difference between Kings County and Glace Bay. (Table 8 and Figure 8)

Of interest in this survey, were individuals' opinions about various "headline" news stories. Respondents for Kings County were significantly more against the need for tougher gun control laws. (Table 9 and Figure 9)

Table 7: Victims of Crime in Past 60 Months

Victim	Glace Bay	Kings County
Yes	7.8	14.6
No	92.2	85.4
Pearson Chi-Square = 40.429 p<0.000		
Number of Valid Cases = 3529		

Figure 7: Victims of Crime in Past 60 Months

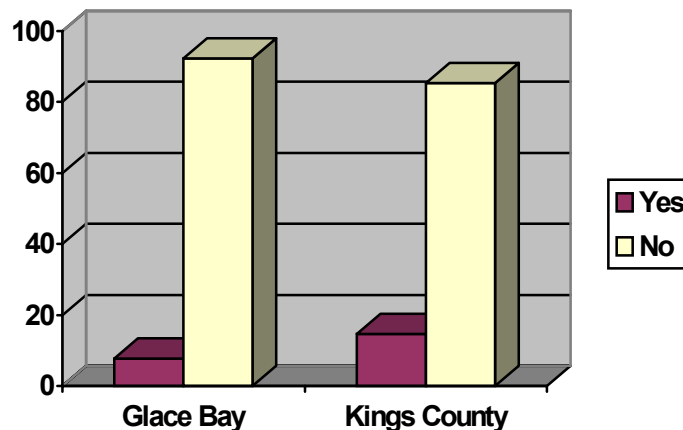


Table 8: Business Victimized in Past 12 Months

Victimized	Glace Bay	Kings County
Yes	23.5	16.5
No	76.5	83.5
Pearson Chi-Square = 1.726 p<0.189		
Number of Valid Cases = 292		

Table 8: Business Victimized in Past 12 Months

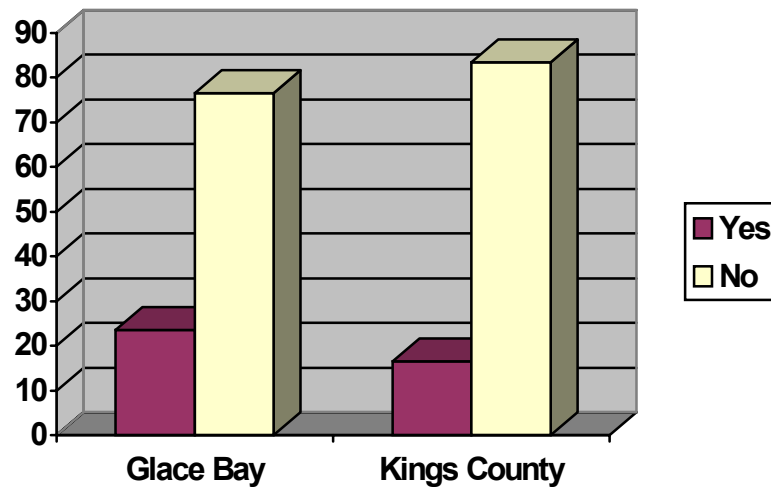
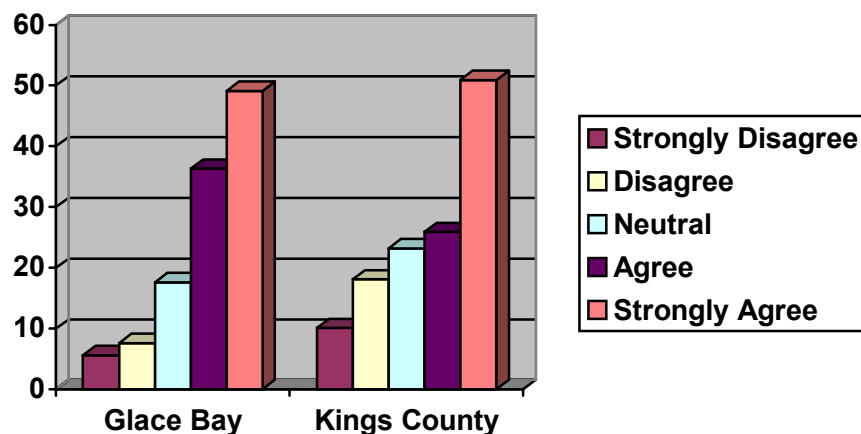


Table 9: Tougher Gun Control Laws

Tougher Laws for Guns	Glace Bay	Kings County
Strongly Disagree	5.6	10.1
Disagree	7.6	18.1
Neutral	17.6	23.2
Agree	36.3	25.9
Strongly Agree	32.9	22.8
Pearson Chi-Square = 169.929 p<0.000		
Number of Valid Cases = 3447		

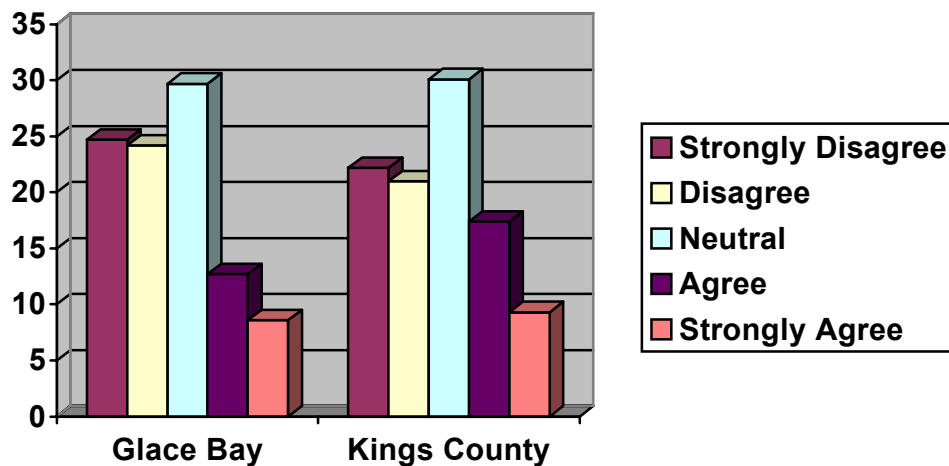
Figure 9: Tougher Gun Control Laws



With regards to legalizing marijuana, Kings County respondents had a significantly higher approval compared to Glace Bay. In Glace Bay 21.3% of the respondents either agreed or strongly agreed, while in Kings County that figure was 26.7%. (Table 10 and Figure 10)

Table 10: Legalize Marijuana

Legalize Marijuana	Glace Bay	Kings County
Strongly Disagree	24.7	22.2
Disagree	24.2	21.0
Neutral	29.7	30.1
Agree	12.7	17.4
Strongly Agree	8.6	9.3
Pearson Chi-Square = 19.586 p<0.001		
Number of Valid Cases = 3449		

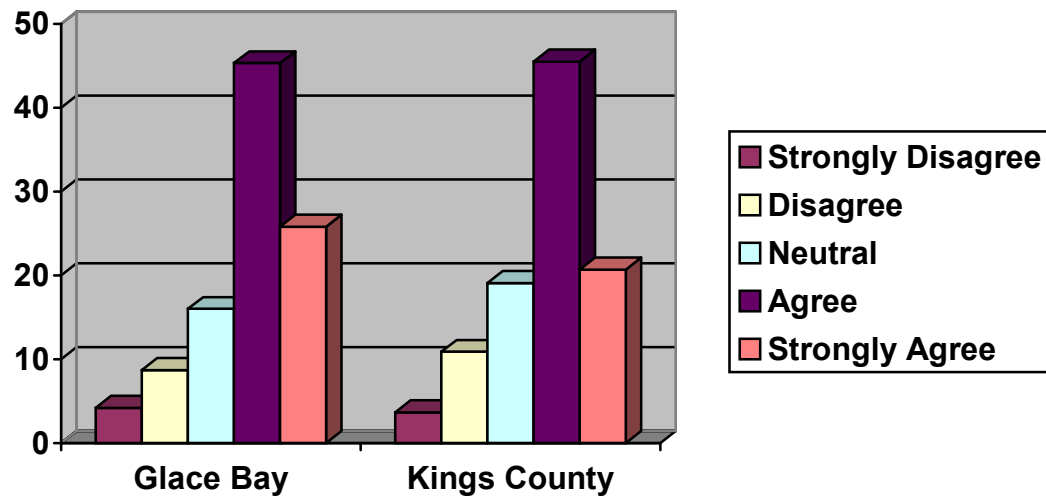
Figure 10: Legalize Marijuana


Kings County and Glace Bay respondents also differed on their beliefs that tougher sentences are needed for sentencing. Over 71% of Glace Bay respondents agreed or strongly agreed while in Kings County that number was 66.2%. (Table 11 and Figure 11)

Table 11: Need Tougher Sentences

Tougher Sentences	Glace Bay	Kings County
Strongly Disagree	4.2	3.7
Disagree	8.7	10.9
Neutral	16.0	19.1
Agree	45.3	45.5
Strongly Agree	25.8	20.7
Pearson Chi-Square = 19.423 p<0.001		
Number of Valid Cases = 3435		

Figure 11: Need Tougher Sentences

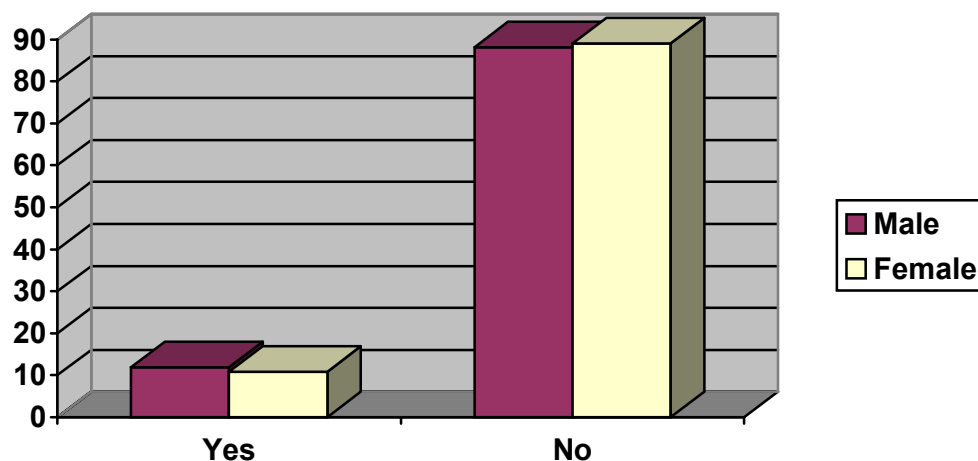


When it came to the gender of crime victimization over the last 60 months we noted no significant difference between male and female. (Table 12 and Figure 12)

Table 12: Gender and Victimization

Gender	A victim of crime in past 60 months	
	Yes	No
Male	11.9	88.1
Female	10.9	89.1
Pearson Chi-Square = 0.784 p<0.376		
Number of Valid Cases = 3521		

Figure 12: Gender and Victimization

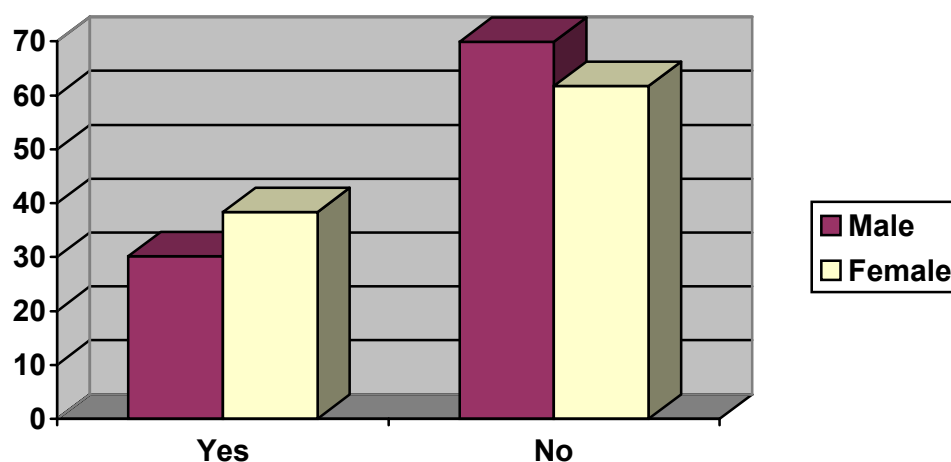


However, despite the information about the gender of crime victimization we observed a significant difference in victim behavioural change. Over 38% of females changed their behaviour after being victimized, while only 31.1% of males did likewise. (Table 13 and Figure 13)

Table 13: Gender and Victim Behaviour Change

Gender	Change of behaviour due to crime	
	Yes	No
Male	30.1	69.9
Female	38.3	61.7
Pearson Chi-Square = 2.858 p<0.091		
Number of Valid Cases = 379		

Table 13: Gender and Victim Behaviour Change

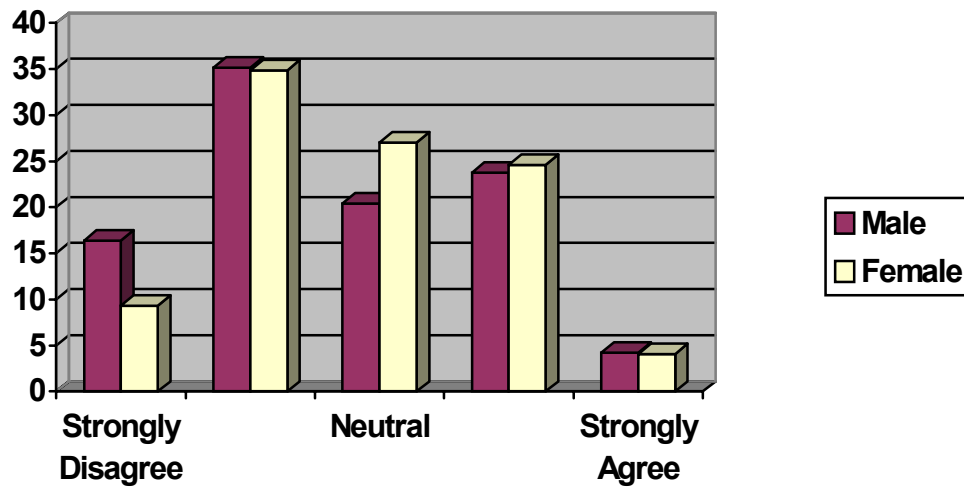


When asked if, in their opinion, the justice system is fair to everyone, 51.6% of male respondents either disagreed or strongly disagreed. For females this number was 44.2%. We noted this as a significant difference. (Table 14 and Figure 14)

Table 14: Gender and Justice System Fairness

Gender	The justice system is fair to everyone				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Male	16.4	35.2	20.4	23.8	4.2
Female	9.3	34.9	27.0	24.6	4.1
Pearson Chi-Square = 48.769 p<0.000					
Number of Valid Cases = 3418					

Figure 14: Gender and Justice System Fairness

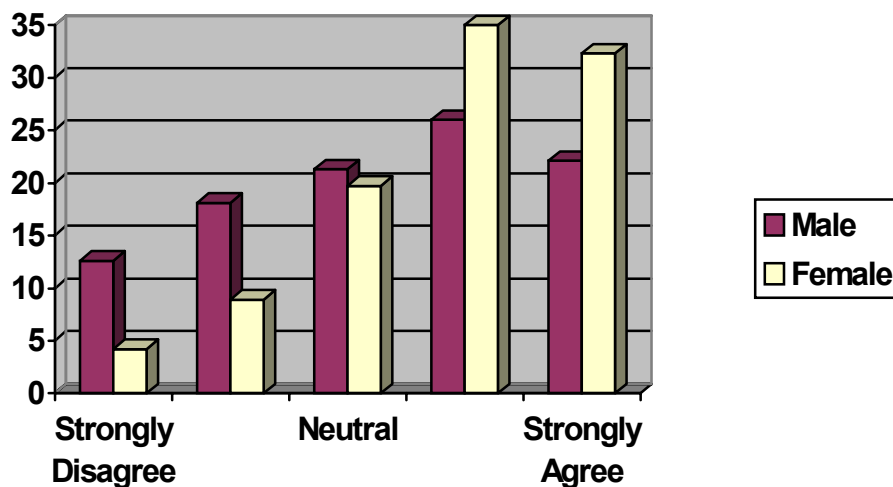


As was the case with the opinion of “justice system fairness” males had significantly different responses to the idea of needing tougher gun control laws. For males, 40.7% disagreed with the need for tougher gun laws. For females, this number was only 13.1%. (Table 15 and Figure 15).

Table 15: Gender and Tougher Gun Laws

Gender	Gun control laws need to be tougher				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Male	12.6	18.1	21.3	26.0	22.1
Female	4.2	8.9	19.7	35.0	32.3
Pearson Chi-Square = 185.861 p<0.000					
Number of Valid Cases = 3441					

Figure 15: Gender and Tougher Gun Laws

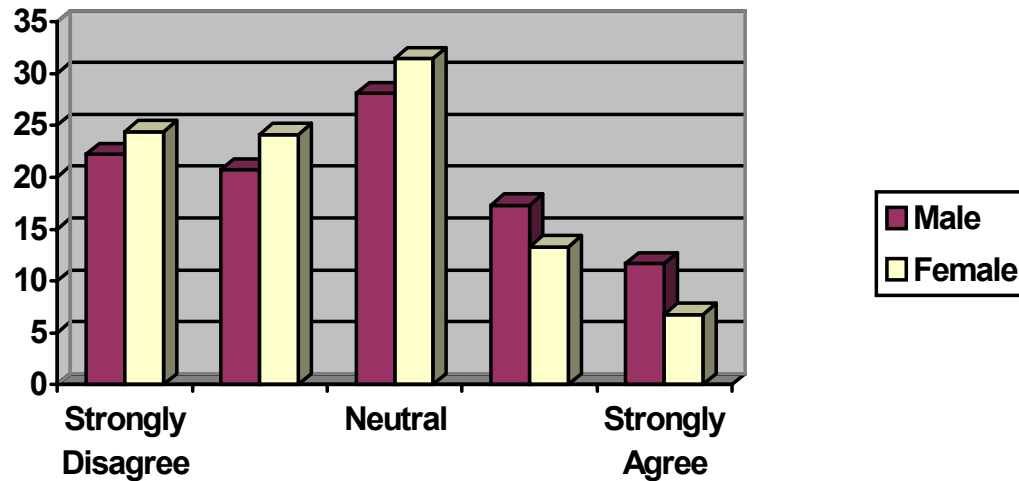


Male and female respondents again held significantly different views on whether marijuana should be legalized. Only 20.1% of females agreed or strongly agreed with having marijuana legalized. For male respondents 29.0% felt similar. (Table 16 and Figure 16)

Table 16: Gender and Marijuana Legalization

Gender	Marijuana should be legalized				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Male	22.2	20.7	28.1	17.3	11.7
Female	24.4	24.1	31.4	13.3	6.8
Pearson Chi-Square = 41.197 p<0.000					
Number of Valid Cases = 3443					

Figure 16: Gender and Marijuana Legalization



Next we want to examine how employment status and education levels breakdown over the support of some of these contentious issues. We have a general significant difference but point out the support for tougher gun control laws is relatively higher for respondents who are unemployed and homemakers. (Table 17 and Figure 17)

For the legalization of marijuana another significant difference is present amongst the various employment statuses. Significantly more respondents who were either unemployed or a student supported the legalization of marijuana. Homemakers and retirees were the least supportive. (Table and Figure 18)

We did not note a significant difference between education level when it came to the need for tougher gun control laws. (Table 19 and Figure 19)

Table 17: Employment Status and Tougher Gun Laws

Gender	Gun control laws need to be tougher				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Employed	8.2	14.1	20.9	29.7	26.7
Unemployed	6.0	12.3	21.0	30.2	30.6
Student	5.3	10.6	24.3	32.7	27.0
Homemaker	5.6	9.1	19.0	33.8	32.5
Retired	9.0	12.9	19.8	32.0	26.3
Other	12.8	15.2	16.0	28.0	28.0
Pearson Chi-Square = 33.008 p<0.034					
Number of Valid Cases = 3434					

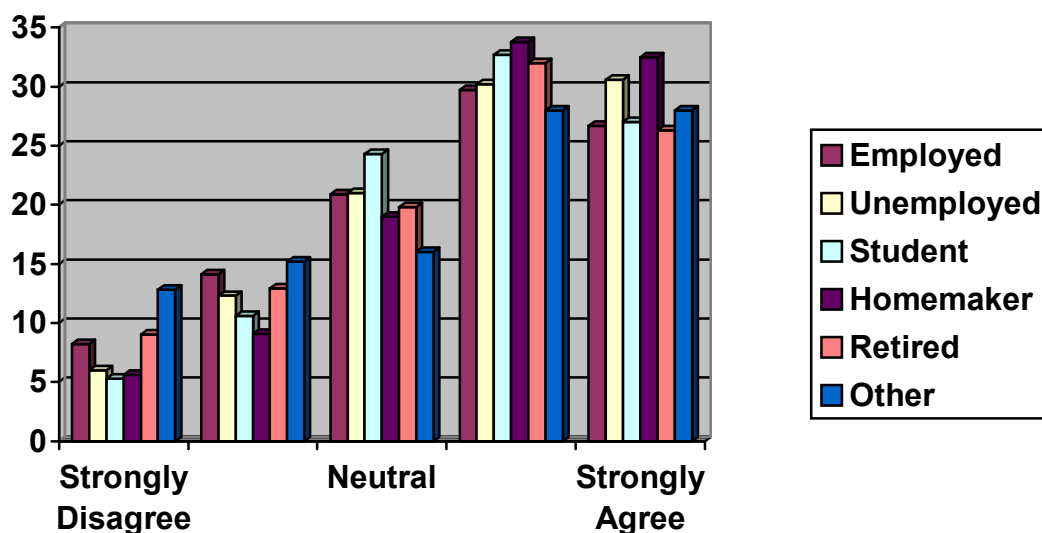
Table 17: Employment Status and Tougher Gun Laws


Table 18: Employment Status and Legalizing Marijuana

Gender	Legalize Marijuana				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Employed	20.3	21.7	32.4	16.9	8.6
Unemployed	21.0	14.7	32.1	13.5	18.7
Student	15.9	18.6	29.6	16.8	19.0
Homemaker	27.0	24.8	29.8	12.8	5.7
Retired	29.4	26.5	25.3	12.6	6.3
Other	23.4	20.2	29.0	19.4	8.1

Pearson Chi-Square = 130.476 p<0.000

Number of Valid Cases = 3435

Figure 18: Employment Status and Legalizing Marijuana

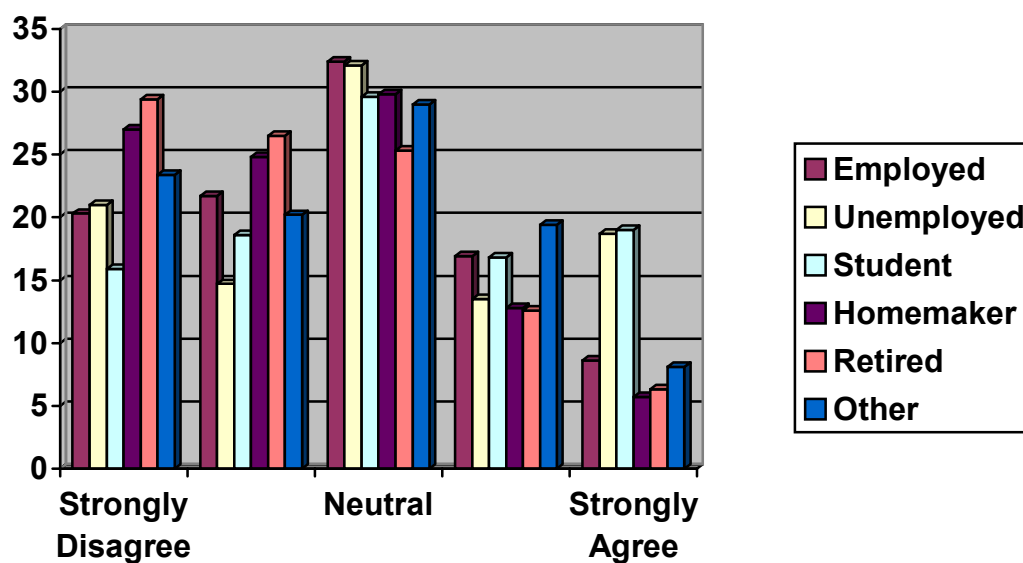
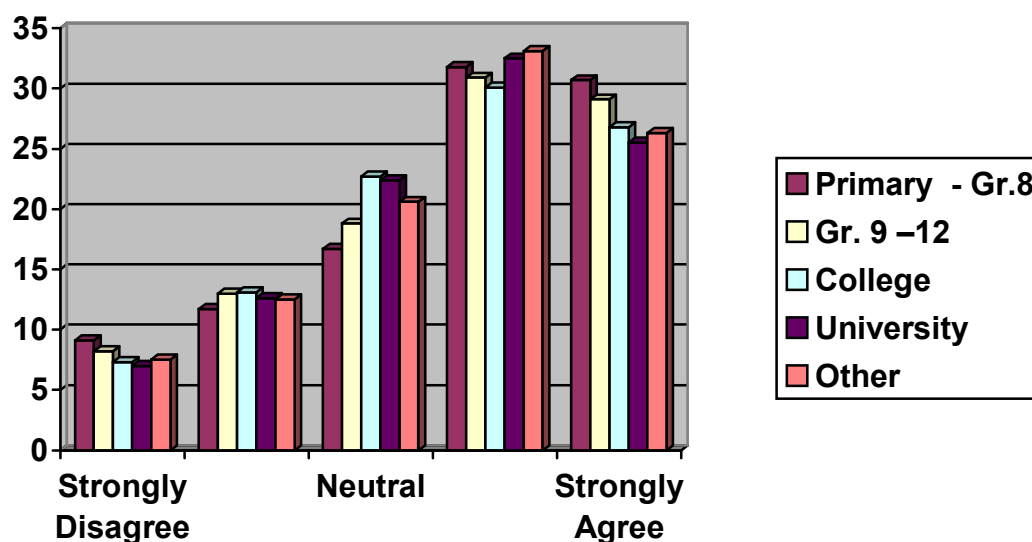


Table 19: Education Level and Tougher Gun Laws

Gender	Gun control laws need to be tougher				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Primary - Gr.8	9.1	11.7	16.7	31.8	30.7
Gr. 9 –12	8.2	13.0	18.8	30.9	29.1
College	7.3	13.1	22.7	30.1	26.8
University	7.0	12.6	22.4	32.5	25.5
Other	7.5	12.5	20.6	33.1	26.3
Pearson Chi-Square = 12.654 p<0.698					
Number of Valid Cases = 3249					

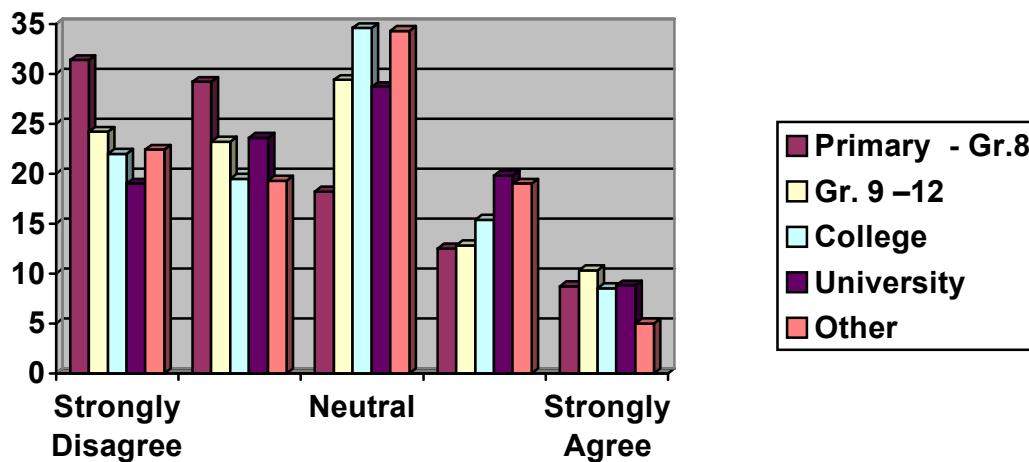
Figure 19: Education Level and Tougher Gun Laws


However, education level amongst respondents does seem to play a significant role when it comes to the legalization of marijuana. Most notable is that respondents with highest levels of education in either grammar or high school (50.6% and 47.4 respectively) are significantly more opposed to the legalization of marijuana than individuals with either college or university education (41.5% and 42.6% respectively). (Table 20 and Figure 20)

Table 20: Education Level and Legalizing Marijuana

Gender	Legalizing Marijuana				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Primary - Gr.8	31.4	29.2	18.2	12.5	8.7
Gr. 9 –12	24.2	23.2	29.4	12.8	10.3
College	22.0	19.5	34.6	15.4	8.5
University	19.0	23.6	28.7	19.8	8.8
Other	22.4	19.3	34.3	19.0	5.0

Pearson Chi-Square = 67.932 p<0.000
 Number of Valid Cases = 3251

Figure 20: Education Level and Legalizing Marijuana


Views on Justice

In this final section we examine the attitudes towards some of the more contentious social issues currently being discussed using binary logistic regression analysis. For Tables 21 through 26 we converted the dependent variable scale by setting a response of Strongly Disagree, Disagree to “1.0” and Neutral, Agree and Strongly Agree to “0.0”. For the first regression our dependent variable was Justice System Fairness – is the justice system fair to everyone.

Our results indicate that all variables except Location and Employment Status are significant predictors of Justice System Fairness. Notable is the sign of estimated coefficients for Education Level and Household Earnings. For example, there is a significant positive relationship between respondents reporting a higher household earnings level and respondents reporting that they think the justice system is fair to everyone. This is just the opposite for education levels. Higher education levels are significantly related to thinking the justice system is not fair to everyone.

For the legalization of marijuana we converted the dependent variable scale by setting a response of Strongly Disagree, Disagree to “1.0” and Neutral, Agree and Strongly Agree to “0.0”. For the regression our dependent variable was Legalize Marijuana – marijuana should be legalized.

Table 21: Justice System Fairness

Variable	Estimated Coefficient	Standard Error	p-value
Location	0.072	0.072	0.313
Gender	-0.340	0.067	0.000
Age	0.070	0.027	0.009
Marital Status	-0.125	0.059	0.033
Employment Status	-0.038	0.024	0.113
Education Level	0.167	0.034	0.000
Household Earnings	-0.018	0.010	0.078
<hr/>			
Number of Observations:	2987		
Cox & Snell R-square:	0.020		
Nagelkerke R-square:	0.026		
-2 Log Likelihood:	4081.512		
Chi-square(7):	59.349		
Prob. > Chi-square:	0.000		

Table 22: Legalize Marijuana

Variable	Estimated Coefficient	Standard Error	p-value
Location	-0.295	0.072	0.000
Gender	0.131	0.064	0.041
Age	0.092	0.022	0.000
Employment Status	0.031	0.024	0.199
Education Level	-0.150	0.034	0.000
Household Earnings	-0.012	0.010	0.222
<hr/>			
Number of Observations:	3016		
Cox & Snell R-square:	0.033		
Nagelkerke R-square:	0.044		
-2 Log Likelihood:	4080.998		
Chi-square(6):	100.066		
Prob. > Chi-square:	0.000		

Again, Employment Status is not a significant predictor, and for legalizing marijuana, Household Earnings is not as well. However, Education Level remains a significant predictor on views about legalizing marijuana. Higher education levels are significantly correlated with the view that current marijuana laws should be relaxed.

For the dependent variable, Tougher Guns Laws – should we have more strict guns laws in place, we refer to Tables 23 and 24.

We note in particular the significance of Education Level and its sign. As the education level of the respondents increase so to does their agreement with the need for tougher gun control laws. We categorize both Education Level and Employment Status in Table 24 below.

Interestingly, being a student, particularly in college or university plays a key role in the predictability of views on gun control laws. We are interested in examining the legalization of marijuana and views on justice system fairness with employment status and education levels categorized. The results are found in Tables 25 and 26 below.

Similar to Table 22 above we note no significant changes in the sign or magnitude of the location, age, gender and household income variables. We note the significance of education levels and employment statuses such as unemployment, student and retired. More education, unemployment and being a student are all significantly correlated with favouring the legalization of marijuana.

Table 23: Tougher Gun Laws

Variable	Estimated Coefficient	Standard Error	p-value
Location	0.711	0.091	0.000
Gender	-1.309	0.086	0.000
Age	0.002	0.027	0.940
Employment Status	-0.020	0.030	0.492
Education Level	-0.145	0.044	0.001
Household Earnings	-0.004	0.013	0.745
<hr/>			
Number of Observations:	3008		
Cox & Snell R-square:	0.351		
Nagelkerke R-square:	0.468		
-2 Log Likelihood:	2870.456		
Chi-square(6):	1299.517		
Prob. > Chi-square:	0.000		

Table 24: Tougher Gun Laws (categorized employment and education)

Variable	Estimated Coefficient	Standard Error	p-value
Location	0.793	0.097	0.000
Gender	-1.330	0.100	0.000
Age	-0.045	0.034	0.188
Unemployed	-0.206	0.190	0.278
Student	-0.821	0.251	0.001
Homemaker	0.290	0.177	0.102
Retired	-0.030	0.152	0.841
Other (Empl. Status)	0.384	0.239	0.107
Grade 9-12	-0.254	0.162	0.117
College	-0.407	0.186	0.029
University	-0.669	0.207	0.001
Other (Education)	-0.351	0.218	0.107
Household Earnings	0.004	0.013	0.762

Number of Observations: 3008
 Cox & Snell R-square: 0.356
 Nagelkerke R-square: 0.474
 -2 Log Likelihood: 2847.359
 Chi-square (13): 1322.695
 Prob. > Chi-square: 0.000

Table 25: Legalize Marijuana (categorized employment and education)

Variable	Estimated Coefficient	Standard Error	p-value
Location	-0.208	0.075	0.006
Gender	0.267	0.075	0.000
Age	0.066	0.027	0.016
Unemployed	-0.408	0.151	0.007
Student	-0.356	0.183	0.052
Homemaker	0.126	0.129	0.327
Retired	0.238	0.121	0.049
Other (Empl. Status)	-0.053	0.206	0.798
Grade 9-12	-0.555	0.138	0.000
College	-0.751	0.155	0.000
University	-0.651	0.170	0.000
Other (Education)	-0.796	0.179	0.000
Household Earnings	-0.008	0.011	0.427

Number of Observations:	3016
Cox & Snell R-square:	0.044
Nagelkerke R-square:	0.059
-2 Log Likelihood:	4181.064
Chi-square (13):	135.850
Prob. > Chi-square:	0.000

Again when we examine views on the fairness of the justice system for all respondents we obtain similar results to those found in Table 21 above.

Table 26: Justice System Fairness (categorized employment and education)

Variable	Estimated Coefficient	Standard Error	p-value
Location	0.091	0.074	0.220
Gender	-0.387	0.074	0.000
Age	-0.019	0.027	0.487
Unemployed	0.130	0.146	0.372
Student	-0.406	0.179	0.024
Homemaker	0.051	0.129	0.690
Retired	-0.108	0.121	0.374
Other (Empl. Status)	0.090	0.205	0.659
Grade 9-12	0.322	0.135	0.017
College	0.483	0.153	0.002
University	0.612	0.168	0.000
Other (Education)	0.770	0.177	0.000
Household Earnings	-0.013	0.011	0.233
<hr/>			
Number of Observations:	2990		
Cox & Snell R-square:	0.022		
Nagelkerke R-square:	0.029		
-2 Log Likelihood:	4145.020		
Chi-square (13):	65.088		
Prob. > Chi-square:	0.000		

All results are similar in sign and magnitude to those in Table 21 above. One particular difference is the significance of Student in the categorization of employment status. Being a student is significantly and positively related to the view that the justice system is fair to everyone. This however contrasts with the significance of the Education Level variables. More education is significantly correlated with the view that the justice system is not fair for everyone.

Conclusions and Extensions

Notwithstanding the breadth of this overview, the analysis produced some very precise pieces of information. Higher levels of education are significantly correlated with views on the legalization of marijuana, the perceived fairness or unfairness of the justice system, and tougher

gun control laws. Respondents with higher levels of education were significantly more in favour of tighter gun control laws and the legalization of marijuana. As well, higher education levels are significantly correlated with views that the justice system is not fair to everyone. These results took into account, location, age, gender, household income, and employment status.

There is clear difference between Glace Bay and Kings County when we look at the rates of victimization and views on marijuana legalization, the need for tougher gun control laws, and the need for tougher sentencing. Respondents in Glace Bay are significantly more supportive of the need for tougher guns laws, significantly more against the idea of legalizing marijuana, and significantly more in favour of the need for tougher sentencing.

However, respondents in Kings County were almost twice as likely to have been victims of crime in the past sixty months when compared to respondents in Glace Bay. This is an important finding in light of the markedly different socio-economic profiles of the two communities. The victimization results sharply contradict established wisdom that victimization, like disease, is associated with lower incomes, higher unemployment rates, and lower educational attainment – all of which are more prevalent in Glace Bay than in Kings County. This leads us to hypothesize that stronger social supports and social networks in Glace Bay may ameliorate some of the expected adverse health and security consequences of more difficult economic circumstances.

One very interesting result, which should be examined more closely in future research, is the difference in victim behaviour after being victimized. Despite there being no significant difference between the gender of victims in terms of victimization rates, females were significantly more likely to alter their behaviour after being victimized than males. One can speculate reasons for this, and future research might consider an analysis of the costs associated with these types of behavioural changes.

Associated with this result was a continuous level of significant difference between females and males to view the justice system as fair to everyone. Females were also more likely than males to favour stricter gun laws and to oppose the legalization of marijuana. These widely differing results indicate the importance of conducting a gender-based analysis for all work on the determinants of population health, security, and wellbeing. In this case, male-female differences were substantially more marked than differences according to economic variables like employment and income.

Employment status was, in general, not significantly correlated with views on justice, marijuana laws, or gun laws. Only when employment status was categorized more precisely did greater detail emerge. Being a student was a significant predictor for all three dependent variables. Being a student was significantly correlated with views that a tougher stance on gun control was needed, that marijuana should be legalized, and that the justice system was fair to everyone.

Other than the significant relationship between being unemployed or retired and the view that marijuana should (respectively) be legalized or not, employment status did not play a statistically significant role for views on marijuana and gun laws or for views on justice system fairness. Factors such as location, gender and education level seemed to play the largest role.

Somewhat surprising was the general lack of significant correlation between attitudes towards crime and household income. Household income was not significantly correlated with views on legalizing marijuana, the need for tougher gun laws, and the fairness of the justice system.

The data provided by the community health indicator surveys in Glace Bay and Kings County provides a remarkably rich database that can and should be studied for years. Extensions of the present work might include:

- Understanding of the costs of crime (on which survey questions exist)
- Deeper analysis of the perception and opinion results to assess what respondents consider to be a “just” society
- Relationship between health status, health outcomes, and rates of victimization
- Prescription medication use, health risk behaviours (like smoking, alcohol use, and drug use) and crime
- Further analysis by age group, particularly to understand youth crime and attitudes towards the justice system

Analysis of the degree to which the determinants of health and the determinants of personal security coincide or differ.

Other Suggested Readings

Poverty, affluence, and income inequality: neighbourhood economic structure and its implications for health, *Social Science & Medicine*, Volume 57, Issue 5, September 2003, Pages 843-860. Ming Wen, Christopher R. Browning and Kathleen A. Cagney

The effect of concealed handgun laws on crime: beyond the dummy variables, *International Review of Law and Economics*, Volume 23, Issue 2, June 2003, Pages 199-216. Paul H. Rubin and Hashem Dezhbakhsh

Attitudes toward hate crime laws, *Journal of Criminal Justice*, Volume 31, Issue 3, May-June 2003, Pages 227-235. Stephen D. Johnson and Bryan D. Byers

Assessing the effects of corruption and crime on firm performance: evidence from Latin America, *Emerging Markets Review*, Volume 3, Issue 3, 1 September 2002, Pages 245-268. Alejandro Gaviria

Economic Inequality and Its Socio-economic Impact, *World Development*, Volume 30, Issue 9, September 2002, Pages 1477-1495. Erik Thorbecke and Chutatong Charumilind

Optimal dynamic law enforcement, *European Journal of Operational Research*, Volume 141, Issue 1, 16 August 2002, Pages 58-69. Gustav Feichtinger, Waltraud Grienauer and Gernot Tragler

Aggregation bias in the economic model of crime, *Economics Letters*, Volume 75, Issue 1, March 2002, Pages 81-86. Todd L. Cherry and John A. List

An analytic approach to the study of gun control policies, *Socio-Economic Planning Sciences*, Volume 35, Issue 4, December 2001, Pages 253-262. Hector Correa

The fear of crime and area differences in health, *Health & Place*, Volume 7, Issue 2, June 2001, Pages 105-116. Tarani Chandola

Crime, coordination, and punishment: An economic analysis, *International Review of Law and Economics*, Volume 21, Issue 1, March 2001, Pages 23-46. Peter-J Jost

Appendix 5: The Health of Discouraged Workers

Discouraged Workers' Health and Well-Being: Preliminary Draft

Abstract

By
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The association between unemployment and adverse physical and mental health outcomes makes sense logically and has been reinforced with extensive research. In general it has been found that unemployment is linked to higher instances of various illnesses as well as poor health, earlier deaths, and higher rates of suicide and other emotional and behavioural problems when compared to people who are employed. The evidence is strong and the findings are robust.

However, it must be recognized that there are different types of unemployment and that some unemployed people may face their situation differently from others. Further and more refined work is required to understand the true effects of job scarcity and its health impacts. This paper, using data collected as part of the community health survey conducted in Kings County and Glace Bay, Nova Scotia, examines a key group requiring attention – the discouraged unemployed. These are workers who have given up looking for work. It was hypothesized that the discouraged attitude will reinforce and may even exacerbate the already adverse effects of being unemployed and negatively affect physical and mental health to an even greater extent than among those who have lost jobs but are still actively looking for work.

The target group – discouraged workers – is not easy to distinguish since it essentially combines an individual's 'real' labour force status with his or her mental attitude toward that status. The latter is difficult to distinguish conclusively. However, a workable classification of labour force attachment was developed, consisting of those (1) in the labour force who are employed (2) those in the labour force actively looking for work but still unemployed, (3) not in the labour force, (4) discouraged workers (5) Other.

This paper examines the relationship between labour force status and health – specifically self perceived health, and health suggested or implied from responses to questions dealing with smoking, exercise, and pain or discomfort. Among other results it was found that significant differences appeared in health status, with the unemployed, those not in the labour force, and discouraged workers all showing poorer health than persons in the labour force. Discouraged workers showed significantly worse health than those not in the labour force.

Both the unemployed and discouraged workers showed significantly worse health than the employed – as expected. However, it was interesting to find that discouraged workers also showed results that were significantly higher than unemployed, with higher values suggesting worse health. This evidence from the Glace Bay and Kings County community health survey supports the hypothesis that, not only does the relationship between unemployment and poor health exist as demonstrated by evidence in the literature, but also that this relationship is even stronger (worse) for the discouraged unemployed than for those who are officially unemployed and still actively looking for work.

Analysis of the survey data also shows an impressively strong relationship between being discouraged and significantly worse mental health. For mental health, no significant differences appeared between those in the labour force and those not in the labour force. However, significantly higher results appeared between discouraged workers and those in the labour force for six out of eight survey questions relating to mental health. Furthermore, discouraged workers also registered significantly higher stress levels than those not in the labour force for six out of eight stress-related questions.

The study found that being a discouraged worker in some situations had a more deleterious effect on both physical and mental health than simply being unemployed. It was also found that lack of social support further exacerbated these health problems among discouraged workers. In no case was it found that unemployed persons were worse off relative to discouraged workers in terms of their physical and mental health. The research suggests that greater attention needs to be paid to the special case of discouraged workers with respect to impacts on physical and mental health.

Discouraged Workers Health and Well-Being: Preliminary Draft

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The association between unemployment and adverse physical and mental health outcomes makes sense logically and has been documented by extensive research. In general, literature shows that unemployment is linked to higher instances of various illnesses and poor health, earlier deaths, and higher rates of suicide and other emotional and behavioural problems when compared to people who are not unemployed. The evidence is strong and the findings are sound. However, there are different types of unemployment and different unemployed people face their situation differently. Further work is required if the true effects of job scarcity are to be understood. This paper examines a key group requiring attention the discouraged unemployed. They are workers that have given up looking for work. It is argued that the discouraged attitude will reinforce and may even exacerbate the already adverse effects of being unemployed. Data available in the community health surveys conducted in Glace Bay and Kings County are used to explore the relationship between measures of physical and mental health and the discouraged worker effect.

Discouraged Workers, Unemployment and Health

The literature has described discouraged workers as those who “move in and out of the labour force with the business cycle, looking for jobs when these are available, while giving up job search during recessions” (Benati, 2001). Benati has further explored the discouraged worker effect, providing empirical evidence that the phenomenon does exist in the United States (Benati, 2001). In addition to cyclical factors behind discouraged workers, a continually unsuccessful job search can also be a cause for workers to become discouraged. Evidence has indicated that “the discouraged worker effect has a significant dynamic component, implying that the psychological impact of unemployment persists over time” (Schweitzer & Smith, 1974).

Discouragement is not limited to the older segments of the population. The relationships between youth who are experiencing long-term unemployment and their prospects for further education have also been studied. It was found that unemployed youth who enter further education programs and are able to stay in them often emphasize social support as a factor in their continued education (Bolam & Sixsmith, 2002). Education has been identified as a key factor in “high-quality re-employment” (Vesalainen & Vuori, 1999).

This raises the issue of social support and its effect on discouraged workers. It has been shown that social support can reduce discouragement after job displacement (Mazerolle and Singh, 2002). The research demonstrated that “displaced workers are less likely to be discouraged if they receive a referral from their employer, if they are encouraged by family members to seek

employment, and if they spend time while unemployed in a productive manner” (Mazerolle and Singh, 2002).

While the health effects of being a discouraged worker have not been specifically studied, much relevant research has been conducted on the health effects of unemployment. Studies have found that there is a positive correlation between “unemployment and adverse health outcomes” (Jin, Shaw, & Svoboda, 1995). These adverse health outcomes include such things as increased occurrences of cardiovascular disease, suicide and general illness.

Studies have been done on both the young and old. Among young people, evidence was found that supported a positive relationship between unemployment and psychological and physical illness. There was also some evidence that pointed to an increase in poor lifestyle habits such as increased drug use including cannabis, tobacco and alcohol as a result of unemployment (Morrell, Taylor & Kerr, 1998). Among adults, evidence was found that unemployment was detrimental to people’s health and that the unemployed have increased mortality rates and increased cases of physical and mental illness (Mathers & Schofield, 1998).

While the literature supports the existence and relevance of discouraged worker theory and has also examined the health effects of the unemployed, topics surrounding health effects of discouraged workers need to be addressed.

Background

Increasingly there is a realization that development and well-being start at the community level. However, much of the information needed to address local issues is difficult to obtain and very sparse data exist at the community level. In the light of this realization, concerned individuals in Kings County and Glace Bay Nova Scotia, with support from the Canadian Population Health Initiative, undertook the specification and collection of data that could inform their communities, policy makers and policy. One of the areas, Glace Bay, has been in a state of economic decline generated by the recent closing of the coal and steel plants in the region that provided its economic base and much of its employment. In contrast, Kings County has been stable to growing over the same period.

The data collected were extensive, covering many life domains including various dimensions of health and of the allocation of time. In Glace Bay workers face a difficult labour market. With traditional jobs disappearing and new jobs requiring different skill sets, job prospects are not good. While some workers can move in search of jobs, many more are destined to remain in the community and accommodate to the new reality that often means a future, or certainly present, in which they have few job prospects. Many workers continue to look for alternative jobs while others accommodate to the diminished opportunities by adopting the attitude that there are no jobs for them and dropping out of the labour force. The co-existence of these two groups in reasonable numbers facilitates an examination of the implications of each adaptation modality.

The Kings County and Glace Bay community health indicators research program involved collaboration among a wide variety of partners. A questionnaire was developed with the goal of

gathering data that could be used measure population health, well-being, and various health determinants in Glace Bay and Kings County. With input from community organizations, including community and regional health board representatives, a questionnaire was developed to collect baseline data on several variables related to health, caregiving, labour force participation, peace and security, voluntary/civic work, impact on the environment, and other elements of well-being including a two day time-diary. Data from these surveys provide the base for this study.

The Communities

Kings County lies along the north shore of Nova Scotia in the Annapolis Valley. It is home to approximately 61,794 people, with a gender split of 49.3% males and 50.7% females. Kings County's economy is primarily structured around the resource industry, in particular agriculture, which accounts for 10% of basic employment in Kings County. However, jobs related to the service industries are becoming more prevalent with 48% of the labour force employed in either finance, insurance, real estate, public administration or other service jobs. Today, the unemployment rate in Kings County is 9.1%, putting it below the provincial average. The economy in Kings County, as measured by total average income falls slightly below the provincial average, at \$24,140. Transfer payments account for 15% of total average income. Persons with employment incomes earn on average \$16,540 annually with males making almost double their female counterparts - \$22,010 compared to \$11,300.

Glace Bay is at the heart of industrial Cape Breton (Kiceniuk *et al.*, 2003). Figures for the community of Glace Bay are not available and the following statistics represent the Electoral District of Glace Bay. According to the 2001 census, Glace Bay is home to 17,710 people, 52.4% of whom are female. These figures show a decline in population by 2220 people or 11% from 1991. Of the 6,610 persons in the labour force in 1996 in Glace Bay, 12% were employed in the resource industry, and a growing number, as much as 46% were employed in the service industry. Only 6% were employed in the manufacturing industry and 7% in the construction industry. Today, the unemployment rate in Glace Bay is 19.4%, putting it far above the provincial average of 9.7%. Total average income in Glace Bay falls below the provincial average by \$5,630, at \$20,340, 31.7% of which comes in the form of transfer payments. The high unemployment levels can inevitably be expected to generate an additional significant number of discouraged workers.

Discouraged Workers

Though the target group – discouraged workers – may be easy to define, they are harder to distinguish. This is because it essentially combines their 'real', very obvious labour force status with their mental attitude towards that status. The latter is difficult to distinguish conclusively. However, with the respondents in Glace Bay and Kings County this was attempted. Ultimately, it was desired that respondents be categorized in terms of their labour force status, but with a separate category for the discouraged unemployed. As a result, respondents were categorized in the variable LabForce into one of the following:

Table 1 - Labour Force Classification* of Community Populations (LabForce)

	Glac Bay		Kings		Total	
	N	%	N	%	N	%
1 In the Labor Force	776	62.0	1049	74.3	1825	68.5
2 Not in the Labor Force	398	31.8	316	22.4	714	26.8
3 Discouraged	78	6.2	46	3.3	124	4.74

*Derivation of the classification is given in Appendix I.

Table 1 shows that 6.2 percent of respondents of labour force age in Glac Bay fell into the discouraged worker category as measured here. That is nearly twice the Kings County rate.

Once this was done, another variable “LabFstat” was created. This variable was created by taking the “In the Labour Force” category from LabForce and looked at which of those respondents said they were employed and which said they were unemployed for their main activity (“activity”) (See Appendix I.). These formed two new categories, and the “Discouraged” from LabForce made a third category to complete the variable “LabfStat”. The sum of “Employed” and “Unemployed” in “LabfStat” does not equal the “In the Labour Force” total of LabForce. This is because for LabForce, “In the Labour Force” included any respondent who was actively engaged in any labour force activity. This would include a student or homemaker for example who worked only part-time or had some other small involvement in the labour force. For “LabfStat” the focus was to really distinguish those that were truly “Employed” and those that were truly “Unemployed” and compare those with the “Discouraged”.

Table 2. Labour Force Classification* of Community Populations (LabfStat)

		Survey Location					
		Glac Bay		King's County		Total	
		Coun	Column	Coun	Column	Coun	Column
		t	%	t	%	t	%
LabfStat	Employed	517	70.5%	822	90.5%	1339	82.6%
	Unemployed	138	18.8%	41	4.5%	179	11.0%
	Discouraged	78	10.7%	46	5.1%	124	7.6%
		733	100.0%	909	100.0%	1622	100.0%

Physical Health

Health effects of unemployment have been documented, as noted above. Noted effects include both physical and mental illness. The community surveys offered an opportunity to relate labour force status to both self-perceived health status (HealthSp), which has been found to be a good proxy for more objective measures, and implied health status (HealthSu) derived from responses on health status in the survey. Various survey questions were recoded to ensure that ordinal properties were consistent with lower values representing more favorable outcomes and higher values less favourable.

Self Perceived Health (HealthSp): This variable, as noted, is widely accepted as a proxy for actual health status. The variable H16 (“Would you say your health is...”) was recoded as follows: (0)Excellent, (1) Very Good, (2) Good, (3) Fair, (4) Poor.

Health Suggested or Implied (HealthSu): Suggested or implied health was derived from a combination of variables. The variables H32, H37, and H42 - that dealt with smoking, physical exercise, and pain or discomfort respectively – were recoded into RH32, RH37, and RH42. These new recoded variables were valued so that each response that suggested or implied poor health was valued at 1, and the response that suggested better health was 0. HealthSu was formed as a sum of the values of RH32, RH37, and RH42 that ranged from 0 – more healthy, to 3 – less healthy.

Chronic Conditions (ChronCon): Variables H601 to H622 dealing with chronic conditions and whether or not the respondent suffered from them, were recoded into RH601 to RH622. These new recoded variables were valued so that if a respondent answered that “Yes” they suffered from a specific chronic condition this took a value of 1. “No” had a value of 0. ChronCon was formed as a sum of the values of RH601 to RH622 that ranged (potentially) from 0 – no chronic conditions, to 22 – suffers from ALL the chronic conditions asked.

Use of Medication (Medicat): The variables H53a to H53u – that dealt with various medication or drugs and whether or not the respondent used them – were recoded into RH53a to RH53u. These new recoded variables were valued so that if a respondent answered that “Yes” they used a specific medication or drug this took a value of 1. “No” had a value of 0. Medicat was formed as a sum of the values of RH53a to RH53u that ranged (potentially) from 0 – uses no medication/drugs, to 21 – uses ALL the medication/drugs asked.

Mental Health

Similarly, mental health related variables were identified and operationalized. Their origin and derivation are presented below.

Time Stress (Stressct): Ten variables H20a to H20j dealing with respondent time stress requiring “Yes/No” answers, were coded 1 and 0 respectively, where each “Yes” implied greater stress. These variables were used to form Stressct. “Stressct” was formed by summing the H20a to H20j questions answered with a “Yes”. As a result, “Stressct” provided a measure of implied respondent stress ranging from 0 – least time stressed, to 10 – most time stressed. Reliability analysis of the items indicated very high reliability with an alpha of .8290.

Emotional State (EmotStat): This was based on the variables H47a to H47f which all posed “Yes/No” questions with regard to the respondents emotional state “during the past month” in which “Yes” responses implied a poor emotional state. High values indicate a poor emotional state of the respondent(s). Again, the index proves to be highly reliable with an alpha of .8459.

Sustained Depression (SusDepr): Question H48 which asked “During the past 12 months, was there ever a time when you felt sad, blue, or depressed for 2 weeks or more in a row?” was

recoded into RH48 so that “Yes” = 1 and “No” = 0 where the higher value implies the poor emotional state.

Life Stress (LifeStre): Question H50 “Would you describe your life as...” was recoded into RH50 as follows: (1) Not at all stressful, (2) Not very stressful, (3) Somewhat stressful and (4) Very stressful. Again the higher value implies greater stress.

Life Satisfaction (LifeSatf): Question H51 which asked “With your life in general, would you say you are...” was recoded into the variable RH51 with the following values (1) Very satisfied, (2) Somewhat satisfied, (3) Somewhat dissatisfied, (4) Very dissatisfied.

Repeated Depression (RepDep) H4 which asked “How many times in the past 12 months did you feel sad, blue, or depressed” was used as reported.

Support Group (Alone): Variables H67, H68, and H69 – that all dealt with whether or not respondents had people around them for various forms of support – were recoded into RH67, RH68, and RH69. If the respondent answered “Yes” to these questions it suggested they had this support. “No” meant they did not. For the recoded variables, “Yes” = 0 and “No” = 1. The variable Alone was formed as a sum of the values of RH67, RH68, and RH69 that ranged from 0 – not at all alone, to 3 – totally alone.

The outcome variables were examined against the respondent’s labour force status. (See Appendix II.) The results for the respondents in each of the labour force categories (In the Labour Force, Not in the Labour Force, Discouraged, and Other) were compared for significant differences. Special attention was paid to the results shown for discouraged workers.

Findings

The first relationship examined was that between labour market status and physical health. Specifically, self perceived health, and health suggested or implied from responses (to questions dealing with smoking, exercise and pain or discomfort).

Table 3. Physical Health Status by Labour Force Status (LabForce)

	Respondent Labor Force Status (LabForce)			
	IN (A)	NOT IN (B)	Discouraged (C)	Total
HealthSp	1.27	1.70 ^A	1.91 ^A	1.4
HealthSU	0.75	0.85 ^A	1.21 ^{AB}	0.8
N	1825	714	124	2663

^{AB} Tests are based on two-sided tests assuming equal variances with sig. level of .05. For each significant pair the key of the smaller Category appears under the category with the larger mean.

Significant differences appeared, with both the Not in the Labour force and the Discouraged showing significantly higher values than In the Labour force, Table 3. These higher values

suggest worse health. Discouraged workers were significantly higher than Not in the Labour Force for Health Suggested or Implied. There was no significant difference between Not in the Labour Force and Discouraged in terms of Self Perceived Health Status (HealthSp). Subsequent tests revealed no significant differences between sexes, and Glace Bay was higher than Kings County only in the case of Health Suggested or Implied. These results indicate that a relationship exists between both those not in the labour force and discouraged workers and resulting poorer health. This is interesting considering it has long been concluded that a relationship exists between unemployment and poor health. However, the unemployed are In the Labour Force, but In the Labor Force still showed better (more “healthy”) results than both Not in the Labour Force and Discouraged. To examine this further, just the employed, unemployed, and discouraged were examined using “LabFstat” in relation to the same health variables:

Both the Unemployed, and the Discouraged had significantly higher averages for both HealthSp and for HealthSsu than the employed – as expected, Table 4. However, the Discouraged were also significantly higher than the Unemployed. This supports the contention that not only does a relationship between unemployment and poor health exist, but also that this relationship is exacerbated by being Discouraged.

Table 4. Physical Health Status by Labour Force Status (LabfStat)

	Respondent Labor Force Status			Total
	Employed (A)	Unemployed (B)	Discouraged (C)	
HealthSp	1.27	1.49 ^A	1.93 ^{AB}	1.4
HealthSU	0.75	0.98 ^A	1.21 ^{AB}	0.8
N	1339	179	124	1665

^{AB} Tests are based on two-sided tests assuming equal variances with sig. level of .05. For each significant pair the key of the smaller Category appears under the category with the larger mean.

When the presence of chronic conditions (variable “ChronCon”) and use of medication or drugs (variable “medicat”) were examined, Not in the Labour Force yielded significantly higher averages than did either In the Labour Force and Discouraged. This most likely can be explained by the fact that many persons who were not in the labour force may be out of it because they have a chronic condition that may in turn require medication.

Having explored the relationship between discouraged workers and physical health outcomes, it is necessary to explore the relationship between labour force status and mental health or well-being. Examination of this subject yielded the following results:

Table 5 shows an impressively strong relationship between being discouraged and significantly poorer mental health. No significant differences appeared between In the Labour Force and Not in the Labour Force. However, significantly higher results appeared between Discouraged and In the Labour Force for every single one of the questions in Table 5 except those noted with *. That is, significantly higher results were found for six of the eight questions. Furthermore, discouraged workers showed significantly higher values than those Not in the Labour Force for all of the above except those noted with ^. Again, that means that six out of eight questions

showed significantly higher results for discouraged workers. Location and Sex had some effects on the results. Females registered significantly more stress for both Stressct and for Lifestre.

Table 5. Mental Health Status by Labour Force Status (LabForce)

<i>During the past month</i> how often did you feel	Respondent Labor Force Status			Total
	IN	NOT IN	Discouraged	
So sad that nothing could cheer you up?	0.5	0.5	0.8 ^{AB}	0.5
Nervous? *	0.8	0.8	1.0 ^B	0.8
Restless or fidgety?	1.0	0.9	1.2 ^{AB}	1.0
Hopeless?	0.3	0.3	0.5 ^{AB}	0.3
Worthless? * ^	0.3	0.3	0.4	0.3
that everything was an effort?	0.7	0.7	1.0 ^{AB}	0.7
During the past 12 months, was there ever a time when you felt sad, blue, or depressed for 2 weeks or more in a row? ^	0.1	0.2	0.2 ^A	0.2
With your life in general, would you say you are...	1.7	1.7	2.0 ^{AB}	1.7
N	1825	714	124	2663

^{AB} Tests are based on two-sided tests assuming equal variances with sig. level of .05. For each significant pair the key of the smaller Category appears under the category with the larger mean.

Interestingly, no significant differences appeared between Discouraged and Unemployed, when this relationship was examined again using variable LabFstat. This would suggest that both have similar affects on mental health.

Since group support can be expected to alleviate some of the negative effects identified. The availability of such support was examined using the variable “Alone.” The difference that appeared between those In the Labour Force and those Not in the Labour Force was not significant (Table 6.) However, the Discouraged respondents showed significantly higher averages than both In the Labour Force and Not in the Labour Force. groups This suggests that discouraged unemployed respondents are either more alone or at least perceive themselves as being so. Both of these conditions have been demonstrated to be detrimental to mental and emotional well-being. Sex had no significant effect on the results.

Table 6. Presence of a Support Group and Labour Force Status (LabForce)

	Respondent Labor Force Status			Total
	IN	NOT IN	Discouraged	
Presence of Support Group	0.2	0.1	0.4 ^{AB}	0.2
N	1825	714	124	2663

^{AB} Tests are based on two-sided tests assuming equal variances with sig. level of .05. For each significant pair the key of the smaller Category appears under the category with the larger mean.

When “Alone” was examined with the LabFstat variable, both Unemployed and Discouraged registered significantly higher values than Employed, but there was no significant difference between the Unemployed and Discouraged in this regard. This reinforces the earlier result that suggested that being unemployed, or being a discouraged unemployed worker have similar

(detrimental) effects on mental health, and that both are worse for mental well-being than being employed.

Related to mental health and emotional state is the presence of stress. One of the key determinants of stress is time use. More specifically, not having enough time – or suffering from “time poverty” – raises stress. The variables “StressCt” and “RH50” were used to examine relationships between labour force status and stress:

Table 7. Stress and Labour Force Status (LabForce)

	Respondent Labour Force Status			Total
	IN	NOT IN	Discouraged	
Count of Time Stress Variables (StressCt)	2.9 ^B	2.2	2.7 ^B	2.7
Would you describe your life as... (LifeStre)	2.6 ^B	2.3	2.5 ^B	2.5
N	1825	714	124	2663

^{AB} Tests are based on two-sided tests assuming equal variances with sig. level of .05. For each significant pair the key of the smaller Category appears under the category with the larger mean.

As expected, respondents who were In the Labour Force and those who were Discouraged showed significantly higher stress results than respondents that were Not in the Labor Force (Table 7.) Females showed significantly higher stress levels than males for both of the above, and Kings County respondents described their lives (Lifestre) as significantly more stressful than did respondents from Glace Bay – though they did not show any significant difference in their count of Time Stress (StressCt).

When the variable “LabFstat” was used against these same stress variables, there were no significant differences between the stress levels of the employed, unemployed, or unemployed discouraged respondents. This suggests that they all suffer similar levels of stress, though it is likely that they are different forms of stress as they are clearly different scenarios of labour force status. The employed are likely to suffer from stress as they try to manage all the demands on their time. At the other extreme, with no prospect of finding a job, discouraged workers have the stress of meeting their immediate financial needs for food, shelter, clothing, transportation, and other basic requirements.

Conclusions

This paper set out to examine the impact of a discouraged worker effect on the physical and mental well-being of individuals. It was hypothesized that the state of being a discouraged worker would exacerbate tendencies, noted in the literature, for unemployment to generate negative physical and mental health outcomes. Measures of unemployment and discouraged workers were found to be difficult to categorize and define when one attempts to capture the practical reality of the labour market rather than accept the official measures of unemployment. Seldom do individuals fit only one category as they move into and out of school, the workforce,

family care, and volunteer work. However, labour force classifications were developed in order to explore the relationships between them and physical and mental health outcome variables.

Significant negative impacts were found for discouraged workers for self-perceived health, suggested or implied health, and emotional state. Additionally, it was found that lack of social support further exacerbated the noted problems.

While results were mixed, the findings support the argument that unemployment and the discouraged worker effect both appear to be associated with negative physical and mental health outcomes. The findings here suggest that further targeted research and policy attention is needed to address both the strength and extent of the negative effects of the discouraged worker syndrome and the availability of resources to ameliorate these negative effects.

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Appendix I.

There was no single or specific question in the community health surveys that accurately succeeded in establishing the category “discouraged workers.” However, there were several questions that pointed towards this status, so it was necessary and possible to define such workers using the evidence at hand. First, three new variables were created. These were: LastWk, EmpDisco, and EmpLook. LastWk – A combination of the respondent’s **Main Activity** (“activity”) and what they said their employment status was **last week** (“emp1”). EmpDisco – A combination of the respondent’s **Main Activity** (“activity”) and whether or not they were **looking for work** (“emp6”); EmpLook - Similar to the above, however it is a combination of what the respondent said was their employment status **last week** (“emp1”) and whether or not they were **looking for work** (“emp6”).

To understand these three created variables, one must first know the initial variables (noted in parenthesis) that form them.

activity – “Your main activity”

- 1 Employed
- 2 Unemployed
- 3 Student
- 4 Homemaker
- 5 Retired
- 0 Other

emp1 – “During last week, were you employed?”

- 1 Employed
- 2 Unemployed
- 3 Not in Labor Force

emp6 – “Type of work looking for if unemployed”

- 0 Not looking for work
- 1 Full-time work
- 2 Part-time work
- 3 Either

Once created, the new variables took the following values, and the values had the following implications (noted in bold italics after each variable’s value labels) in terms of respondent labour force status (LabForce):

LastWk

- 1. Employed and Employed Last week
- 2. Employed but Unemployed Last week
- 3. Employed but Not in Labour Force Last week
- 4. Unemployed but Employed Last week
- 5. Unemployed and Unemployed Last week
- 6. *Unemployed and Not in Labour Force Last week*

7. Student but Employed Last week
8. Student but Unemployed Last week
9. Student and Not in Labour Force Last week
10. Homemaker but Employed Last week
11. Homemaker but Unemployed Last week
12. Homemaker and Not in Labour Force Last week
13. Retired but Employed Last week
14. Retired but Unemployed Last week
15. Retired and Not in Labour Force Last week
16. Other but Employed Last week
17. Other but Unemployed Last week
18. Other but Not in Labour Force Last week

1-5, 7 & 10 are "In the Labour Force"; 6 is "Discouraged"; 8, 9, 11 & 12 are "Not in the Labour Force"; 13-18 are "Other"

EmpDisco –

1. Employed and NOT looking for work
2. Employed and looking for work
3. *Unemployed Worker DISCOURAGED*
4. Unemployed Worker NOT Discouraged
5. Student NOT looking for work
6. Student Looking for work
7. Homemaker NOT looking for work
8. Homemaker Looking for work
9. Retired NOT looking for work
10. Retired but looking for work
11. Other NOT looking for work
12. Other Looking for work

1, 2, 4 & 6 are "In the Labour Force"; 3 is "Discouraged"; 5 & 7 are "Not in the Labour Force"; 8-12 are "Other"

EmpLook

1. Employed Last week but Looking for work
2. Unemployed Last week but Looking for work
3. Not in the Labour Force Last week but Looking for work
4. Employed Last week and NOT Looking for work
5. *Unemployed Last week and NOT Looking for work*
6. Not in the Labour Force Last week and NOT Looking for work

1-4 will be classified as "In the Labour Force"; 5 is "Discouraged"; 6 is "Not in the Labour Force"

At this point, the respondents had successfully been categorized as intended:

1. In the Labour Force

2. Not in the Labour Force
3. Discouraged
4. Other *

The reason for creating three new variables is clear. None of the previously existing variables could alone facilitate the categorization of the respondents as originally outlined. The “activity” variable is too narrow – for example a student could be either employed or unemployed; “emp1” says nothing with regards to discouragement; and “emp6” obviously just focuses on those that are unemployed. As a result, these variables were used to create the variables: LastWk, EmpDisco, and EmpLook.

Initially, there was overlap in terms of respondents being in more than one of the three created variables, hence it was necessary to filter them such that ultimately they would fall into one of the above four categories. For example, this means that though one variable may suggested that a respondent was “Not in the Labour Force”, another suggested they were “In the Labour Force”. The latter takes precedents over the former because if you are participating in the labour force even a small amount, you are in the labour force. Also, any respondent classified as “Discouraged” must – naturally - NOT be looking for work. * Finally, the category “4. Other” was dropped because no respondents reliably fell in to this category.

Appendix II

	Survey Location	
	Gloucester Bay	Kings County
During the past month, how often did you feel so sad that nothing could cheer you up?	.50	.45
During the past month, how often did you feel nervous?	.75	.80
During the past month, how often did you feel restless or fidgety?	.86	.91
During the past month, how often did you feel hopeless?	.28	.29
During the past month, how often did you feel worthless?	.21	.27
During the past month, how often did you feel that everything was an effort?	.59	.68
During the past 12 months, was there ever a time when you felt sad, blue, or depressed for 2 weeks or more in a row?	.15	.13
With your life in general, would you say you are...	1.69	1.69

	Sex		
	Male	Female	Total
During the past month, how often did you feel so sad that nothing could cheer you up?	.42	.52	.48
During the past month, how often did you feel nervous?	.72	.82	.77
During the past month, how often did you feel restless or fidgety?	.91	.86	.88
During the past month, how often did you feel hopeless?	.28	.29	.28
During the past month, how often did you feel worthless?	.23	.26	.25
During the past month, how often did you feel that everything was an effort?	.64	.64	.64
During the past 12 months, was there ever a time when you felt sad, blue, or depressed for 2 weeks or more in a row?	.12	.16	.14
With your life in general, would you say you are...	1.72	1.66	1.69

Appendix 6: Time Use and Wellbeing

The Tale of Two Communities: Time Use Survey Results from the Glace Bay and Kings County Community Health Surveys: Abstract

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Researchers, policy makers and academics have all come to recognize the virtually unlimited array of issues that can be better understood through the analysis of data describing how people use their time. In light of this, considerable effort has been devoted in recent years to developing and conducting national time use studies in many industrialized countries, including Canada. And while the focus is on conducting larger scale surveys that can provide data representative of a larger proportion of the population, smaller community level time use surveys have the potential of being able to explain community level experiences that might be overshadowed in national surveys.

This paper presents the results of the time use survey conducted in Glace Bay and Kings County, Nova Scotia in 2002 as part of the CPHI community health indicators research program. The results presented here provide a basic picture of the ways people from Glace Bay and Kings County use their time. The results indicate that considerable differences exist in how men and women use their time. In addition, significant differences between the two communities and among different age groups are also apparent. This paper further discusses the results in terms of their ability to help paint a clearer picture of some vital current policy issues, including the struggle to balance work and family, the division of labour, the time spent caregiving in the household, and the quality of people's leisure time.

A Tale of Two Communities: Time Use Survey Results from the Kings County and Glace Bay Community Health Surveys

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Introduction

In 1999, the Nova Scotia Citizens for Community Development Society, a community-based non-profit organization, approached GPI Atlantic to ask whether its provincial-level indicator work could be applied at the community level. GPI Atlantic, with active interest also expressed by Kings County Economic Development Agency, the district health authority, community health boards, and a wide range of community groups in Kings County, enlisted assistance from university partners to develop a workable community-based model of health and wellbeing indicators for Kings County. The project was then extended to industrial Cape Breton, to allow valuable comparative analysis of two communities with completely different socio-economic profiles. Kings is a growing rural community with low unemployment in reasonable proximity to Halifax; Glace Bay is an urban community with very high unemployment in a region that has lost major industries (coal, steel, fishing). With funding from the Canadian Population Health Initiative, a survey instrument was designed and administered in both communities, and analysis of the data begun (GPI Atlantic, 2003).

At the heart of the model was a community level survey on indicators of population health, community wellbeing, and the determinants of health. This 78-page survey was developed to collect baseline data on several variables including values, employment characteristics, income, livelihood security, and work schedules, population health and lifestyle risk factors, unpaid care-giving, voluntary work, safety and security, impact on environment (including energy use, transportation, and recycling), food consumption, education and other demographic characteristics, and time-use.

An important component of the model was a time-diary survey. This report presents the first results of that survey and shows how time use data can be useful in indicator development. This paper examines the time use section of the survey. First, the general nature of time use studies and their historical background in Canada and internationally is examined. Second, the usefulness of time use data is described by means of presenting example applications taken from other studies. The results from the time use survey conducted in Glace Bay and Kings County are then examined including comparisons between the two communities, between the sexes, and among different categories of employment status. Finally, some conclusions and recommendations for further examination of this data are made.

The overall conclusion is that the Kings County and Glace Bay time use data provide a basic understanding of the time use of area residents and when combined with information collected in other parts of the community health survey (e.g. employment characteristics, income, population health and lifestyle risk factors, unpaid care-giving, voluntary work, etc.) the data provide a basis for the analysis of the relationship between the physical/economic environment, time use, and health outcomes. From that perspective, time use, including balance among different uses of time, may be considered an important determinant of population health.

The Time Diary

Respondents were asked to complete two 24-hour time diaries beginning 12am and ending 12am two days later. The diaries can be viewed at the very end of the community health survey at <http://gpiatlantic.org/pdf/communitygpi/glacelaysurvey.pdf>.

The diaries, which were filled out by persons over the age of 15, collected information on primary activities as well as whom the respondent was with and where the activity took place, at home or away from home. In addition, respondents were asked to provide information on secondary child and adult care (care activities occurring simultaneously with the respondents primary activities). Respondents recorded their activities throughout the day in 15-minute time slots using a pre-defined list of 30 activity categories (see Appendix II). A total of 3,444 fully completed time use diaries were obtained for 1,721 respondents from Kings County and 3,253 fully completed time diaries were obtained for 1,623 respondents from Glace Bay. In total, 6,697 diaries were collected from 3,344 respondents from both communities.

The Communities

Kings County lies along the north shore of Nova Scotia in the Annapolis Valley. It is home to approximately 61,794 people, with a gender split of 49.3% males and 50.7% females. These results from the 2001 census reflect an increase in the population by approximately 4,456 people or 8% from 1991. Kings County's economy is primarily structured around the resource industry, in particular agriculture, which accounts for 10% of basic employment in Kings County. However, according to the most recent figures available from the 1996 census, 12% of the labour force is employed in manufacturing and jobs related to the service industries are becoming more prevalent with 48% of the labour force employed in either finance, insurance, real estate, public administration or other service jobs.

Today, the unemployment rate in Kings County is 9.1%, putting it slightly below the provincial average. The economy in Kings County, as measured by total average income falls slightly below the provincial average, at \$24,140. Transfer payments, which denote payments made to individuals by federal or provincial governments or by organizations or institutions where individuals receive payments without providing goods or services in return, account for 15% of total average income. Persons with employment incomes earn on average \$16,540 annually with males making almost double their female counterparts - \$22,010 compared to \$11,300. Thirty-six percent of the population aged 25 and over in Kings County have less than a High School diploma; 56% have either completed or have some post-secondary education.

Glace Bay is in the heart of industrial Cape Breton (Kiceniuk *et al.*, 2003). Statistics for the community of Glace Bay are not available in isolation, so the following statistics represent the Electoral District of Glace Bay. According to the 2001 census, Glace Bay is home to 17,710 people, 52.4% of whom are female. These figures show a decline in population by 2220 people or 11% from 1991. Of the 6,610 persons in the labour force in 1996 in Glace Bay, 12% were employed in resource industries, and a growing number, as many as 46%, were employed in the service industry. Only 6% were employed in the manufacturing industry and 7% in the construction industry.

Today, the unemployment rate in Glace Bay is 19.4%, putting it far above the provincial average of 9.7%. Total average income in Glace Bay falls below the provincial average by \$5,630, at \$20,340, of which 31.7% comes in the form of transfer payments. Persons with employment incomes earn on average \$10,860 annually with males making almost double their female counterparts - \$13,980 compared to \$7,990. Forty-nine percent of the population aged 25 and over in Glace Bay have less than a High School diploma; 56% have either completed or have some post-secondary education.

Time Use Research

What is time use research?

Numerous social inquiries collect data concerning activity participation and time use. These include the labour force survey, travel studies, readership surveys, and studies of general leisure time use and particular facets of it such as TV viewing habits. In general, these studies require the respondent to complete a checklist showing the extent of participation in defined activities. Other information concerning the activity may also be sought, such as satisfaction and preferences. Alternatively, a respondent may be asked to keep a log of specific activities such as TV viewing or travel. In this case, it is possible to get information on duration, sequence and various other dimensions for the activity being logged.

For researchers particularly interested in studying how people use their time (time use research), the preferred data collection method is through using a time diary. The time diary, by contrast, "is a log or diary of the sequence and duration of activities engaged in by an individual over a specified period, most typically a 24 hour day" (Converse, 1968). A time diary places activities in context. By its nature, it can permit and facilitate the recording of contextual dimensions attendant with each particular act. Through time diaries respondents take us step-by-step through a day, by describing what they were doing when their day began, the various things they did throughout the day, and then how they ended the day. Time diaries may also include where people spent their day, who they were with, and often what other activities they were doing to accompany main activities and how they felt about these activities (Robinson and Godbey, 1997).

Historical Developments in Time Use Research

Time use surveys grew out of early studies of living conditions of the working class in response to pressures generated by the rise of industrialization. These studies were concerned with the shares of activities such as paid work, housework, personal care, leisure, etc., in the daily, weekly or yearly time budget of the population. They were also interested in how the time budgets varied among population groups such as workers, students and housewives, and in what use was made of leisure time. Most often respondents were asked, through stylized questions, to estimate the amounts of time they allocated to various activities. The bulk of pre-World War II diaries originated in Great Britain, the former Soviet Union and the U.S. with a number of others in France and Germany.

The earliest sophisticated study was that of S.G. Strumlin in the Soviet Union in 1924, which was undertaken for use in governmental and communal planning⁵. In the early 1930's, the Westchester County survey of G.A. Lundberg launched a whole new era of studies of leisure. Later in the 1930's Sorokin and Berger in their *Time Budgets of Human Behavior* provided some fascinating insights into psychological and sociological motivations through an analysis of time diary data. Since the early 1960's, time diary studies have flourished. National time use studies have been conducted in all Eastern and Western European countries.

The most ambitious undertaking was the Multinational Time Use Study conducted in 12 different countries and 15 different survey sites under the direction of Alexander Szalai in the mid 1960's. That study still stands as a landmark in cross-national survey research. Since 1985, central statistical agencies in over 15 of the more developed countries have carried out one or more, or are planning, national time use studies. Some of these countries have made sustained commitments to collecting time use data on a regular basis. Many countries including The Netherlands, Canada, Korea, Finland and Norway, conduct recurring studies every 5 to 10 years (Pentland *et al.*, 1999). Of particular note are the time use studies of the Nippon Hoso Kyokai (NHK) in Japan which have been carried out every five years since 1960. Several countries including the U.K, France, Finland, among others have recently completed time use studies. In January of 2003 the U.S. Bureau of Labour Statistics launched the first ever ongoing month to month, daily time diary study. About 2,000 one day diaries will be collected each month.

Interest in time use has been strong in Canada for many years and a number of Canadian studies have been undertaken. Several of these are outlined in Table 1. Canadian time use studies date at least from the mid-1960s to early 1970s. The first general population survey was undertaken in Halifax, Nova Scotia in 1970-71. The first nationwide time use study in Canada was conducted in 1981. Since then, Statistics Canada, as part of its General Social Survey program, collected diaries for approximately 10,000 Canadians in 1986, 1992 and 1998 (Pentland *et al.*, 1999). It plans its next study, with an enlarged sample size of 25,000, for 2005.

Uses of Time Use Data

Upgrading Economic Accounts

National economic accounts, measuring economic activity in a region, are the principal means of measuring growth in the economy over time. They have been under heavy criticism for many years for their failure to include non-market production. Traditional economic variables inaccurately measure total productive activity (Juster, 1973; Goldschmidt-Clermont, 1987). Failure to fully understand both the size and structure of an economy's total productive activity leads to the conception and implementation of, at best many useless policies, and at worst harmful policies (Berio, 1987). Non-market production has not been included in these accounts in part because there are conceptual and practical issues in measuring these activities. The

⁵ His study was redone by a student of his, G.A. Prudensky, 35 years later on a similar sample.

measurement of time allocation however, provides a major data source for upgrading the accounts (Harvey and MacDonald, 1976).

Table 1 Canadian Time Use Studies

	Canada 1971-72	Canada 1981	Canada 1986	Canada 1992	Canada 1998
Time of year	October – May	February - November	February – December	December	February 1998 – January 1999
Timing of diary	24 hours (midnight to midnight)	24 hours (4 a.m. to 4 a.m.)	24 hours (4 a.m. to 4 a.m.)	24 hours (4 a.m. to 4 a.m.)	24 hours (4 a.m. to 4 a.m.)
Number of days	1	1	1	1	1
Diary content	Primary activity Secondary activity Person present Where	Dual primary Dual secondary Person present Where	Primary activity Persons present Where	Primary activity Persons present Where	Primary activity Persons present Where
Sampling frame	Urban – extended Halifax Metropolitan area	National – 11 urban, 3 rural	National	National	National
Sampling unit	Individuals within households with employed persons 18-65 years	Household, random member	Household	Household	Individual
Age of respondent	18-65	15-99	15-99	15-99	15+
Sample size	2,840 persons	2,682 persons	12,500 households 9,744 persons	12,675 households 8,996 persons	10,749 persons
Response rate	72.4%	-	-	77%	77.6%

Source: 24-hour society. Online: <http://www.stmarys.ca/partners/iatur/24Final/24index.htm>

Time use data show the average daily allocation of time to productive activity defined in a more inclusive manner as both market and non-market production activities. Thus productive work includes, in addition to paid work, the only component included in the current national accounts,

education as a student, domestic activity, child care and time allocated to shopping and services. All of these activities are fundamental to the provision of goods and services. Paid work time, when placed in this perspective, although the largest single component of total productive work time, is less than half of all productive activity. Exclusion of the other components of productive activity yields a faulty view of total production in the economy. Time-use data facilitates the inclusion of the missing components.

Improved Labour Force Analysis

Current labour force statistics are weak on two counts. First, they appear not to measure well, that which they purport to measure. It has been shown that the typical labour hours data collected does not truly reflect the reality of hours contributed to paid work (Stafford and Duncan, 1976; Niemi, 1983; Niemi, 1990). Secondly, focusing only on paid work activity they fail to account for all productive activity, and for constraints and opportunities related to the use of time. By focusing on all time use rather than simply employment time, time allocation studies give a far more complete picture of the use of labour resources. It is clearly insufficient to characterize persons as employed, unemployed, or not in the labour force. This reality emerges in a companion study to this one. Exploring discouraged workers, the study finds a myriad of forms of market attachments. It is equally necessary to be concerned with the use of time not identified as market production.

Evaluating Social Change

Time use data can be useful in implementing and evaluating change in such areas as working hours and patterns, shopping time, communications and advertising. How much, where, and when do people work? Increasingly, work is less tied to specific places and times. Traditional data on work hours fails to accurately reflect changes in the extent and pattern of work time. These are fully captured in time use data. Time use data help provide information on both the constraints and opportunities attendant with various work patterns, and thus can be used to evaluate the impacts of alternative schemes.

How do individuals allocate their time with respect to the media? How much, when and where do they watch television, read papers, or listen to the radio? Again, such information is captured by time use data. As government develops policies to discourage people from spending time in certain activities (smoking) or to encourage them to participate in others (physical fitness programs), it is necessary to have evaluative measures.

Study of Women's Concerns

A number of general and specific concerns of women are directly addressable with time use data. In general terms, the issue of mis-measurement of economic activity is particularly relevant to women since women's activities overwhelmingly dominate the non- market and informal sector in both the more developed and developing countries.

Specific concerns include: domestic work (Vanek, 1974; Walker and Woods, 1976; Press and Townsley, 1998); child care (Stone, 1972; Michelson and Ziegler, 1982); the sexual division of labour (Meissner et al., 1975; Clark and Harvey, 1976,); market vs. non-market activity (Stafford

and Duncan, 1980); shopping behaviour (McDonald, 1994; Rubel, 1995); travel (Hanson, 1982; Janelle and Goodchild, 1988); children's use of time (Timmer, Eccles and O'Brien, 1985; Gager et al., 1999). Knowledge of how time is allocated is indispensable in attempts to understand all the foregoing issues.

Improved Quality of Life

Growing concern with the quality of life has led to a search for valid, reliable and economical quality measures or social indicators. Time use data provide the opportunity to develop a large number of indicators covering many life domains, such areas as: a) health; b) education; c) working time; d) social interaction; e) leisure; and f) use of physical environment. Minimally, they provide indicators of involvement in a broad or complete range of activities engaged in by members of the subject group. Thus, for example, indicators of involvement in market oriented economic activity, housework and childcare, education, free time, can be developed.

Study of Leisure

The measurement of leisure has long been a fertile area of study addressed by time use research. Works (e.g., Ferge, 1972; Skorgynski, 1972) based on the Multinational Time Use Study (Szalai, 1972) highlighted the utility of the time diary approach for studying leisure, and the work of Young and Willmott (1973) and the work of Shaw (1982) show both the utility and necessity of a time diary approach. They have shown that, contrary to the generally accepted approach of defining leisure in terms of selected "leisure like" activities, virtually any activity may be perceived as a leisure activity for some specific person or group or for a given individual under some conditions, but not under others. In short, subjectively, the concept of what is leisure varies from person to person and from time to time. While subjective detail was not obtained for episodes recorded in the time use module, it still provides a rich base for leisure analysis.

Time use information juxtaposes free time, work and personal time in a manner that provides considerably more information than does traditional pencil measures. They enable researchers to fit leisure into the life pattern both quantitatively and qualitatively. Similarly, they make it possible to fit the components of free time into aggregate leisure patterns. Based on the General Social Survey time use module, it would appear that Canadian men have slightly more free (6.0 hours) - measured in terms of residual non-work, non-personal activities - than Canadian women (5.6 hours) do. The additional time appears to accrue primarily from greater time allocated to media and other passive leisure – 2.9 hours for men and 2.6 hours for women, and active leisure – 1.1 hours for men and 0.8 hours for women (Statistics Canada, 1999).

Results from Glace Bay and Kings County

Demographic Structure of the Time Use Data

Major strengths of the Kings County and Glace Bay time use data set are the substantial size of the survey sample, and the fact that it is truly representative of the communities. This study provides adequate sample sizes across a wide range of demographic characteristics. Table 2

provides a demographic profile of the data set. In addition, Table 2 provides a comparison of the sample distribution by gender and age with the most recent census figures for Glace Bay and Kings County. Additionally it provides further demographic detail drawn from the community surveys, including marital status, employment status, education level and parental status (the presence of children).

Table 2 Sample Distribution by demographic characteristics compared to 2001 census figures

	Glance Bay Sample (unweighted)	Census figures	Kings County Sample (unweighted)	Census figures
Gender				
Females	56.9%	52.4%	54.2%	50.7%
Males	43.1%	47.6%	45.5%	49.3%
Age				
15-24	9.2%	14.0%	7.8%	13.3%
25-34	10.8%	10.7%	9.7%	12.5%
35-44	19.4%	30.4%	24.6%	32.4%
45-54	24.3%		22.9%	
55-64	16.3%	11.2%	16.4%	9.7%
64+	19.7%	16.9%	18.0%	13.2%
Marital Status				
Never married	19.9%	...	13.2%	...
Married/common-law	60.3%	...	74.1%	...
Separated/divorced	9.6%	...	7.4%	...
Widowed	9.9%	...	4.8%	...
Employment status				
Employed	34.7%	...	50.6%	...
Unemployed	11.2%	...	3.5%	...
Student	6.5%	...	6.3%	...
Homemaker	13.6%	...	12.4%	...
Retired	29.6%	...	23.5%	...
Other	4.1%	...	3.4%	...
Highest education level				
Primary-8	10.2%	...	5.2%	...
9-12	49.4%	...	36.4%	...
Community College	19.3%	...	21.5%	...
University degree	10.3%	...	18.2%	...
Other	9.6%	...	9.8%	...
Presence of children				
Yes	76.3%	...	75.9%	...
No	23.4%	...	23.6%	...

Typically, one is most interested in the behaviour or activity patterns of particular groups, defined in terms of several demographic dimensions. Time use data readily lends itself to such analysis. By means of hypercodes (Clark, Elliott and Harvey, 1972); it is possible to construct analytical variables that are combinations of significant demographic variables.

The Nature of Activities

The real focus of time use studies is what is being done, that is the activity, with all its attendant dimensions. In fact, the basic unit in a time use study is the episode, a single entry on the diary. However, while episodes are meaningful for analysis at one level they are less useful at another. While one may be interested in each episode of eating one is also interested in the overall daily allocation of time to eating, independent of such dimensions. It is thus necessary to aggregate individual episodes into higher level categories - activities - for more aggregated analysis. What are relevant activities? How are they organized? Activity organization is spelled out in the coding scheme.

At the most fundamental level interest centres on the actual amount of time allocated to specific activities such as paid work, housework, childcare, education, and other activities meaningful to the particular interests being examined.

The time use module provided for the identification of 30 different activities. Table 3 provides participation data and Tables 4 through 9 provide data on average durations, discussed below, for all coded activities. The 1998 Canadian Time Use Study allowed for the identification of more than 150 separate activities. The greater detail provides for an elaboration of activities such as the type of leisure activity, the household work, etc. While on the surface, more detail is better, this is only true if there are sufficient episodes of an identified activity for analysis. Thus, there is a trade-off between detail and usability.

Participation

Involvement in an activity, independent of the amount of time devoted to it, is defined in terms of participation. Participation in an activity is registered by any non-zero quantity of time recorded on a diary. Typically, it is presented as a participation rate per unit time for a given population group. Participation rates, reflected in time diaries, depend on two factors. First, it depends on whether or not an individual participates at all in a given activity. And then, if so, how frequently they participate.

There are certain activities that we would expect most if not all people would participate in – those which are required for the biological necessities of human existence. These include mainly sleeping, eating and grooming. These maintenance and care activities are referred to as “personal time”, implying that it is time that everyone needs in order to function effectively in society. According to Table 3, between 98.7% and 99.1% of people (males or females) reported sleep in their diaries. Between 87.5% and 89.1% of Glace Bay residents, and between 90.4% and 91.5% of respondents from Kings County reported bathing and dressing in their diaries. Finally, between 90.5% and 90.9% of respondents from Glace Bay and between 88.7% and 89.0% of Kings County respondents reported eating home meals in their diaries. Note that this

does not include eating out which is a separate activity and if combined would result in higher participation rates in food consumption activities.

It should be noted that personal time has considerable flexibility about it – that is, for example, humans can function adequately whether they wash their hair every day or only once a week. Thus, much personal care activity can have a discretionary quality about it, motivated by both pleasure-seeking and lifestyle (Robinson and Godbey, 1997). Given this fact and that respondents were asked only to complete two days of time diaries, help to explain why 100% of the respondents did not report participating in these activities. Additionally, if respondents failed to enter in all activities that they did throughout the day, including personal care activities, the resulting rates would be lower than we would expect.

While virtually everyone shops, they do not do it daily thus, diaries show on average between 20.9% and 22.2% for males and between 32.2% and 33.6% for females from Glace Bay and Kings County. This implies that men shop on average a day and a half a week and women, two days a week. Similar observations can be made regarding other activities that do not necessarily take place daily such as housekeeping and laundry, maintenance and repair, and leisure activities including socializing, movies and other entertainment and reading. Interestingly, a large percent of respondents reported watching TV, a leisure activity - as much as 83.4% for males in Glace Bay and 81.4% for females in Glace Bay. Participation rates are slightly lower for both males and females in Kings County, with males still showing higher participation in TV watching than females.

As noted above, differences in participation rates between males and females within a community exist. In addition, differences between the two communities in terms of participation in the 30 activities also exist. Most notable, females in both communities show higher participation rates in sleep, personal services, shopping and household work such as cooking and washing up, housekeeping and laundry, and primary child care. Males, in contrast, show higher participation rates in paid work (although the difference in Glace Bay is minimal), maintenance and repair, computer games and watching TV.

The issue of the double burden borne by employed women provides a good point of departure for illustrating the value of time use research. While men from both Glace Bay and Kings County have higher participation rates in paid work than women, the differences are not great (5.1% in Glace Bay and 19.3% in Kings County). In contrast, there continue to be significant differences in participation in domestic work. For example, the differences between females and males in terms of reported participation in housekeeping and laundry are as high as 33.2% in Glace Bay and 40.1% in Kings County. Such an analysis, focusing on employed mothers would far more emphatically illustrate the double burden.

Between the two communities, Glace Bay respondents, regardless of gender, report higher participation rates in cooking and washing up, housekeeping and laundry, movies and entertainment and watching TV. In addition, Glace Bay respondents participate less in shopping, maintenance and repair, eating out, education, active sport and exercise, reading and significantly less in paid work.

Table 3 Male and Female Participation Rates, Glace Bay and Kings County, 2002.

	Male		Female	
	Glace Bay	Kings County	Glace Bay	Kings County
Sleep, rest	98.7%	98.7%	99.1%	99.1%
Bathing, dressing	87.5%	91.5%	89.1%	90.4%
Home meals	90.5%	89.0%	90.9%	88.7%
Personal services	17.0%	16.4%	20.4%	22.2%
Cooking and washing up	59.2%	52.5%	82.7%	79.2%
Shopping	20.9%	22.2%	32.2%	33.6%
Housekeeping and laundry	28.4%	20.1%	61.6%	60.2%
Maintenance and repair	25.9%	31.1%	5.7%	11.1%
Other household work	26.9%	22.2%	38.2%	38.5%
Paid work	27.9%	51.7%	22.8%	32.4%
Education	2.0%	5.2%	3.1%	9.0%
Looking for work	3.1%	0.2%	1.4%	1.1%
Eating out	15.7%	20.1%	12.0%	16.6%
Movies & other entertainment	11.1%	10.8%	11.5%	10.8%
Watching TV/VCR	83.4%	78.2%	81.4%	74.4%
Reading	31.1%	41.3%	35.5%	49.0%
Non-work computer games/Net	15.4%	16.8%	9.8%	14.3%
Spiritual/religious practice	5.4%	6.4%	9.1%	11.9%
Active sport or exercise	22.6%	24.9%	17.0%	29.7%
Socializing	44.2%	42.0%	46.0%	51.3%
Other leisure (specify)	15.4%	13.9%	16.3%	21.3%
Primary child care	7.0%	8.3%	12.2%	11.6%
Primary adult care	1.3%	0.8%	1.7%	2.1%
Other formal volunteer work	2.1%	3.1%	1.3%	4.4%
Other informal volunteer work	2.3%	2.2%	1.5%	5.4%
By car	55.5%	62.5%	52.1%	57.9%
By public transport	2.3%	3.0%	2.1%	2.3%
By walking or bicycling	14.0%	9.5%	11.3%	9.8%
Other travel	4.2%	11.1%	3.5%	13.9%
Other	25.2%	28.5%	26.4%	32.9%

Duration

Duration is the quantity of time devoted to activities. In traditional time allocation studies it refers to minutes or hours per day or week. Duration is typically considered the major temporal

indicator for monitoring purposes. It serves to quantify an endless number of items. For example, depending on survey detail one can examine the duration of:

- a. time spent in various activities, work, sleep, watching television, reading, doing housework, etc.;
- b. time spent at various locations, e.g. at home or away from home
- c. time spent in automobiles, on public transit, walking, etc.
- d. time spent alone or with various persons, family, neighbours, social contacts, business contacts.

The range of factors that can be quantified in this manner is limited primarily by practical data collection considerations and available data. Duration provides a meter which can be used to relate information collected in disparate ways or at different times as long as the duration dimension has been accurately captured in each case.

Tables 4 and 5 show the average number of minutes that male and female respondents from the two communities allocate to the 30 different activity categories used in this survey. Among respondents from Glace Bay, both males and females allocate significantly more time to personal care activities (e.g. sleep, bathing and dressing, and home meals), to unpaid work (e.g. cooking and washing, housekeeping, and primary child care) and also to leisure activities such as watching TV and socializing. By contrast, male and female respondents in Kings County allocate significantly more time to paid work, education and formal volunteer work. In fact, males from Kings county on average spend 239 minutes per day in paid work compared to 135 minutes for respondents from Glace Bay and women in Kings County spend 138 minutes per day in paid work compared to 100 minutes per day by women from Glace Bay.

The figures on time allocated to paid work also indicate that differences between males and females exist in their allocation of time, regardless of survey location. In both communities, men continue to show higher involvement in paid work outside the home and women devote more time to traditional home activities including cooking and washing up, housekeeping and laundry, other household work and primary child care, all unpaid work. Outside of work, both paid or unpaid, men tend to spend more time watching TV, playing computer games, and on maintenance and repair, while women spend more time on personal care activities such as bathing and dressing, and on shopping.

Tables 6 and 7 depict the differences in time allocation in each of the survey locations based on employment status. In both locations, individuals who are either unemployed or out of the labour force spend more time in virtually all activity categories than employed individuals with the exception of paid work and time spent traveling by car. Employed individuals get significantly less sleep (e.g. 486 minutes compared to 531 minutes for unemployed individuals and 535 minutes for those out of the labour force), spend less time in leisure activities such as watching TV and socializing, and also spend less time on unpaid work activities including cooking and washing up, and housekeeping and laundry. Interestingly, individuals who are out of the labour force allocate more time to spiritual or religious practice which might be explained by the fact that this employment category includes retired individuals and the older age groups, in particular, individuals over the age of 65 continue to devote significantly more time to religious practice than do people from younger generations (as can be seen in tables 5 and 6).

Table 4 Average daily duration in minutes of activities by males and females from Glace Bay and Kings County, 2002.

	Males		Females	
	Glace Bay	Kings County	Glace Bay	Kings County
Sleep, rest	517*	488	522*	499
Bathing, dressing	43*	36	48*	43
Home meals	73*	37	78*	69
Personal services	10	8	12	10
Cooking and washing up	43*	31	75*	67
Shopping	18	17	31	31
Housekeeping and laundry	24*	17	65*	53
Maintenance and repair	37	42	5	10*
Other household work	25*	18	38*	33
Paid work	135	239*	100	138*
Education	5	35*	8	27*
Looking for work	5*	2	2	2
Eating out	9	12*	8	11*
Movies and other entertainment	16	13	16	13
Watching TV/VCR	185*	133	159*	119
Reading	58	34*	31	41*
Non-work, computer games	17	21	9	11
Spiritual/Religious practice	5	6	7	8
Active sport or exercise	27	25	14	23*
Socializing	81*	55	74*	63
Other leisure	23	19	25	25
Primary child care	13*	7	23	26
Primary adult care	1	1	3	3
Other formal volunteer work	3	9*	2	6*
Other informal volunteer work	5	5	2	6*
Travel by car	42	42	34	40*
Travel by public transport	1	2*	1	1
Travel by walking or bicycle	12*	6	8*	6
Other travel	7	13*	4	12*
Other activities	35	38	36	46*

* Tests of significance are based on comparisons between survey locations. Results are significant at the 0.05 level of significance.

Table 5 Average daily duration in minutes of activities by survey location, males and females, 2002.

	Glance Bay		Kings County	
	Male	Female	Male	Female
Sleep, rest	517	522	488	499*
Bathing, dressing	43	48*	36	43*
Home meals	73	78*	67	69
Personal services	10	12	8	10*
Cooking and washing up	43	75*	31	67*
Shopping	18	31*	17	31*
Housekeeping and laundry	24	65*	17	53*
Maintenance and repair	37*	5	42*	10
Other household work	25	38*	18	33*
Paid work	135*	100	239*	138
Education	5	8	35*	27
Looking for work	5*	2	1	2
Eating out	9	8	12	11
Movies and other entertainment	16	16	13	13
Watching TV/VCR	185*	159	133*	119
Reading	25	31*	34	41*
Non-work, computer games	17*	9	21*	11
Spiritual/Religious practice	5	7*	6	8
Active sport or exercise	27*	14	25	23
Socializing	81	74	55	63*
Other leisure	23	25	19	25*
Primary child care	13	23*	7	26*
Primary adult care	1	3	1	3*
Other formal volunteer work	3	2	9*	6
Other informal volunteer work	5*	2	5	6
Travel by car	42*	34	42	40
Travel by public transport	1	1	2*	1
Travel by walking or bicycle	12*	8	6	6
Other travel	7	4	13	12
Other activities	35	36	38	46

* Tests of significance are based on comparisons between genders. Results are significant at the 0.05 level of significance.

Table 6 Average daily duration of activities in minutes by community and employment status, 2002¹.

	Glance Bay			Kings County		
	Employed (A)	Unemployed (B)	Not in Labour Force (C)	Employed (A)	Unemployed (B)	Not in Labour Force (C)
Sleep, rest	486	531 ^A	535 ^A	475	540 ^{AC}	511 ^A
Bathing, dressing	43	44	47 ^A	39	37	40
Home meals	60	75 ^A	85 ^{AB}	57	75 ^A	79 ^A
Personal services	9	11	13 ^A	7	6	12 ^{AB}
Cooking and washing up	47	60 ^A	68 ^{AB}	41	56 ^A	57 ^A
Shopping	18	25	29 ^A	20	23	29 ^A
Housekeeping and laundry	36	48 ^A	50 ^A	30	47 ^A	41 ^A
Maintenance and repair	17	36 ^{AC}	19	25	36	25
Other household work	23	35 ^A	36 ^A	20	24	31 ^A
Paid work	308 ^{BC}	10	21	339 ^{BC}	24	34
Education	3	2	11 ^{AB}	4	35 ^A	63 ^{AB}
Looking for work	1	18 ^{AC}	1	1	18 ^{AC}	1
Eating out	11 ^{BC}	6	7	12	7	11
Movies and other entertainment	16	20	16	13	10	14
Watching TV/VCR	127	211 ^{AC}	190 ^A	103	185 ^{AC}	143 ^A
Reading	19	25	35 ^{AB}	24	51 ^A	52 ^A
Non-work, computer games	13	19 ^C	11	13	30 ^{AC}	18 ^A
Spiritual/Religious practice	4	4	7 ^A	5	6	9 ^A
Active sport or exercise	17	17	22	21	13	29 ^{AB}
Socializing	54	90 ^A	91 ^A	47	84 ^A	71 ^A
Other leisure	18	24	28 ^A	19	11	26 ^{AB}
Primary child care	22 ^C	29 ^C	13	17	20	14
Primary adult care	1	3	3	1	0	4 ^A
Other formal volunteer work	1	6 ^A	3	5	10	10 ^A
Other informal volunteer work	2	7 ^{AC}	3	4	8	7 ^A
Travel by car	44 ^{BC}	33	35	48 ^{BC}	25	34
Travel by public transport	1	1	1	1	1	3 ^A
Travel by walking or bicycle	4	16 ^A	12 ^A	4	15 ^{AC}	7 ^A
Other travel	4	4	7	11	7	15 ^A
Other activities	31	30	40	36	37	49 ^A

¹ Tests of significance are based on comparisons based on employment status. Results are significant at the 0.05 level of significance.

Table 7 Average daily duration of activities in minutes by employment status and community, 2002¹.

	Employed		Unemployed		Not in Labour Force	
	Gloucester Bay (A)	Kings County (B)	Gloucester Bay (A)	Kings County (B)	Gloucester Bay (A)	Kings County (B)
Sleep, rest	486 ^B	475	531	540	535 ^B	511
Bathing, dressing	43 ^B	39	44 ^B	37	47 ^B	40
Home meals	60	57	75	75	85 ^B	79
Personal services	9	7	11	6	13	12
Cooking and washing up	47 ^B	41	60	56	68 ^B	57
Shopping	18	20	25	23	29	29
Housekeeping and laundry	36 ^B	30	48	47	50 ^B	41
Maintenance and repair	17	24 ^A	36	36	19	25 ^A
Other household work	23	20	35	24	36 ^B	31
Paid work	308	339 ^A	10	24	21	34 ^A
Education	3	4	2	35 ^A	11	63 ^A
Looking for work	0	1	18	18	1	1
Eating out	11	12	6	7	7	11 ^A
Movies and other entertainment	16	13	20	10	16	14
Watching TV/VCR	127 ^B	103	211	185	190 ^B	143
Reading	19	24 ^A	25	51 ^A	35	52 ^A
Non-work, computer games	13	13	19	30	12	18 ^A
Spiritual/Religious practice	4	5	4	6	7	9
Active sport or exercise	17	21	17	13	22	29 ^A
Socializing	54	47	90	84	91 ^B	71
Other leisure	18	19	24	11	28	26
Primary child care	22	17	29	20	13	14
Primary adult care	1	1	3	0	3	4
Other formal volunteer work	1	5 ^A	6	10	3	10 ^A
Other informal volunteer work	2	4 ^A	7	8	3	7 ^A
Travel by car	44	48	33	25	35	34
Travel by public transport	1	1	1	1	1	3 ^A
Travel by walking or bicycle	4	4	16	15	12 ^B	7
Other travel	4	11 ^A	4	7	7	15 ^A
Other activities	31	36	30	37	40	49

¹ Tests of significance are based on comparisons based on survey location. Results are significant at the 0.05 level of significance.

Differences in time according to employment status also exist between communities. Both employed people and those out of the labour force get more sleep, spend more time bathing and dressing, cooking and washing up, doing housekeeping and laundry and watching TV than do individuals in these same categories in Kings County. Employed persons and those out of the labour force from Kings County spend more time paid work, maintenance and repair and both formal and informal volunteer work. Few differences existed between unemployed individuals in either community.

Data on Nova Scotia collected by Statistics Canada as part of Cycle 12 of the General Social Survey (GSS) in 1998 provides a very real opportunity to relate findings in the community

studies to existing data and a larger area. Table 8 provides a comparison of the time allocated to the different activities by respondents of the GPI survey compared to similar figures for Nova Scotia taken from the GSS.

Table 8 Time Allocation, males and females: Nova Scotia, Glace Bay and Kings County¹.

	Male			Female		
	Nova Scotia (A)	Glace Bay (B)	Kings County (C)	Nova Scotia (A)	Glace Bay (B)	Kings County (C)
Sleep, rest	502	516 ^C	489	524 ^C	522 ^C	500
Bathing, dressing	30	42 ^{AC}	36 ^A	41	48 ^{AC}	43
Home meals	51	73 ^{AC}	67 ^A	51	78 ^{AC}	69 ^A
Personal services	1	10 ^A	8 ^A	2	12 ^A	11 ^A
Cooking and washing up	24	43 ^{AC}	31 ^A	57	75 ^{AC}	67 ^A
Shopping	27 ^{BC}	18	17	35	31	31
Housekeeping and laundry	28 ^C	24 ^C	17	69 ^C	65 ^C	53
Maintenance and repair	18	37 ^A	43 ^A	8	5	10 ^B
Other household work	30 ^C	25 ^C	18	23	38 ^A	33 ^A
Paid work	207 ^B	137	236 ^B	133 ^B	101	136 ^B
Education	19 ^B	5	34 ^{AB}	25 ^B	8	26 ^B
Looking for work	0	5 ^{AC}	1	1	2	2
Eating out	37 ^{BC}	9	12	35 ^{BC}	8	11 ^B
Movies & other entertainment	9	16 ^A	13	6	16 ^A	13 ^A
Watching TV/VCR	171 ^C	185 ^C	133	146 ^C	160 ^C	119
Reading	28	25	35 ^B	30	31	41 ^{AB}
Non-work computer games/Net	7	17 ^A	21 ^A	4	9 ^A	11 ^A
Spiritual/religious practice	6	4	6	8	7	8
Active sport or exercise	36 ^C	27	25	22 ^B	14	23 ^B
Socializing	57	80 ^{AC}	55	70	74 ^C	64
Other leisure (specify)	23	23	19	32	25	25
Primary child care	16 ^C	13 ^C	7	31	23	26
Primary adult care	0	1	1	1	3	3
Other formal volunteer work	16 ^{BC}	3	9 ^B	11 ^{BC}	2	6 ^B
Other informal volunteer work	13 ^{BC}	5	5	12 ^{BC}	2	6 ^B
By car	81 ^{BC}	42	42	60 ^{BC}	34	40 ^B
By walking or bicycling	7	12 ^C	6	9 ^C	8 ^C	6
Other travel	1	7	13 ^{AB}	2	4	12 ^{AB}
Other	1	35 ^A	38 ^A	0	36 ^A	46 ^{AB}
TRAVEL	81 ^{BC}	61	63	65 ^B	46	58 ^B

¹ Tests of significance are based on comparisons based on location. Results are significant at the 0.05 level of significance.

There are a large number of significant differences in time allocation for both males and females among Nova Scotia, Glace Bay and King County. For only three activities, spiritual/religious practice, about 4-7 minutes per person per day (28-35 minutes per week) averaged over the whole population, other leisure and primary adult care, were there no significant differences among the three areas for either males or females.

Personal care activities, excluding sleep and rest, appear to be considerable squeezed in the Nova Scotia data relative to Kings and Glace Bay with both the latter registering significantly higher time allocation to all four personal activities listed.

Volunteering and auto travel were significantly greater in Nova Scotia as a whole for both males and females and relative to both study sites. Nova Scotian males showed a similar pattern for shopping, eating out and total travel. Nova Scotian females also spent significantly more time eating out when compared with the study area.

Bathing and dressing, home meals, and cooking and washing up were all significantly higher in Glace Bay than in Nova Scotia or Kings County. Additionally, for males, Glace Bay significantly dominated looking for work and socializing among the three areas.

Kings County males made significantly higher time allocations to education and its females to reading with respect to the other two areas. Both made significantly higher allocations to other travel, quite possibly trucks give the county's economic structure.

Both Nova Scotia and Kings County allocated significantly more time to paid work than did either Glace Bay males or females. Glace Bay males averaged, over all males and all days of the week) just slightly over 2 hours per day (137 minutes) to paid work. In contrast, the similar figure for NS and Kings County was over three hours (207 and 236 minutes respectively). While Kings County appears higher than Nova Scotia the difference is not statistically significant. A similar pattern emerges for females with

Nova Scotia and Kings County registering about 135 minutes and Glace Bay registering about 100 minutes per day to paid work.

Education time is very low in Glace Bay relative to both Nova Scotia and Kings County. Kings County males allocate significantly more time to education than do males in either Nova Scotia or Glace Bay while Kings County women allocating about the same amount of time as Nova Scotia also allocate more time to Glace Bay females do.

From a leisure perspective it is interesting to note that both Nova Scotia and Glace Bay, themselves not significantly different, allocate significantly more time to TV/media than does Kings County. Many other differences can be observed in Table 8.

Finally, Tables 9 and 10 show the allocation of time to the 30 activities by different age groups. In both Kings County and Glace Bay, younger people (15-24 years) allocated more time to education, computer games and socializing than all other age groups. In addition, younger people spent more time in active sport or exercise than any other age groups, particularly in Kings County where persons between 15 and 17 years old allocated more time to active sport or

exercise than all others. Young people also tend to get significantly more sleep than most other age groups with the exception of individuals over 65 years.

Table 9 Average daily duration in minutes of activities by age, Kings County, 2002¹.

	15-17	18-19	20-24	25-34	35-44	45-54	55-64	65+
Sleep, rest	523	550	528	506	470	473	485	509
Bathing, dressing	38	32	45	37	39	38	41	40
Home meals	50	56	52	59	62	64	77	94
Personal services	5	5	5	6	8	8	11	16
Cooking and washing up	11	18	26	55	51	49	52	69
Shopping	9	13	15	25	23	25	30	29
Housekeeping and laundry	6	22	19	42	43	35	36	41
Maintenance and repair	3	7	9	15	27	31	41	33
Other household work	4	13	12	24	26	24	37	34
Paid work	21	150	277	242	277	276	150	15
Education	308	136	30	8	5	5	2	1
Looking for work	1	1	0	4	2	2	0	1
Eating out	6	19	7	11	11	13	14	10
Movies and other entertainment	28	10	21	15	12	9	9	12
Watching TV/VCR	98	111	110	130	109	112	129	172
Reading	23	18	48	19	26	35	48	70
Non-work, computer games	38	58	15	17	13	15	13	7
Spiritual/Religious practice	2	10	1	3	4	7	10	14
Active sport or exercise	48	15	22	20	21	23	25	24
Socializing	95	97	79	52	43	52	57	67
Other leisure	9	11	14	15	21	20	33	33
Primary child care	1	1	15	49	28	7	6	4
Primary adult care	0	3	0	0	1	4	2	3
Other formal volunteer work	3	0	5	4	6	5	15	11
Other informal volunteer work	2	4	0	7	3	4	14	6
Travel by car	19	39	38	40	50	47	42	32
Travel by public transport	12	8	1	1	1	0	0	1
Travel by walking or bicycle	12	6	7	3	6	3	6	9
Other travel	15	9	13	9	12	8	12	19
Other activities	50	17	29	20	41	42	12	19

¹ Results from tests of significance are not shown but are discussed in the text. Results are significant at the 0.05 level of significance.

Middle-aged individuals (25-44 years), who are typically trying to balance work and family, spent more time on primary child care and in paid work than all other age groups. In particular, people between the ages of 25-34 in Glace Bay allocated significantly more time than any other age group to child care and paid work. This result is somewhat similar in Kings County except that there is no significant difference in the time allocated to paid work among people between 20 and 54 years of age. People between 25-44 years of age also spend significantly more time on household work than younger individuals.

Table 10 Average daily duration in minutes of activities by age, Glace Bay, 2002¹.

	15-17	18-19	20-24	25-34	35-44	45-54	55-64	65+
Sleep, rest	584	546	542	518	490	514	517	527
Bathing, dressing	52	56	47	47	45	43	44	45
Home meals	63	61	58	63	67	75	90	94
Personal services	5	15	6	7	10	12	11	17
Cooking and washing up	24	16	42	52	58	64	68	76
Shopping	10	17	20	20	21	24	27	36
Housekeeping and laundry	11	11	29	48	49	50	51	51
Maintenance and repair	3	0	2	18	20	33	32	19
Other household work	5	13	14	24	32	37	43	40
Paid work	44	119	129	217	200	139	66	4
Education	56	94	11	6	5	1	0	0
Looking for work	00	6	5	8	5	2	0	1
Eating out	8	12	11	11	8	7	8	6
Movies and other entertainment	29	33	31	16	14	17	12	9
Watching TV/VCR	154	86	161	144	145	173	173	224
Reading	18	17	16	17	20	29	39	44
Non-work, computer games	42	37	29	14	13	8	12	4
Spiritual/Religious practice	1	6	5	1	4	5	7	11
Active sport or exercise	36	45	30	10	16	23	26	14
Socializing	173	159	115	57	67	55	73	80
Other leisure	17	32	19	16	20	21	25	36
Primary child care	3	0	27	44	30	10	8	4
Primary adult care	0	0	1	1	1	3	4	4
Other formal volunteer work	1	0	3	2	4	3	1	4
Other informal volunteer work	1	0	1	1	5	4	6	2
Travel by car	21	30	39	38	41	40	40	34
Travel by public transport	2	0	1	1	1	1	0	0
Travel by walking or bicycle	12	7	11	10	9	10	9	9
Other travel	1	0	2	2	4	7	9	7
Other activities	65	22	33	28	36	29	40	39

¹ Results from tests of significance are not shown but are discussed in the text. Results are significant at the 0.05 level of significance.

Household work includes laundry and housekeeping, and cooking and washing up. However, the time allocated to these activities is the highest in individuals over 55 years.

Persons over 55 years spend more time than any other age group on home meals, cooking and washing up, watching TV and reading. In addition, individuals over 65 years allocate significantly more time to spiritual/religious practice than most other age groups.

Discussion

The purpose of this paper was two-fold: first, to provide a brief introduction to time use research and its applications and second, to provide a summary of the results of the time use survey conducted by GPI Atlantic. The results presented here provide a basic picture of the ways people from Glace Bay and Kings County use their time. Combined with other information collected from the community health indicators survey, such as information on perceived health, we can determine the impacts of hours worked for example, on well-being. Alone however, the time use data can help to paint a clearer picture of some of the most current policy issues including the struggle to balance work and family, the division of labour, the time spent care giving in the household and the quality of people's leisure time in particular exploring the extent of active vs passive leisure.

A great deal of work is currently being done on the work-family balance. For example, a number of centres throughout the world are dedicated to the study of workplace trends and family-friendly policies, including The Centre for Work and Family Balance and the Alfred P. Sloan Centers on Working Families in the United States. In addition, a number of major studies have been conducted on the work-family balance including a recent Canadian report by Linda Duxbury entitled *Voices of Canadians: Seeking work-life balance*.

This report and much of the current literature on this topic, support the feelings held by most if not all working people that it is becoming increasingly challenging to balance work and family life. The time use data presented in this paper hint at these challenges. In particular, as mentioned previously, persons between the ages of 25 and 34, are allocating significantly more time to paid work and child care than all other age groups, and significantly more time to household work than most age groups with the exception of individuals over 55 years. These individuals therefore have less free time, as illustrated in Tables 9 and 10. People between the ages of 25 and 34 spend significantly less time socializing, on active sport and exercise and on computer games than younger people.

Increased participation of women in the labour force, technological developments that changed household work, and changes in the roles of family members are among some of the developments over the last 50 years that have changed the face of work and in turn the division of labour, both in and outside the household. Women were traditionally homemakers who primarily cared for children and completed household work and men worked outside the home in paid employment. The time use data collected in this community health indicators study can be used to examine the current division of work, inside and outside the home, in both Glace Bay and Kings County.

The tables showing participation rates by sex (Table 3) and activity durations by sex (Tables 4 and 5) help to illustrate the increased participation of women in the labour force and the increased participation of men in what were traditionally female jobs – household work and child care. Table 3 shows that women in both communities continue to show higher participation in household work, including cooking and washing up, housekeeping and laundry and other

household work, and in child care compared to men. However, more than 50% of the time diaries completed by men in both communities reported cooking and washing activities.

Men continue to show higher participation rates in paid work in both communities, however, this difference is small in Glace Bay where 22.8% of women reported participating in paid work and 27.9% of men reported participating in paid work. This may be the result of the higher unemployment rates in Glace Bay meaning that a few women work but fewer men are able to find work than compared with Kings County. Tables 4 and 5 also indicate that women continue to spend more time on household activities and men, on paid work.

Conclusion

Comparing Glace Bay and Kings reveals a very interesting picture of productive time use consistent with expectations. First, paid work time is much higher in Kings and there is a reasonably large gap between men and women. In contrast, in Glace Bay, paid work time is very low and the gap between men and women, in average daily hours is minor. This appears to reflect adaptation to the labour market by women in cases where job opportunities may be in short supply for men. Additionally, the data show a much heavier time allocation to domestic work in Glace Bay. This reflects the shortage of income due to lack of employment and the additional time free to look after children.

Increasingly, researchers and policy makers are recognizing the importance of time in understanding a broad range of issues including but not limited to those discussed in this paper. The time use data therefore, when combined with other information collected through the GPI community survey can be used to address an unlimited array of issues facing these two communities. The data collected in this survey appeared to compare well with the data collected for Nova Scotia in the 1998 GSS indicating that community based time use surveys can provide useful and valid data.

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Appendix I

Statistical Profile: Kings County, Glace Bay (Electoral District) and Nova Scotia¹

	Kings County	Glace Bay ²	Nova Scotia
Total population	61,794	17,710	942,691
Males	49.3%	47.6%	49.0%
Females	50.7%	52.4%	51.0%
Median age category	35-54	35-54	35-54
Labour force ³	28,675	6,610	468,900
Unemployment rate ⁴	9.1%	19.4%	9.7%
Education level			
Less than High School	36%	49%	37%
Some or completion of Post-Secondary	56%	40%	53%
Total average income ⁵	\$24,140	\$20,340	\$25,970

Source: Statistics Division, Nova Scotia Department of Finance: Internal surveys and modelling of Statistics Canada data.

Figures were not available for the community of Glace Bay. These figures reflect the Electoral District of Glace Bay.

Figures are based on the 1996 census.

Kiceniuk *et al.*, 2003

Average income per Taxfiler, 2000 tax year.

Appendix II

Act #	Act Label	Description
Act1	Sleep, rest	
Act2	Bathing, dressing	
Act3	Home meals	
Act4	Personal Services	
Act5	Cooking and washing up	
Act6	Shopping	Includes buying groceries, clothes, appliances, home furnishings, going to repair shops, post office, etc.
Act7	Housekeeping and laundry	Includes cleaning house, laundry, mending, ironing, arranging and straightening things, taking out garbage, etc.
Act8	Maintenance and repair	Includes work on house, yard and car.
Act9	Other household work	Includes household managing (e.g. planning, household accounts, paying bills, problem-solving, making transportation and other arrangements, etc.)
Act10	Paid work	
Act11	Education	Includes attending classes or lectures, training and correspondence courses, homework, etc.
Act12	Looking for work	
Act13	Eating out	
Act14	Movies and other entertainment	Includes movies, theatre, sports events, fairs, concerts, museums, and other entertainment outside the home.
Act15	Watching TV/VCR	
Act16	Reading	
Act17	Non-work computer games	Includes video games, surfing the net, chat sessions, and other leisure uses.
Act18	Spiritual/religious practice	Refers to actual prayer, meditation, church services or other spiritual practices.
Act19	Active sport or exercise	Includes both group sports and also individual jogging, hiking yoga, etc.
Act20	Socializing	Includes time spent enjoyably chatting with family and friends, as well as social phone conversations, visiting or dinner with friends, neighbours or relatives, parties, dances, visits to nightclubs or bars, etc.
Act21	Other leisure	Includes pleasure trips, hobbies, painting, playing music, etc.
Act22	Primary child care	Refers to time spent directly and exclusively relating to a child, while not engaged in any other activity. Includes changing diapers, washing, dressing, teaching, reading to and playing with children.
Act23	Primary adult care	Refers to time spent directly helping and caring (dressing, bathing, grooming, etc.) for a sick, elderly or disabled relative or other adult. Includes help given directly to these dependent adults with housekeeping tasks such as cleaning, laundry, shopping and meal preparation.

Act24	Other formal volunteer work	Refers to unpaid activity for social, youth, religious, professional, political, sporting, non-profit and other organizations like unions and service clubs.
Act25	Other informal volunteer work	Refers to unpaid activity that is not given through a formal organization (e.g. unpaid babysitting, etc.)
Act26	Travel by car	
Act27	Travel by public transport	
Act28	Travel by walking or bicycle	
Act29	Other Travel	Includes motor cycle, truck, plane, train, etc.
Act30	Other activities	Includes pet care, gardening, and other activities that do not fit into any of the other activity categories.

Appendix III

GPI Community Survey: Two-day time diary form is available at <http://gpiatlantic.org/pdf/communitygpi/glacsbaysurvey.pdf>. Please scroll to the very end of the survey to view the time diary.

Appendix 7: Analysis of Open-Ended Questions and Respondent-generated Hypotheses

Top issues raised by Glace Bay respondents in their answers to the open-ended survey questions

Jobs- over 300 people wrote about the importance of work in Glace Bay. This includes work for youth and adults - looking to better paying jobs, long term employment, and more development of the business sector in Glace Bay.

Healthcare- almost 200 respondents wrote about wanting better healthcare, more doctors, nurses, and less waiting times. According to the respondents this would not only allow more patients to be helped but would also enable more services to be offered, i.e. drug counseling for youth.

Water- 150 people wrote about the poor quality of water in Glace Bay. They spoke of their health being in jeopardy, their clothes being ruined, and the frustration of paying a water bill for water they feel they can't use.

Cleaning up Glace Bay- over 100 respondents wrote about the benefits of cleaning Glace Bay and revitalizing the downtown sector. The cosmetics of Glace Bay seem to be an important issue. Respondents seem to link beautifying Glace Bay with more prosperity of the community by an increased number of tourists, more shoppers in Glace Bay, and an overall feeling of pride.

Youth activities- almost 100 respondents believed activities for youth to be very important. According to respondents it alleviates boredom, decreases crime, helps youth develop, and keeps youth in the community. Many respondents called for development of a pool and/or youth center to keep youth occupied and stopping them from hanging around in the streets. Also a high number of respondents wrote about the importance of keeping youth in Glace Bay as opposed to moving away to work.

Crime- 90 respondents said feeling safe from crime was an important aspect of Glace Bay life. Also many mentioned feeling secure as vital to a happy life. The police were seen by many respondents as the key to maintaining peace and security and many felt that if more police were hired and doing foot patrols this would decrease crime greatly.

Tourism-many respondents believed the key to success in Glace Bay is utilizing the friendliness of the people from Glace Bay and increasing the number of visitors to Glace Bay. Some respondents (60) feel that a hotel/motel and some department stores (not dollar stores) in Glace Bay would be the best way to attract tourists to Glace Bay.

Roads and sidewalks- approximately 50 respondents wrote about the poor condition of many roads and sidewalks in Glace Bay. Many felt this was a deterrent to tourist to drive through Glace Bay. Many mentioned how dangerous it was to drive on the roads filled with potholes and, as well, the danger of not fixing the sidewalks therefore many children play and drive bikes on the street.

Education- almost 40 respondents expressed their concern over the education system. Respondents wrote about the decrease in schools, increase in class sizes, and lack of job security for teachers.

Seniors- seniors seemed to be an age group which were mentioned frequently(25 respondents). Concern over their safety, quality of life, treatment by the general population, and lack of activities (beside pensioner halls) were issues of concern.

Shoreline- the shoreline and environment were mentioned by over 20 respondents. It was not only mentioned as a health concern but as a deterrent to tourists. Respondents felt by maintaining the shoreline and keeping the environment clean it was an added attraction for Glace Bay.

Other issues that were mentioned by respondents are listed below:

Developments in Glace Bay

Bringing new industry to Glace Bay
More technology brought to Glace Bay
Giving Glace Bay back its town status (lose amalgamation)
Playgrounds for children
Skateboard facilities
Tennis courts
Better lighting in town
Need traffic lights
Better parking in downtown
No parking meters on commercial street
Better snow removal systems
Prices too high in downtown

Benches around town
Walking trails
Better eating establishments
More facilities in Glace Bay (theater, gym, library, etc)
More cultural celebrations
More community events
Proper welcome sign
Better garbage collection
Lower gas and oil prices (lower cost of living)
Restore historical buildings
Wheelchair accessible stores
Better transport system

Development of other industries

Study on coal (other uses)
Off shore development of oil and gas
Develop Glace Bay harbor

Develop aquaculture
Process fish catches caught in Glace Bay, in Glace Bay
Develop fishing industry
Help for the Savoy Theater

Home life

Treatment of children and spouses
High costs of child care
Women's issues
Help for unwed mothers (program for single parents)
Domestic violence
Family issues (family values)
Parenting skills taught
Higher standard of living for residents (lower poverty)
Less stress
Higher pension
Help residents in lower class
Financial security
Better child care
Social equality
Better quality of life for residents
Respect for all members of the community
More focus on particular neighborhoods

General well-being

Help youth get off social assistance
Back helpful politicians
Study on cancer rates
Study on link between environment in Glace Bay and disease
Recycling
Stiffer penalties for drug traffickers
More community involvement
Health questions
Program for the disabled
Neighborhood watch
Less smoke in pensioner halls
Get rid of 5 bag garbage limit

Education/school system

Bullying at school
Education on drugs and alcohol
Quality of lunch at schools
Dress code at schools
Have teachers play an active role in extracurricular activities
Survey on education
Education on good nutrition

Education on birth control
Bring religion back into the schools
Help students with high university debts

Regulatory

Young offenders act too lenient
Curfew for youth (decrease youth crime at night)
More regulations on welfare
Enforce parking laws

Future community health surveys

More assistance for dedicated volunteers
Simplify surveys
Take action on suggestions
Some questions similar
Some questions too personal
Make the survey shorter

Hypotheses generated by respondents, based on their responses to open-ended survey questions

RESPONDENT GENERATED HYPOTHESES
--

UNEMPLOYMENT

Unemployment LEADS TO youth leaving LEADS TO families depressed.

Unemployment LEADS TO too much free time LEADS TO crime.

Unemployment LEADS TO developing poor work ethic LEADS TO hard to get back into good work ethic.

Unemployment LEADS TO people have to move away LEADS TO families split LEADS TO decrease in family values.

Good income LEADS TO good home life.

Lack of industry LEADS TO lack of hope LEADS TO negative about community LEADS TO crime.

Off-shore oil industry WOULD entice businesses to come to Glace Bay which LEADS TO jobs

Tougher control over people receiving social assistance LEADS TO more would work LEADS TO decrease strain on social assistance system.

More people educated and employed LEADS TO a community that prospers.

More business closing LEADS TO fewer jobs LEADS TO less money being spent in Glace Bay (people shopping in Sydney).

APPEARANCE OF GLACE BAY

Waste buckets in town LEAD TO cut down on litter in streets

Better trash collection LEADS TO cleaner street.

Enforce “unsightly premise” bylaw LEADS TO improve appearance of Glace Bay.

Tax breaks to homeowners who keep property neat LEADS TO improve appearance of Glace Bay.

Roads in poor shape LEADS TO buildings in poor shape (why bother keeping buildings up if roads are a mess?).

Pride in town LEADS TO pride in property.

YOUTH ACTIVITIES

Youth activities WOULD PUT youth on the right path.

Youth activities LEADS TO reduced litter.

Youth centers LEADS TO less boredom LEADS TO less crime.

More activities LEADS TO less boredom, less laziness.

PRIDE IN GLACE BAY

Low self-esteem LEADS TO crime.

Better self-esteem LEADS TO optimism Glace Bay will improve LEADS TO people who will try to improve Glace Bay.

WATER

Bad water LEADS TO ruined clothes LEADS TO pay more money for cleaners.

Bad water LEADS TO poor health.

CRIME

Better if RCMP were back it would LEAD TO more respect for authority, more foot patrols LEAD TO less crime.

Less vandalism LEADS TO fewer businesses boarded up LEADS Glace Bay to look better.

Better lighting LEADS TO lower chance of crimes at night.

Parents responsible for children LEADS TO less crime

CHILDCARE

Childcare IF IT IS affordable LEADS TO both parents working LEADS THEM TO live comfortably.

Good childcare LEADS TO better, well developed youth.

HEALTHCARE

Better healthcare LEADS TO better equipment, doctors, nurses, etc.

Helping more patients LEADS TO help for youth with drug and alcohol problems.

Exercise options LEADS TO healthy town LEADS TO cut strain on healthcare.

TOURISM

Attract tourist LEADS TO money for area LEADS TO more activities, etc.

Improve roads LEADS TO attracting tourists.

Nice, friendly people LEADS TO attracting tourists.

Clean town, buildings etc LEADS TO attracting tourists.

SENIORS

Elderly IF WE listen to them LEADS TO good experience, good ideas.

Home care so seniors can stay at home LEADS TO less pressure on healthcare LEADS TO seniors contributing more to community life.

Appendix 8: Teenage Smoking in Kings County

Teenage and Youth Smoking Habits in King's County: Abstract

Dr. Glyn Bissix, Ph.D

Liesel Carlsson, BSNH

Introduction

According to the Nova Scotia Department of health, the effect of smoking on the lives of Canadian youth is monumental. Canadians age 15 who smoke now are more than twice as likely to die before age 70 as are non smoking 15 years olds. Health Canada predicts that more than 50% of deaths before age 70 will be caused by smoking among today's 15 year-old smokers. In contrast, about 6% will die prematurely because of traffic accidents, suicides, murders and HIV/AIDS, all combined (⁶).

Investment in youth is an investment in the future of the community's health and well-being. The astounding statistics on the direct and indirect cost of smoking, which in Nova Scotia alone is estimated to near half a billion dollars (1) and the abovementioned mortality rates substantiate a greater investment in the health of our youth. With recent changes in tobacco control legislation that restrict youth access to tobacco, it is extremely important to monitor how these changes affect youth smoking trends. Baseline information can become the sounding board for evaluation of current legislation, and suggest changes for the future investment in programming.

Understanding more about smokers' behaviour, especially how smokers took up smoking and what environmental factors may have contributed to smoking adoption can provide valuable insights for reshaping public policy and smoking reduction program design. This report focuses on a number of key factors about youth and smoking behaviour. It particularly focuses on the age youth began to smoke, how many cigarettes a day they smoke, and how living with a smoker influences smoking habits.

Eight questions pertaining to the smoking habits of the participant were included in the Health and Community Questionnaire section of the GPI-Kings survey. These questions, along with demographic information such as age and sex, bring into being the ensuing report. The extensive database derived from the GPI survey provides the opportunity for very detailed research into the wellbeing of Kings County.

Summary of Key Findings

One hundred and fifty one youth (62 males and 87 females) participated in the survey. There were noticeable gender and age differences in the smoking habits of youth. Of the 21% of youth who currently smoke for instance, two thirds were female (14%). King's County Youth appear to

⁶ http://www.gov.ns.ca/health/tcu/health_effects.htm#3

have lower smoking rates in comparison to both provincial and national averages. With the exception of 15 to 19 year old females, who exceed both the national and provincial average, the percentage of current youth smokers is relatively low in King's County.

Females began to smoke an average of one to two years earlier than males. Fifteen to 17 year old females who smoke daily began to smoke at a mean age of 13, whereas males of the same age group began at 15. Even among the 20 to 24 year olds, women began to smoke one year earlier than men (16 vs. 17 years old).

Males smoked more cigarettes than females, even though fewer males smoked. The largest difference in the number of cigarettes smoked per day between the genders occurred in the 20 to 24 year old category, where males smoked significantly more cigarettes than their female counterparts ($P < 0.005$). Males smoked a daily average of 19 cigarettes versus 12 cigarettes for females (mean difference = 7.48).

The results showed that of the 151 youth who filled out the survey, 43% lived with a smoker. Over half (51%) of those who lived with a smoker, lived with a smoker who smoked *inside the house*. Significantly more ($p < 0.001$) current youth smokers lived in a home with a regular smoker (83%) than in a non-smoking household (17%).

Teenage and Youth Smoking Habits in King's County

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Teenage and Youth Smoking Habits in King's County

Introduction

According to the Nova Scotia Department of Health, the effect of smoking on the lives of Canadian youth is monumental. Canadians age 15 who smoke now are more than twice as likely to die before age 70 as are non smoking 15 years olds. Health Canada predicts that smoking among today's 15 year-old smokers will cause more than 50% additional deaths before age 70. In comparison, about 6% additional deaths will be due to the combined effects of traffic accidents, suicides, murders and HIV/AIDS (⁷).

Investment in youth is an investment in the future of the community's health and well-being. The astounding statistics on the direct and indirect cost of smoking, which in Nova Scotia alone is estimated to be near half a billion dollars (8), and the abovementioned mortality rates substantiate the need for a greater investment in the health of our youth. With recent changes in tobacco control legislation in Nova Scotia, which restricts youth access to tobacco, it is extremely important to monitor how these public policy changes affect youth smoking trends. Baseline studies such as those made possible with resources such as the GPI-Kings database can become the springboard for evaluation of current legislation and provide direction for future investment in health promotion programming.

Understanding more about smokers' behaviour; especially how smokers took up smoking and what environmental factors may have contributed to smoking adoption can provide valuable insights for reshaping public policy and smoking reduction program design. This report focuses on a number of key factors about youth and smoking behaviour. It particularly focuses on the age youth began to smoke, how many cigarettes a day they smoke, and how living with a smoker influences smoking habits. This report scratches at the surface of a wealth of potential knowledge about smoking behaviour and lifestyles contained in a database developed by GPI-Atlantic of the residents of Kings County, Nova Scotia in 2000-1. As additional funding for analysis materializes, progressively more sophisticated insights can be gleaned from this database about smokers' behaviour and their physical, social and psychological environmental conditions; information useful in improving public policy that effectively leads to smoking reduction and cessation.

Eight questions pertaining to the smoking habits of the participant were included in the Health and Community Questionnaire section of the survey. These questions, along with demographic information such as age and sex, were used to generate the following report. The specific smoking related questions are: Does anyone in your house smoke regularly? Does anyone in your house smoke regularly inside the house? At the present time, do you smoke cigarettes? Have you ever smoked cigarettes at all? At what age did you begin to smoke cigarettes daily? How many cigarettes do you smoke each day now? How soon, after you first wake up, do you smoke your first cigarette? If you are working, what [are the] restrictions on smoking at your

⁷ http://www.gov.ns.ca/health/tcu/health_effects.htm#3

place of work? The extensive database that is derived from the GPI survey provides the opportunity for detailed analysis of the perceived and actual relationships concerning the physical and mental health, happiness, food consumption habits, employment, etc. and the smoking habits of King's county youth.

Review of Current Literature

In the late 1990's, Nova Scotia had the highest smoking prevalence (29%), daily cigarette consumption, and rate of dependence of all Canadian Provinces (⁸). In 1998, 36% of grade 7,9,10 and 12 students smoked, this rate was up from 26% in 1991 (⁹). This was five percentage points above the national average of 31% for 15 to 19 year old Canadians (8). The prevalence of smoking among 15 to 19 year old Canadians has since dropped to 22% and among Nova Scotians of the same age, to 20%. Nova Scotia youth smoking rates are no longer the highest in the country (¹⁰) but match national averages for both males and females aged 15 to 24. However, 20 to 24 year old Nova Scotian youth smokers outnumber national youth smokers by three percentage points (34% vs 31%).

The Canadian Tobacco Use Monitoring Survey, 2002 (¹¹) or CTUMS provides in depth, regularly updated, national data on tobacco use in Canada. CTUMS is implemented twice a year in order to systematically evaluate smoking trends, the effects of changing smoking legislation, tobacco control strategies, policies and programs. The primary objective of CTUMS is to track changes in smoking status and amount smoked, especially in those most at risk; 15 to 24 year olds (11).

The CTUMS Canadian results from 2002 show that smoking rates increase with age. Eighteen percent of 15 to 17 year olds, 28% of 18 to 19 year olds and 31% of 20 to 24 year olds are current smokers. The survey also presented current smoking rates for Nova Scotia that show increasing smoking rates with increasing age. Twenty percent of 15 to 19 year olds currently smoke in this province, a rate that rises to 34% among 20 to 24 year olds.

Among youth (15 to 24), slightly more females are current smokers than males (27% of females smoked and 26% of males smoked). In 15 to 19 year old category, the difference was greatest, with 24% of females vs. 20% of males currently smoking. There were no apparent gender differences in smoking rates among Nova Scotian youth, as 27% of both male and female youth currently smoke. However, data for more detailed analysis was not available to make more age specific analyses.

The number of cigarettes that Canadian youth smoke differed greatly between males and females. Male youth (15 to 24) smoked more (15.5 cigarettes) than females (11.8 cigarettes).

⁸ The Cost of Tobacco in Nova Scotia, prepared for Cancer Care Nova Scotia (October, 2001) by Ronald Colman Ph.D.

⁹ The Nova Scotia Student Drug Use Survey, 1998. <http://www.gov.ns.ca/health/student-drug-use/tobacco.htm>

¹⁰ The Tobacco Control Programme, Health Canada, Supplementary Tables. CTUMS Annual, 2002.

¹¹ <http://www.gosmokefree.ca/ctums>. Results from the two 2002 surveys are presented in the annual results summary and supplementary tables.

Similar to national averages, male youths in Nova Scotia smoked more cigarettes per day than females with an average of 15.3 cigarettes vs. 13.5 cigarettes respectively.

Recently, Health Canada's Tobacco Control Programme released a document ⁽¹²⁾ that outlined the sales compliance (refusal of tobacco sales to minors) of tobacco retailers. The report indicated that 71.2% of retailers refuse to sell to minors. As minors get older, it becomes easier to purchase cigarettes, but it remains more difficult for underage girls to buy tobacco than boys. A full 1/3 (33.6%) of underage boys do not get asked for ID. The Halifax compliance rate is far below the national average at 54%. The compliance rate goal for the nation, set out in the Federal Tobacco Control Strategy at 80%, is still above the current national rate and far above the Halifax rate. Developments on a number of fronts in Nova Scotia nevertheless show that this goal is not out of reach despite the current gap.

Youth smoking prevention is one of the key elements in the comprehensive and long term Nova Scotia Tobacco Strategy ⁽¹³⁾. This strategy includes the development of a school smoking prevention program and enforcing and educating the public about new legislation surrounding tobacco. *An Act to Protect Young Persons and Other Persons from Tobacco Smoke* ⁽¹⁴⁾ protects those under the age of 19 from second-hand tobacco smoke by creating smoke free public places. It also limits youth under the age of 19 from even possessing tobacco. This legislation came into force January 1 2003 and is part of the province's comprehensive tobacco strategy and can be found on the Nova Scotia Department of Health website.

The enormous health and economic costs incurred by Nova Scotians due to tobacco use was detailed in a comprehensive report called *The Cost of Tobacco in Nova Scotia* (8), prepared by Ronald Colman in 2001. The report highlighted a well documented fact that in industrialized nations, smoking is the most preventable cause of death and illness which includes instances of cancer, heart disease and respiratory complications. Health problems attributable to smoking account for most of the direct health care costs of smoking. Added to this are indirect costs such as loss of productivity, absenteeism, insurance costs and providing smoking areas. An estimated half a billion dollars are spent annually in Nova Scotia on indirect and direct costs of smoking (8).

According to Colman, 16 000 underage smokers spend a staggering \$10.6 million annually in Nova Scotia on cigarettes. At today's rates 65 000 children and teens in Nova Scotia will become regular smokers and of these, 15 000 will be killed by their addiction by middle age (8).

Continual monitoring of progress at the local level is necessary to reach both rural and urban youth equally throughout the province. Local initiatives, such as Smoke Free King's, work to reinforce and support all pieces of the Nova Scotia Tobacco Strategy. With a clear vision to reduce the harm related to tobacco use and exposure to tobacco smoke ⁽¹⁵⁾, Smoke Free King's has been successfully active in providing public education, lobbying and advocacy work at the

¹² Evaluation of Retailer's Behaviour Towards Certain Youth Access-to-Tobacco Restrictions. Final Report findings: 2002. Prepared for Health Canada, January 2003.

¹³ A Comprehensive Tobacco Strategy for Nova Scotia, Nova Scotia Department of Health, 2001

¹⁴ <http://www.gov.ns.ca/health/reports.htm#New%20Tobacco%20Legislation>

¹⁵ As of October 6th, 2003, the mission and objectives will be updated.

provincial and municipal level, carrying out compliance checks and working closely with youth prevention. Smoke-Free Kings was established in December 1994 and consists of a group of volunteers and professionals. It is with local initiatives like these that the GPI survey information is best used. By providing a central link between the information, the community and government, they can use current, local information to direct their actions where they are needed most.

Methodology

The Kings County community health survey was answered by over 1900 participants living in the area in 2001, representing a 70% response rate. It obtained very detailed demographic, health, employment, peace and security, food habits and ecological footprint information from each of the individuals. Each survey took approximately 2-3 hours to complete.

The statistical analyses were run using SPSS (¹⁶) at Acadia University with the intention of returning the information to the community, in order to generate community interest. Some of this information has been presented at the GPI Atlantic meetings held in the spring of 2003 in Wolfville and Berwick, NS (¹⁷).

There were 151 youth (62 males and 87 females) that participated in the survey. Youth was defined as 15 to 24 years of age. Seventy-five were 15-17 years old, 28 were 18-19 years old and 48 were 20-24 years old. Whenever possible, for the sake of comparison between provincial and King's County data, the three youth age categories (15 to 17, 18 to 19 and 20 to 24) are presented. Where data to provide this is not available, age categories are aggregated (¹⁸). Current smokers, or smokers, include both daily and occasional smokers unless otherwise named as such.

Results

The first striking aspect that emerged from the data is the noticeable difference between the smoking habits of male and female youth. While 21% of youth in King's County are smokers, twice as many females smoke as compared to males (of those 21%, only 7% were male and the remaining 14% were female). In addition, a higher percentage of females are daily smokers, and this difference broadens with increasing age. Only 10% of males aged 15 to 17 compared to 14% of females are daily smokers. Zero percent of males (19) and 21% of females aged 18 to 19 are daily smokers. Eighteen percent of males and 23% of females aged 20 to 24 are daily smokers.

As well, there were noticeable differences with respect to when males and females began to smoke. The data show that females begin to smoke earlier than males (See figure 1). Fifteen to 17 year old females who smoke daily began to smoke at a mean age of 13, whereas males of the

¹⁶ Statistical Package for the Social Sciences software (SPSS Inc., 1999).

¹⁷ April 8th, Berwick; June 5th, Wolfville.

¹⁸ The national, provincial and King's County results are summarized and compared in Table 1, Appendix A.

¹⁹ There were no male, 18 to 19 year old smokers in the sample population.

same age group began at 15 (²⁰). Eighteen to 24 year old females (19) who smoked daily started on average at 16 years old. Even among the 20 to 24 year olds, women began to smoke one year earlier than men (16 vs. 17 years old). The earliest age that 15 to 17, 18 to 19 and 20 to 24 year olds began to smoke was 11, 14 and 12 respectively.

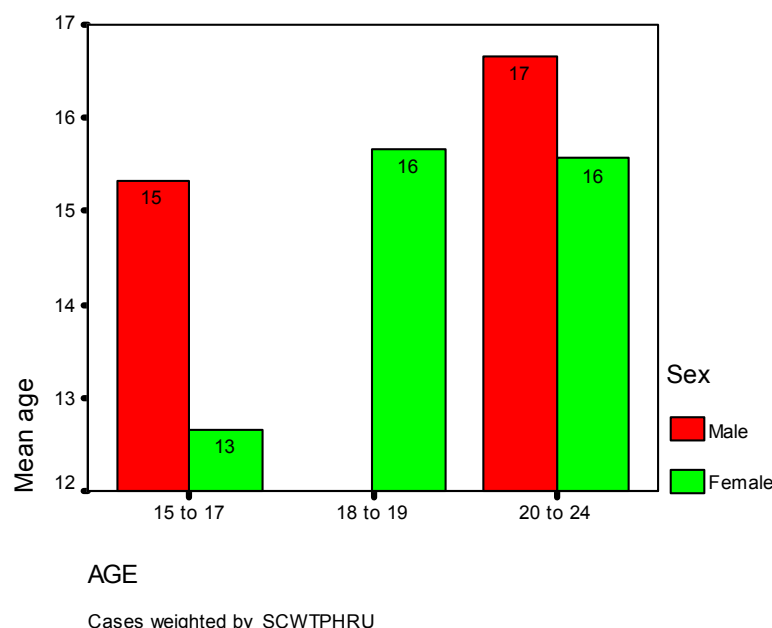


Figure 1. Youth Smokers: At what age did you begin to smoke? Only daily smokers were included.

Of youth smokers (daily or occasional), the average number of cigarettes smoked per day increased with age. Among 15 to 17 year olds, the mean number of cigarettes smoked daily was 12, and this increased to 14 cigarettes and 15 cigarettes for 18 to 19 and 20 to 24 year olds respectively.

Similarly, gender differences emerged in the number of cigarettes youth smokers smoked per day with the exception of the 18 to 19 year old males (19). On average, males smoked a greater number of cigarettes than females did, except for in the 18 to 19 year old age group, where there were no male smokers in the sample (See figure 2). As noted previously however, more females smoked in all of these three age groups.

²⁰ It should be noted that two people in the 15 to 17 year category responded that they began to smoke at age 20. This obviously cannot be so. One of these respondents was male which resulted in a slightly raised mean for the males; the other did not specify sex, consequently not distorting the mean for either the male or female categories.

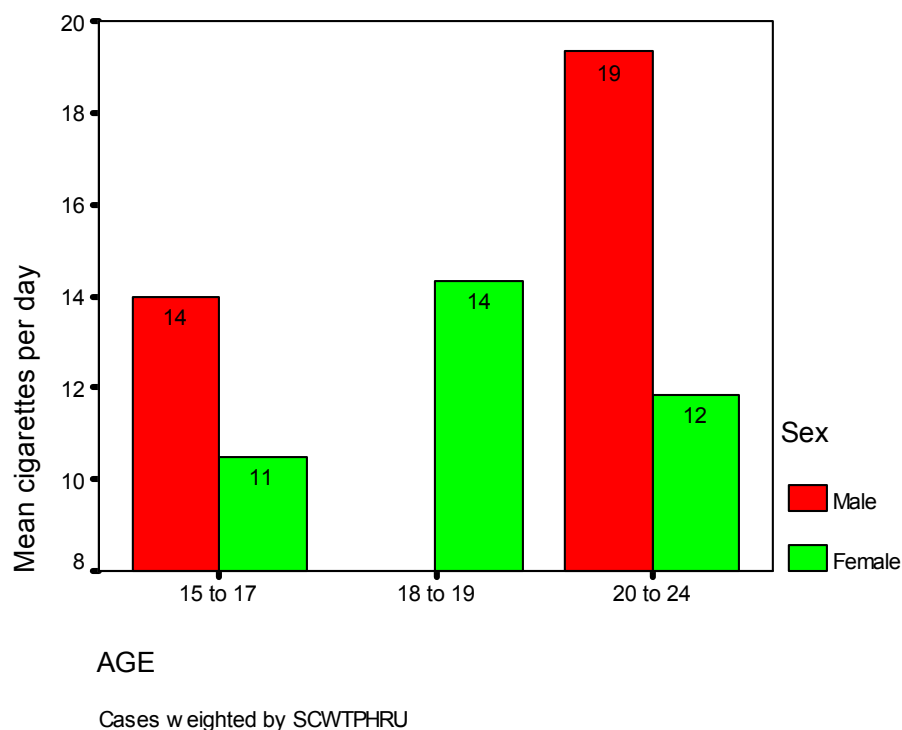


Figure 2. How many cigarettes do you smoke daily? Daily and occasional smokers were included.

Males smoked an average of three cigarettes more per day than females in the 15 to 17 year old age category (14 cigarettes vs. 11 cigarettes per day respectively). The largest difference in the number of cigarettes smoked per day between the genders occurred in the 20 to 24 year old category, where males smoked significantly more cigarettes than their female counterparts ($P < 0.005$)⁽²¹⁾. Males smoked a daily average of 19 cigarettes versus 12 cigarettes for females (mean difference = 7.48).

How the household smoking environment serves to influence youth smoking habits was explored. The smoking habits of youth were examined with respect to living with a regular smoker, a regular smoker who smokes *inside the house*, and youth who live in a non-smoking household. The results showed that of the 151 youth who filled out the survey, a staggering 43% lived with a smoker. Over half (51%) of those who lived with a smoker, lived with a smoker who smoked *inside the house*.

Of youth that lived in a smoke free environment, *considerably* less smoked cigarettes than those who lived in homes with smokers. Only 6% of youth who lived in a non-smoking household currently smoked. On the other hand, 40% who live with a smoker, smoked either daily or occasionally (See Figure 3) and the remaining 60% were non-smokers.

²¹ Independent Samples T-test, equal variances assumed: $N=19$; $df=17$; Sig. (2-tailed) = 0.005; 95% CI = (2.54191, 12.41047).

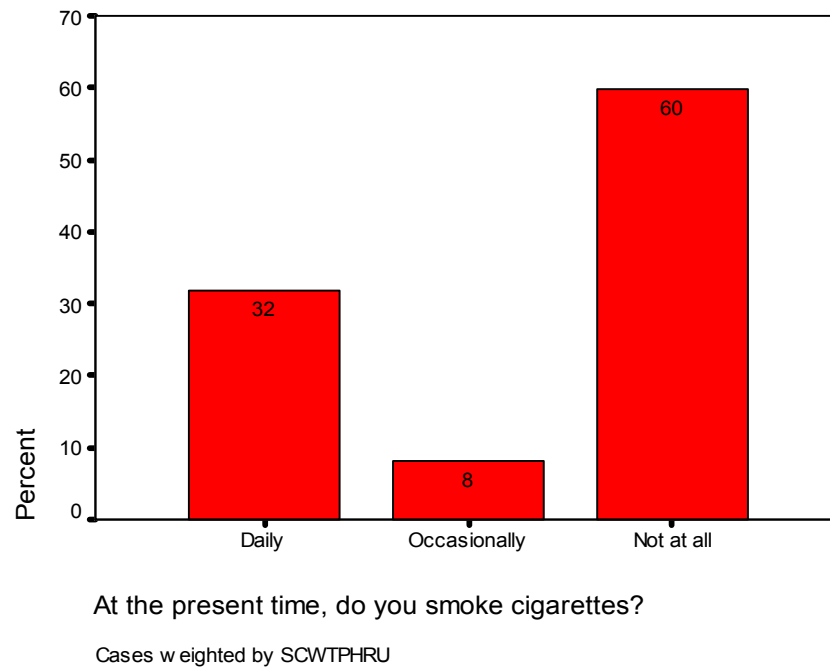


Figure 3. The smoking habits of youth living with a regular smoker.

The youth living with regular smokers who smoke either in or outside of the house were selected and separated out from their non-smoking household peers to examine their particular smoking habits. As figure four indicates, among youth living with a regular smoker, the frequency of youth who also smoked daily or occasionally is 40%; interestingly four times as many of these youth were daily smokers rather than occasional smokers (32% vs. 8%). Selecting youth living with a smoker who smoked *in the house* revealed that 36% of these youth also smoked daily or occasionally, a rate very similar to that of youth living with a smoker. As mentioned in the preceding paragraph, only 6% who live in a non-smoking household, currently smoke. Looking at this from another viewpoint, the data showed that the vast majority of youth smokers also live with a regular smoker (See Figure 4). Significantly more ($p < 0.001$) current youth smokers lived in a home with a regular smoker (83%) than in a non-smoking household (17%), (²²).

Both figure three and figure four highlight the variation in smoking habits and smoking environments. More youth smokers also live with smokers than non-smokers, and more youth who live with a smoker, smoke than those who live with a non smoker.

²² Binomial nonparametric: N=64; test proportion = 50%; Sig. (exact) = 0.000

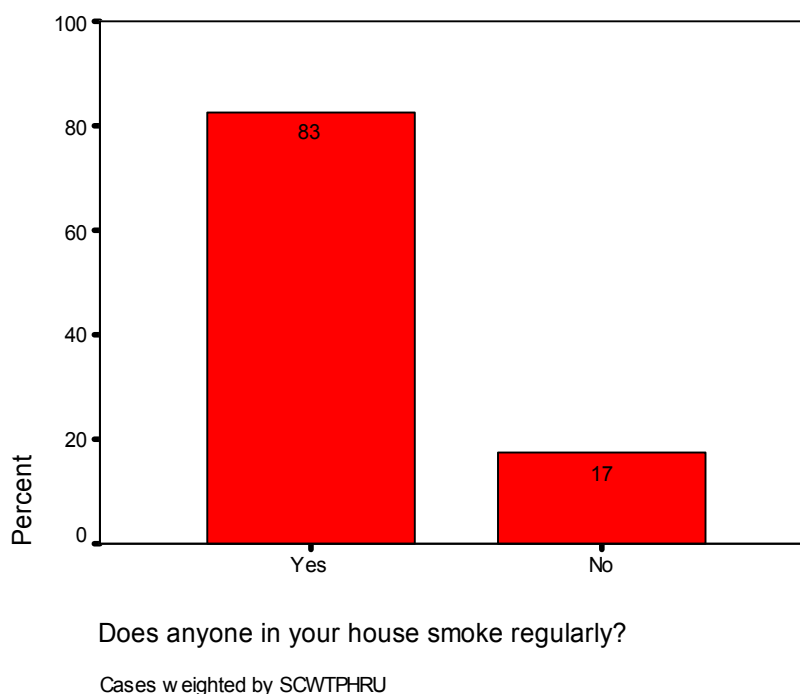


Figure 4. Youth Smokers: The smoking environments at home of youth that smoke daily or occasionally.

Conclusions and Implications

King's County Youth appear to have lower smoking rates in comparison to both provincial and national averages, see Appendix A. With the exception of 15 to 19 year old females, who exceed both the national and provincial average, the percentage of current youth smokers is relatively low in King's County.

The gender differences in smoking prevalence were much greater in King's County compared to Nova Scotia or Canada. Provincially an equal percentage of male and female youth smoked (27%) and nationally the genders differed by only 1% (26% vs. 27%). In King's county nearly twice as many smokers were female than male (27% vs. 15% respectively). In fact, males of all age categories had appreciably lower smoking prevalence than their provincial and national counterparts. Seeing as there were no male smokers age 18 to 19 in the sampled population it is difficult to draw authoritative conclusions about this group, however, males aged 20 to 24 in King's County also had much lower smoking rates than their provincial and national peers (23% vs. 34% and 31% respectively). Female youth in King's County on the other hand matched their provincial and national peers' and outnumbered them in the 15 to 19 year old age group by 5% and 3% respectively.

Twenty to 24 year olds on the other hand, smoked less; only 1% less than national averages, but 5% less than the average for Nova Scotian females of the same age. In sum, smoking was much less pervasive in male youth from King's County than in the province or nation and less than

their female equivalents. The incidence of smoking for females in King's county was much closer to provincial and national averages.

As *The Cost of Tobacco in Nova Scotia* monograph (8) indicated, stress and promoting weight loss are as key reasons why teenagers (especially girls) smoke. Understanding causal factors, considered important motivators or barriers to tobacco reduction, provides strong support for gaining additional insights into possible solutions. From the Kings County data, it is clear for example that female youth began to smoke an average of one to two years earlier than males did in King's County, which likely contributes to the greater number of female youth who are current smokers. Although this resultant disparity may be attributed to differing developmental stages, it remains a critical consideration for the timing and implementation of gender specific, anti-smoking education strategies. Thus far, data detailing provincial or national averages on when youth began to smoke is not available for comparison.

In tandem with smoking prevalence, there are considerable inequalities in the smoking patterns of male and female youths in Kings County, similar to Nova Scotia and Canada as well. Compared to females, males smoke significantly more cigarettes; this is especially the case within the 20-24 year old category where males smoked on average seven more cigarettes per day than females. As mentioned previously, the report on Youth Access to Tobacco (12) indicates that underage males are able to purchase cigarettes much more easily than females. This makes tobacco products more accessible to them. Strengthening enforcement of tobacco reduction policies among tobacco retailers may consequently influence how many cigarettes to which male youth have access. Regular compliance checks, such as those carried out by Smoke Free King's in 1997, would complement local smoking data in the search for measurable indicators of progress in the effort to reduce tobacco use and exposure to tobacco for our youth.

Understanding the significance of gender differences with respect to prevalence and consumption patterns is valuable to facilitators of youth tobacco reduction programs as well as school guidance counselors, policy makers, public health workers and parents. School programming and legislation are part of the Nova Scotia Tobacco Strategy that proffers to dramatically reduce the colossal health and economic cost of tobacco on the people of Nova Scotia. Communities, on the other hand, are very individual places. What is dominant in one community may not necessarily be in another. Thus, community specific information such as that available to King's County is very valuable attaining the goals of this government initiative by providing operating groups such as Smoke Free Kings with the baseline data that they need to take appropriate action.

Of equal value to the parents of King's County youth is information on how their own smoking habits and exposure to environmental tobacco smoke (ETS) affects the smoking habits and health of their children. All things considered, too many of King's County youth live in a home environment where smoking is acceptable. But not only are 43% of the youth being exposed to smoking as a lifestyle habit, over half of these (22%) are also being exposed to tobacco smoke in the home.

In Nova Scotia, 24% of children age 12 to 17 are regularly exposed to ETS, and in Canada, 23% (11). Though the percentage of youth in King's County exposed to ETS is slightly better than

provincial and national averages, it remains a fact that more than one in every five youth is exposed to ETS at home. Beyond the well documented health and economic effects of tobacco (8), are the apparent links between youth living with a smoker and their smoking habits. Significantly more current smokers live with smokers than non-smokers. As mentioned on the Nova Scotia Teen Health Website (²³), youth are more likely to smoke if their parents smoke as well, if they have older brothers or sisters who smoke, or if their parents do not mind them smoking. Among youth in King's County 40% who lived with a smoker also smoked cigarettes and 83% of youth smokers, also lived with a smoker.

Understanding the connection between the home smoking environment of youth, their health and their own smoking habits is one that is critical for possibly redirecting resources towards parents to address their choice to smoke and their condoning smoking behaviour. Encouraging youth, parents and families to create non-smoking homes would benefit everybody's health and wealth.

Possibilities for Future Analyses

The preceding information is a brief sample of the kinds of data analysis that can be performed using the Kings County community health survey to measure the impact of smoking on well-being in King's County. Further in depth examination of topics related to smoking behaviour is possible that may well bring new insights on smoking behaviour, its antecedents and its or relationships.

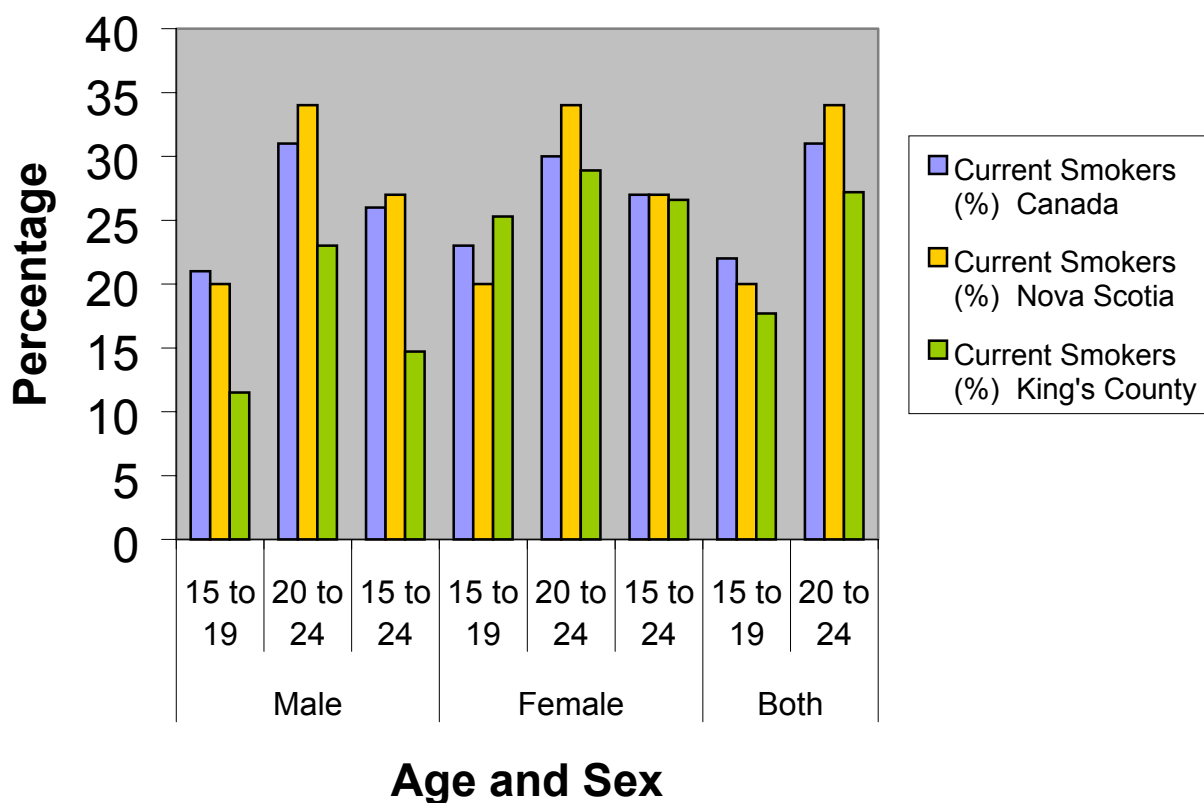
Some possibilities for future analyses have already been alluded to in this report such as: Why do more female youth smoke than male? Other interesting questions include: What are the youth smoking rates while pregnant in King's County? How soon after waking up do youth smoke their first cigarette? This is an indicator of smoking dependency. Are males or females more nicotine dependent? How do males and female smokers compare in perceived stress levels and excess body weight or eating habits? How do smoking habits and home smoking environment relate to perceived health and health? Does youth access to tobacco have bearing on youth smoking trends?

As mentioned previously, community access to the potential information contained in this survey is a top priority for the proponents of the Kings community health survey. Community groups and public policy makers and influencers interested in the data can arrange to work with Acadia University researchers in making beneficial use of the data available in this survey. Questions can be directed to Liesel Carlsson at 902-585-1123 or emailed to liesel.carlsson@acadiau.ca.

²³ <http://www.chebucto.ns.ca/Health/TeenHealth/smoking/home.htm>

Appendix A

Percentage of Current Smokers in King's County: Comparison with Provincial and National Averages



Data Table

		Current Smokers (%)		
	Age	Canada	Nova Scotia	King's County
Male	15 to 19	21	20	11,5
	20 to 24	31	34	23
	15 to 24	26	27	14,7
Female	15 to 19	23	20	25,3
	20 to 24	30	34	28,9
	15 to 24	27	27	26,6
Both	15 to 19	22	20	17,7

Appendix 9: Formation of Kings GPI Society

GPI Kings Society²⁴

Measuring Community Progress

Formation and Objectives

GPI Kings was registered in 2003 as a non-profit society under the Companies Act of Nova Scotia. It was organized by residents of Kings County, acting as members of a steering group that has been guiding the process of creating the community GPI. The Society, in association with participants from Acadia University, organized the transfer of the survey data from GPI Atlantic to the control of the Community

Formed in association with the Centre for Lifestyle Studies and the Vaughn Library at Acadia University, the Society will work with citizen groups, interest groups and agencies in Kings County to develop and sustain measures of genuine progress in Kings County and to assist these groups to develop and use these measures for community and individual betterment. Specifically the Society will help these groups to:

1. Gain access to and use of the existing benchmark data;
2. Define indicators and measures of progress into the future;
3. Expand the process to include community and other sector interests not yet served.
4. Work together on cross-sector analysis to influence policy and action for community betterment

The Society, under agreement with GPI Atlantic, owns the community health survey data, and is responsible to ensure user commitment to confidentiality and integrity of use of the data. Under agreement with the Society, the GPI Acadia Group holds and manages the data, conducts analysis and, in association with the Society and community and interest groups, provides professional support, for:

1. Analysis
2. Developing and gathering information for indicators and additional benchmarks
3. Maintaining confidentiality and integrity of use of the data.

²⁴ Genuine Progress Index Kings County Society

Board of Directors

Richard Hennigar, President and Treasurer
Dr. Glyn Bissix, Vice President
Roger Cann, Secretary
Earle Illsley: Chair, Guidelines Mngmnt Group
Lila Hope-Simpson

Glenn McMullen
Chris Cann
Dr. Richard Gould
Bill Swetman

Memberships

Voting: Any citizen of Kings County
Non-Voting: Organizations in Kings County, Patrons and other citizens of Nova Scotia.

Activities

Since its inception, GPI Kings Society has achieved the following:

- Completed and implemented the agreements with Acadia University and GPI Atlantic.
- Organized and facilitated its first community interest group session at Acadia University on 5 June, 2003. Approximately 50 people attended this session representing over 30 academic, interest and community groups and community agencies (List attached). Presentations included the concept of community GPI and the opportunity offered, together with presentations of preliminary sample results on Tobacco Use, Peace and Security, and Unpaid Caregiving.
- Organized and promoted presentation and work shop sessions for Unpaid Caregiving for 7 October 2003 and Tobacco Use and Health in Kings for 14 October, 2003, including a major presentation to all three Kings County community health boards. A major effort has been made to contact personally, people in those agencies and organizations that would have a direct interest in this analysis as well as general promotion and advertising to attract the interested public. An objective of the session is to identify people and organizations who might be prepared to work together in the future to agree on indicators; other data that should be collected; and data that should be collected in the future to measure genuine progress.
- Held major community wide meetings in the winter of 2003-2004 and Spring of 2004 for presentation of two in-depth reports: Employment/unemployment and Health; and an extensive report on Agriculture and Land Use in the county. Included in the day's activities were the first annual general meeting of the Kings GPI Society, electing a board of directors, and setting up work groups to decide on elements of further analysis, indicators to be used and requirements for data in the future.

- Meetings were also organized with the region's three Community Health Boards and the Regional Health Foundation to initiate a program of analysis of the database to understand the county's prevalent health issues, including health determinants, health status, health outcomes, health service utilization, and related factors in Kings County. These groups are now considering allocating some funds to support the continued process of data analysis in the county to allow Acadia University researchers to employ research assistants in this process.

The Society and the Acadia University Research Group have an effective working relationship, with clear lines of responsibility and accountability. The core function of the society is facilitator for community organization and community access to technical services, advice and support as the program moves to its next phases. The immediate responsibility in recent months, with Acadia University and with technical support from GPI Atlantic, has been to ensure satisfactory performance and completion of the deliverables specified under the CPHI/GPI Atlantic agreement.

GPI-Kings Participant List, Meeting, June 5, 2003

Note: At this meeting the Kings County preliminary Tobacco Use, Peace and Security, and Unpaid Caregiving results were presented to Kings County community members and leaders by Dr. Glyn Bissix and Dr. Tony Thomson of Acadia University. The 5-hour workshop (including lunch) was attended by:

Glenn McMullen
HRDC
Wolfville, NS

Suzie Blatt
Ec-Systems Inc.
Wolfville, NS

Judy Forsythe
Wolfville, NS

Melanie Welsh
Public Health
Wolfville, NS

Souil Purobollo
Acadia University
Division of Continuing
and Distance Education
Wolfville, NS

Ron Colman, Ph.D
GPI Atlantic
Glen Haven, NS

George Kephart, Ph.D
Director, PHRU-
Dalhousie University
Boutlier's Point, NS

Cethlyn Mackay
Kings County Learning
Association
c/o The Enterprise Centre
of Kings
Kentville, NS

David Bailey
Agriculture & Agri-Food
Canada
Kentville, NS

Leanne Campbell
AVDHA
Kentville, NS
B4N 5E3

Rene Murphy
Acadia University
Wolfville, NS

Willy Kalt
Agriculture Canada
Kentville, NS

Sheila MacDonald
AVDHA
Halifax, NS

David Baker
Lunenburg, NS

Rick French
Wolfville, NS

Mary MacLeod
Vaughn memorial Library,
Acadia University
Wolfville, NS

Marg Blakeney
EKM CHC
Kentville, NS

Gary Ness
SRMK- Acadia University
Wolfville, NS

Bill Turpin
GPI-Atlantic
Halifax, NS

Robert Pitter, Ph.D
Acadia U.
Wolfville, NS

Earle Illsley
Access NS
Kentville, NS

Leon De Vreede
The Wolfville Cte. for
Applied Sustainability
Lesley Frank
Ann. Vall/ Hants CAP for
Children
Kentville, NS

Debbie Reimer
AVH CAPC
Kentville, NS

John Janmaat, Ph.D
Acadia U., Dept. of
Economics

Malcolm Ross
AVDHA EKM
Wolfville, NS

Amie Haughn
Acadia Ctr. for Small
Business &
Entrepreneurship
Acadia U.

Heather Reid
ACSBE
Wolfville, NS

Bill Swetnam
Federation of Agriculture
Centreville, NS

Sherri MacLeod
ASU 7100
Acadia U.
Wolfville, NS

Nancy McBay
AVH EKM CHC
Earnscliffe, NS

Roger Cann
Peacemakers / CKCHB
New Minas, NS

Peggy & David Hope-
Simpson
EKM CHC Council
Wolfville, NS

David Mangle
Peacemakers / Kings
South Wolfville, NS

Leisel Carlsson
Wolfville, NS

Someon Roberts
Coldbrook, NS

Mark Parent
MLA Kings North

Richard Hennigar
Kings CED Agency / EK
CHB / Sheffield Mills
Community Assoc.

Sherry Seller
Career Resource Centre
Kentville, NS

Deborah Kiceniuk, Ph.D
PHRU Dalhousie U.
Halifax, NS

Wendy Johnston &
Frederic Morgan
Homegrown Wisdom
Peck Meadow Rd. RR 1
Wolfville, NS

Tony Thomson, Ph.D
Acadia U.
Dept. of Sociology
Wolfville, NS

Leonard Poetschke
Nova Scotia Citizens for
Community
Development Society
Halifax, NS

Chris Cann
Canning, NS

Appendix 10: Formation of Glace Bay GPI Society

The Glace Bay Genuine Progress Index Research Society

(Glace Bay GPI Society)

Objectives

- * To provide Glace Bay with community level data on a wide variety of indicators on progress and well being.
- * To collect, analyze, and disseminate results of the GPI Glace Bay survey.
- * To build partnerships between community, university, and potential funding partners.
- * To be an advocate for information systems that would support local level planning and development.
- * To be an advocate for regular follow up surveys to measure progress on identified priorities within the indicators.

Executive Peter MacIntyre, Ph.D, President
 Stacey Lewis, Executive Director, Cape Breton Wellness Centre,
 Vice President
 Mel Clarke, President, Eastern Kings Community Health Board,
 Treasurer
 Ken MacDonald, Secretary
 Patricia McKinnon, Executive Member
 Debbie Prince, Executive Member

Appendix 11: Community Engagement in the Glace Bay Health Indicators Research Program



June, 2003 – June, 2004

PREPARED BY
STACEY LEWIS, DIRECTOR, CAPE BRETON WELLNESS CENTRE

Introduction

Over the past eighteen months community interest and ownership of the Glace Bay GPI program has grown significantly due, in part, to a number of factors including: 1) the participatory process of analysis, interpretation, and dissemination employed by the research team, 2) the development of data access guidelines that promote accessibility and community ownership, and 3) the formation of the Glace Bay GPI Society. This short report will describe the participatory process of dissemination, analysis and interpretation used in Glace Bay and some of the outcomes of that process. It will also describe the formation of the Glace Bay GPI Society and its objectives.

A Participatory Approach to Analysis, Interpretation and Dissemination

A key goal of the Glace Bay GPI program is to provide research results that are appropriate and that can be practically applied in policy and program decision-making. To this end, members of the research team have been experimenting with a participatory process of analysis, interpretation and dissemination. This has been particularly important in Glace Bay where residents and community stakeholders had not previously been extensively engaged in a process of exploring core values and establishing priorities for indicators. This process was required to establish a sense of community ownership and anticipation around results.

The research team has hosted a series of workshops that bring together researchers, policy makers and practitioners to: 1) collectively review and interpret preliminary results, 2) identify further questions for analysis, 3) map existing programs, policies and services and 4) carry out a gap analysis based on survey results and the map of available resources. The research team has hosted a number of workshops: two on tobacco results, one on caregiving, and one on peace and security (summaries of three of these workshops are attached). The workshops integrate basic principles of adult education. The individual and collective experiences that people bring to the

process are valued and play a key role in helping to make sense of the results and their potential application.

Each of the workshops in Glace Bay was organized and facilitated by the Cape Breton Wellness Centre. The format of the workshops varied, but always involved a variety of small group and plenary activities. Each workshop started with introductions, a warm-up activity, a brief background to the workshop, a review of the workshop purpose and agenda, and a quick overview of the Glace Bay GPI. This was followed by a presentation of preliminary results delivered by a member of the research team. Workshop participants were then asked to reflect on how the results measured up to their own experiences as either service providers or policy decision-makers. Participants were invited to question the results, and talk about any surprises, doubts, or concerns raised by the data. They were asked to help explain puzzling trends and patterns emerging from the data.

These discussions generated more questions and directions for further analysis and raised important questions to be considered for inclusion in future community GPI surveys. They also provided valuable information about the community context that has helped to explain some of the results. For example, participants in the peace and security workshop, particularly those who worked in the area of family violence, were very skeptical of the low rates of family violence and sexual assault reported by the research team. According to personnel from Cape Breton Transition House (the local shelter for battered women), Glace Bay has one of the highest rates of family violence in industrial Cape Breton. Family violence workers noted that residents of Glace Bay tend to want to take care of problems on their own and are less likely to go to the police. Victims of family violence are less likely to take referrals. All of this contributes to a “culture of under-reporting” which may partly explain the low family violence and sexual assault results.

An important part of the workshops was a mapping exercise that involved participants in a process of collectively “mapping out” the broad range of services, programs and policies (relevant to the workshop topic) in Glace Bay. This was particularly important for both the tobacco and caregiving workshops as cooperation and communication between invited agencies was somewhat lacking. For example, in the tobacco workshop, two agencies operating under the same organizational umbrella were relatively unaware of the tobacco-related services and programs offered by the other. The workshops were first-ever gatherings of such a broad cross-section of tobacco and caregiving stakeholders in Glace Bay. As for the peace and security workshop, a mapping exercise was not necessary; local community justice organizations, police, corrections, the courts, and social agencies tend to operate with better interagency cooperation and communication.

Workshops also engaged participants in a form of gap analysis. Participants were asked to reflect on the survey results, the map of existing resources, and their own experiences and to identify any gaps or outstanding needs. Some examples of the types of gaps identified are as follows: participants in the tobacco workshop identified the need for services and programs tailored to the needs and circumstances of unemployed people; participants in the caregiving workshop identified the need for improved respite services for caregivers and the serious need for improved interagency cooperation and communication; participants in the peace and security

workshop identified the need for enhanced crime prevention programs and programs that address the issue of vandalism.

At the end of each workshop, participants were asked to provide feedback via a meeting evaluation form. Participant feedback on the workshops has been very positive. Participants liked the broad cross-section of people and agencies represented at the workshops (a list of participants is included with each workshop summary). They found the presentations to be interesting and informative. They felt the discussions were engaging and appreciated a well facilitated process.

Feedback suggests that the workshops have helped to enhance participants' understanding of the issues; improve awareness of existing resources; enhance communication between agencies; and identify needs and gaps in programs, policies and services. The process has also yielded valuable contextual information that has helped the research team and community stakeholders make sense of the Glace Bay GPI results, and their potential application.

The workshops have played an important role in raising the profile of the Glace Bay GPI program. Most everyone who participated in a workshop had never heard of Glace Bay GPI prior to the session. Coming into the workshops, many were skeptical about the value of a mammoth undertaking like Glace Bay GPI. The workshops have helped people begin to see the relevance, value and power of community-level data.

Glace Bay GPI Society

In the spring of 2003, several members of the community and research team came together with the idea of forming the Glace Bay GPI Society. This Society held its first Annual General Meeting on October 29, 2003, at the Savoy Theatre in Glace Bay, as the first workshop in this Population Health Fund program. The objectives of the Society are as follows: to provide Glace Bay with community level data on a wide variety of indicators of progress and well-being; to collect, analyze and disseminate results of the Glace Bay GPI survey; to build partnerships between community, university and potential funding partners; and to be an advocate for information systems that support local level planning and development.

The issue of data ownership can be a source of tension in community university partnerships. Communities are concerned that researchers will "take the data and run". Often times it is difficult for communities to access data after it has been collected. Researchers, too, want to ensure that, after investing their time and energy into data collection, they will be able to use that data and generate publications. In this program, the development of data access guidelines and the establishment of the Glace Bay GPI Society paved the way for the community to take ownership of the data. Ownership of the Glace Bay data has now been officially transferred to the Glace Bay GPI Society. The Society now controls access to the Glace Bay GPI data and will work to ensure that the data is widely accessible while at the same time safeguard confidentiality.

The Glace Bay GPI Society is interested in expanding its membership, building interest in the program, and encouraging use of the survey results. The Society hosted its inaugural meeting on October 29, 2003. The meeting was open to the public; highlights of survey results were shared,

the objectives of the Society were discussed, and new Society members were recruited. This meeting is described in detail in Appendix 2 of this report. Over the coming months, the Society will host more workshops; and in recent months has hosted on workshops on employment and health results in December, 2003 and in March and May, 2004, and on the preliminary voluntary work and health results on May 20, 2004.

Conclusions

The workshops described above have helped to generate community interest and ownership of the Glace Bay GPI program. They helped people understand and learn from the results and identify implications for local policy and program development. The research team is interested in exploring how to maximize the effectiveness of this dissemination and analysis process and evaluating its usefulness as a strategy for enhancing uptake of research results. The newly formed GPI Society will provide another vehicle for disseminating results, building community support, and developing the kind of partnerships that will be required to ensure the on-going sustainability of the program.

Appendix 12: Inaugural Meeting of the Glace Bay GPI Society Wednesday, October 29, 2003

On October 29, over 27 people gathered at the Savoy Theatre for the inaugural meeting of the Glace Bay GPI Society. Dr. Peter MacIntyre welcomed everyone to the meeting and introduced Stacey Lewis who reviewed the meeting agenda and facilitated a quick round of introductions.

Overview of Glace Bay GPI

Stacey made a brief presentation on the Glace Bay GPI program, which was followed by a short discussion. Copies of the Glace Bay GPI survey, an overview of GPI survey, and the Glace Bay GPI brochure were distributed.

Highlights of Results

Peter MacIntyre and three of his research assistants each presented some highlights of survey findings to date. Peter explained that much of the survey data remains to be analyzed. He talked about some of the analyses that were at that time under way (employment-health, voluntary work and health, time use and health, etc...) and some of the people who are working on those analyses.

Peter's presentation highlighted some findings from the tobacco use, care giving, employment, peace and security, and core community values sections of the survey. The research assistants presented more in-depth results from the tobacco, peace and security, and volunteerism sections of the survey. Each presenter distributed a one-page hand-out containing highlights of their presentations.

Discussion/Questions

The presentations were followed by an open discussion of results. Some of the points/questions raised in the discussion are as follows:

- Concern was expressed to reduce high rates of smoking in Glace Bay and youth smoking in particular.
- There was emphasis on supports needed for unpaid caregivers, and on the financial difficulties that these caregivers often experience when they leave their jobs to care for a sick spouse or relative.
- Enormous interest was expressed in the upcoming jobs results, which were not yet available at the time of this meeting.
- People were also very interested in some of the preliminary results on volunteerism presented to this meeting (and appended to this report). On average, a Glace Bay volunteer will contribute 208 hours of time per year. This is much higher than the provincial average. Volunteers are more likely to report that their health is excellent than people who do not volunteer.
- Participants noted that some local recreation programs are having difficulty finding volunteers (ex: the local tennis program).
- Questions were asked on who is more likely to volunteer – employed or unemployed?

- Seniors who volunteer experience health benefits.
- Insurance for volunteers was noted as a huge barrier.
- Youth say they have nothing to do. Volunteers are needed everywhere in Glace Bay. How can we encourage more of our young people to volunteer?
- There are costs associated with volunteering (for both the volunteer and the organization). Some organizations have to run child abuse registry checks and police checks for each of their volunteers; these are costly.
- More and more organizations are looking to volunteers to fill the gaps they're not able to provide through staffing. More and more organizations are looking to volunteers to do very stressful work, and there are liabilities associated with this.
- There were also questions about the peace and security results. A local seniors advocate was interested in results on elder abuse. A representative of the local police force indicated that elder abuse is not something that they deal with regularly.
- Are crimes in Glace Bay linked to drug and alcohol addiction? A representative of the local police force indicated that, yes, many crimes are linked to addictions. Peter MacIntyre noted that residents of Glace Bay are more addicted to cigarettes than our counterparts in the rest of the country.
- Participants expressed that they wanted to see some analysis of the data related to other addictions (alcohol and drugs) and expressed interest in a community workshop on these results. The local drug awareness committee can't get volunteers; they're lucky if they get 5 volunteers at a meeting. People saw this as a huge gap, and hoped that awareness of the facts and information, as contained in the Glace Bay community health indicators survey would stimulate more action and participation in addiction services and counselling.

Overview of Glace Bay GPI Society (Peter)

Peter talked about the Glace Bay GPI Society, its purpose, and objectives. Peter emphasized that membership is open and encouraged meeting participants to join the Society. A membership sign-up form was circulated. Eighteen people signed up as new members of the Society.

Wrap-Up

Stacey wrapped-up the meeting and invited people to stay for an informal reception that followed

Invitations/Publicity:

Prior to the meeting, the Cape Breton Wellness Centre sent out letters of invitation to 60 people (mostly people who had participated in previous Glace Bay GPI workshops and meetings). Prior to the meeting, there was also some media coverage of the event. Debbie and Tricia distributed flyers around Glace Bay e-mailed an invitation to all former Glace Bay GPI employees. A "glow sign" advertising the meeting was also arranged by Debbie and Tricia, the directors of the Glace Bay GPI office and of the data collection and data entry functions. Glace Bay GPI Society members also extended verbal invitations to friends, neighbours, co-workers, acquaintances, etc.

Appendix 13: Glace Bay GPI Website



GPI Glace Bay Website Summary

http://discovery.uccb.ns.ca/glacebay_gpi/

September, 2003

Prepared by: Peter MacIntyre and Alissa Brennan
University College of Cape Breton

To bring the results of the GPI Glace Bay survey to the community, we decided to create a web site showing basic frequency counts and an age by sex breakdown for all the variables in the survey for which this was possible. Doing so using the web has several advantages:

- Cost effective,
- Reasonably permanent,
- Easily updated as new analyses become available,
- We can require future users of the data to post results on this site for the community's use,
- No individual level data needs be released for routine requests, helping to maintain confidentiality for the respondents.
- No person hours required to fill requests for routing statistical information,
- Easy access,
- The link is easily distributed, instantly, worldwide
- We can count number of users to measure the impact of the site

The Glace Bay site began running on June 26, 2003. A comparable site is currently being designed and created for the Kings County data. Having ironed out some of the difficulties, the creation of that site should benefit from the experience in Glace Bay.

The following pages provide a synopsis of the site contents, along with hyperlinks to the site itself. These links will be active within MS Word – if the link is blue, a user need only click it to be taken to the web site. The site is best viewed with Internet Explorer and can be visited at http://discovery.uccb.ns.ca/glacebay_gpi/.

GPI Atlantic

This is an outside link to GPI Atlantic. On the main page you will find a comprehensive description on what GPI Atlantic is about, including why there is a need for a new measure of progress. GPI Atlantic is a values-based measure of progress, versus the “more is better” approach of the GDP. The components of GPI Atlantic are listed under the following subheadings:

Time Use
Natural Capital
Environmental Quality
Socioeconomic
Social Capital

At the end of this page you will also find a Statement of Principles.
For more information, click on the following hyperlink:

<http://www.gpiatlantic.org/>

The Glace Bay Genuine Progress Index Research Society

This page outlines the objectives of the GPI program. Some key objectives include:

- To provide Glace Bay with community level data on a wide variety of indicators on progress and well-being.
- To collect, analyze, and disseminate results of the GPI Glace Bay survey
- To be an advocate for regular follow up surveys to measure progress on identified priorities within the indicators.

You can also find here a list of the executive members of this committee. For more detail, see:

http://discovery.uccb.ns.ca/glacebay_gpi/society.htm

Program History

The Program History page offers some background information on how this program began, including the institutions that initiated the program, types of questions that were asked on the survey, and details on the collaboration between the communities of Glace Bay and Kings County.

This page can be located at:

http://discovery.uccb.ns.ca/glacebay_gpi/history.htm

Details of the GPI Survey and Sample

As suggested by the heading, this page provides details of the GPI survey and sample. It provides the percentages of respondents that were in each age group, education level, and employment group.

This page can be located at:

http://discovery.uccb.ns.ca/glacebay_gpi/detailsurvey.htm

Presentations to the Community

One of the primary objectives of the GPI program is to collect data for the purpose of educating members of the community. Periodically, presentations of the research conducted to date are given. This page contains these presentations in Microsoft PowerPoint format. The topics listed include:

- Core Values
- Employment and Health
- Volunteerism and Health
- Chronic Conditions and Tobacco Use

- An Overview of the GPI Program
- Care Giving and Health
- Crime Victimization
- Peace and Security

These presentations are available at:

http://discovery.uccb.ns.ca/glacabay_gpi/presentcomm.htm

Data Access

Measures have been taken to ensure the privacy and protection of the respondents of the GPI survey. This page contains guidelines on how to access the data, use the data, and includes applications for data access.

This document can be located at:

http://discovery.uccb.ns.ca/glacabay_gpi/dataaccess.htm

Search this Site

A GPI Glace Bay search engine can be found at:

http://discovery.uccb.ns.ca/glacabay_gpi/dgssearch/

Contact Us

Comments, questions, or other feedback are encouraged. This page provides contact information for Peter MacIntyre, Principal Researcher GPI, and Mikelle Bryson, Assistant Researcher GPI.

To access this page, click on the following:

http://discovery.uccb.ns.ca/glacabay_gpi/contactpage.htm

How to Use this Site

This page offers a users guide to the GPI Glace Bay website. It provides a description of the different file formats used within the site, as well as the applications required to access them. It also provides an explanation as to how to read the results, in particular the weighted data, and provides examples.

The URL for this page is:

http://discovery.uccb.ns.ca/glacabay_gpi/howtousesite.htm

Respondent Generated Hypotheses

Several hypotheses were generated by the survey respondents. A few highlights include:

- Unemployment means youth have to leave and families are separated.
- Unemployment allows people to have too much free time and this equals crime.
- Those who are unemployed develop poor work ethic and therefore find it difficult to get back into good work ethic.

More of these hypotheses can be viewed at:

http://discovery.uccb.ns.ca/glacabay_gpi/resphypo.htm

Peace and Security Results

The Peace and Security page is divided into three sections:

- Business Loss due to Crime
- Crime Victimization
- Attitudes Toward Peace and Security Issues

By clicking on the above-mentioned links, you will be directed to the data for each survey. The Peace and Security page is located at:

http://discovery.uccb.ns.ca/glacabay_gpi/PSindex.htm

Tobacco Use

This page provides a link to the results of a tobacco use survey. The results contain data pertaining to such issues as:

- The number of people who smoke
- The number of people exposed to second-hand smoke
- The rate of nicotine dependence
- The differences in age and sex of smokers

To access this data, click on:

http://discovery.uccb.ns.ca/glacabay_gpi/tobaccopagemain.htm

Glace Bay Speaks Out

The following is a link to a pamphlet entitled "Glace Bay Speaks Out":

http://discovery.uccb.ns.ca/glacabay_gpi/pamphlet1.pdf

This pamphlet details the feedback received by the respondents of the GPI Glace Bay survey. Some highlights of the pamphlet include:

- Youth
- Healthcare

- Appearance
- Employment
- Water

Chronic Disease

This page provides link to the data collected in relation to the connection between chronic disease, health, and smoking.

http://discovery.uccb.ns.ca/glacabay_gpi/chronicdiseasemain.htm

Employment

The following are available as links on the employment page:

- Employment results, sex by age
- Unemployment results, sex by age
- Job characteristics results, sex by age
- Employed in fishing, sex by age
- Left fishing industry, sex by age
- Paid work at home, sex by age
- Income and schedule, sex by age
- Underemployment/Work re-education, sex by age

These links will lead you to the corresponding GPI results, and can be found at:

http://discovery.uccb.ns.ca/glacabay_gpi/employfishpagemain.htm

Core Values

This page contains links to the results for the Glace Bay GPI survey on values. It contains such data as:

- The values held by Glace Bay residents, and the importance of each
- A comparison between the ratings given by male and female residents
- Sex differences in material wealth and family life, as displayed in graph format

For more detail, see:

http://discovery.uccb.ns.ca/glacabay_gpi/familymatgraph.htm

Time Use

This page contains results from the analysis of Time Use survey data. Time is divided into:

- Contracted Time
-employment, education
- Committed Time
-family commitments ie)meal preparation, household chores, etc.
- Necessary Time
-eating, sleeping, etc.
- Free Time
-any time that does not fall into one of the above categories

Results are given for both Glace Bay and Kings County surveys. To see the results, click on:

http://discovery.uccb.ns.ca/glacebay_gpi/timeuse.doc

Volunteerism

The following are available as links on the Volunteerism page:

- Volunteer Areas
- Types of Volunteers
- Why Volunteer
- Skills Gained
- Volunteerism and Health
- Volunteerism and Education
- Volunteerism and Income
- Volunteerism, Sex by Age

By clicking on these links, you will be directed to the corresponding GPI Glace Bay data.

The links can be located at:

http://discovery.uccb.ns.ca/glacebay_gpi/volunteermainpage.htm

In conclusion

As future analyses become available, they will be added to the site. We see this as a key way of delivering the results to both the Glace Bay and scholarly community.

Appendix 14: Minutes of Two Workshops on Income, Employment and Health Results

Glace Bay, March 31, 2004 and December 4, 2003

Meeting Notes, compiled by Stacey Lewis, Executive Director, Cape Breton Wellness Centre. Please note that a similar workshop was held in Kings County, but we do not have detailed minutes of the Kings County workshops as we do for those in Glace Bay.

March 31, 2004 Minutes

At this meeting results of the research paper by Mike Pennock, Research Director, Population Health Research Unit, Dalhousie University, on employment and health results, were presented. That paper is attached to this report as Appendix 1.

Participants

Charlie Campbell, HRSD
Anita DeLazzer, Cape Breton Growth Fund
Catherine Ann Fuller, NS Office of Economic Development
Ann MacPhee, Ann Terry Women's Employment Outreach Project
Fred Brooks, Recreation Department, CBRM
John Whalley, Economic Development Officer, CBRM
Angela Steele Hall, YMCA Enterprise Centre
Marilyn Rueland, YMCA Enterprise Centre
Ginger Hogan, St. F.X. Extension Department
Sandra Power, HRSD
Rosemary Lewis, NS Dept. of Community Services
Sean Rogers, Dalhousie University
Peter MacIntyre, UCCB
Stacey Lewis, Cape Breton Wellness Centre, UCCB

Welcome and Introductions

Stacey Lewis, Director of the Cape Breton Wellness Centre, welcomed everyone to the workshop and reviewed the agenda. The purpose of the meeting was threefold: 1) to share and discuss preliminary employment results and new findings on income, employment and health from the Glace Bay GPI survey; 2) to discuss the implications of the results for local organizations and the community of Glace Bay; and 3) to provide the researchers with advice on where to focus further analysis of employment data.

Following a round of introductions, Stacey presented a brief overview of the Glace Bay GPI project. Workshops are one component of a broader strategy for getting the survey results to organizations that may be able to use them. This was the sixth workshop hosted by the Glace Bay GPI Society; other workshops included: two on tobacco results; one on unpaid caregiving; one on peace and security; and one on income,

employment and health. The Glace Bay GPI Society is also working to get survey results to the citizens of Glace Bay through its website, open public meetings, and a soon-to-be-published communiqué which will be distributed to all households in Glace Bay.

Presentation of Preliminary Results on Employment

Sean Rogers, professor of economics at Dalhousie University, presented some preliminary employment results from the Glace Bay GPI survey. His presentation provided a detailed overview of unemployment focusing on incidence and duration across different groups as well as alternative measures of the unemployment rate. Copies of Sean's power point slides were distributed at the workshop.

Presentation of New Findings on Income, Employment and Health

Peter MacIntyre, professor of psychology at UCCB, briefly presented some new findings on income, employment and health from a report prepared by Mike Pennock, former research associate with GPI Atlantic. The presentation focused on the relationship between employment, unemployment and selected health indicators such as activity limitations, disability, high blood pressure and diabetes in both Glace Bay and Kings county. The presentation also looked job related and life-stresses in both Kings County and Glace Bay. Copies of Mike Pennock's report can be obtained by e-mailing Peter at peter_macintyre@uccb.ca.

Discussion of Results

Following the presentations, the group discussed implications of the data for the community and possible follow-up actions. Below is a summary of some of the main points raised during the discussion:

- Administrative data from the province provides another key piece of information. It was noted that 70% (\$400, 000,000) of the province's total allocation to CBRM is spent on health and social services. By comparison, only \$8,000,000 is spent on economic development. We need a comprehensive, coordinated and appropriate response from government that addresses structure, funding, and policy.
- Local government offices have no power to change government policies.
- Community economic development is no longer a function of HRDC or Community Services. HRDC doesn't have the community development tools, mandate or flexibility that it did in the past. For example, three years ago HRDC had a community capacity building program; 10 years ago there was Community Futures. These no longer exist.
- HRDC needs some sort of community development arm to work more effectively with the community and build local capacity, but there's no vehicle for re-allocating funds for community development activities.
- Would people trade-off medical care for recreation programs and community development initiatives?

- Many good pilot projects have come and gone. They're always tied to project funding. St. F.X. Extension has developed a highly successful Women's Self-Employment program. It was developed with funding from religious congregations. The challenge, now, is to find money to keep the program running. There are fewer government avenues/mechanisms to sustain these good things.
- The Cape Breton Literacy Network is in a similar situation. Project funding has ended and they are now faced with drastic cuts. Does this make sense given Cape Breton's existing circumstances?
- Collectively, the money is there. We just need to loosen up a bit and fund flexibly. We need to free up money in a way that will enable programs to run.
- We need better cooperation so that we can address the many barriers to employment (age, education, health, etc.).
- We need to recognize that there's so much more to getting a job than just job skills training. A person's home life, health, interaction with family and neighbours all affect a person's employability.
- The Cape Breton Response Strategy had the good sense to fund re-entry programs. These programs have changed peoples' lives. They've had a huge impact on the participants and also the participants' children and families. The nature of the programs changed drastically during the past five years. The programs began to focus less on personal development and more on work experience. Classroom time was cut from 12 week to 2 weeks. The work experience is not as important as the life skills training and personal development.
- If government is getting out of the business of community, who will pick it up? In many cases, the community development work falls off the table because of cross-jurisdictional issues. For example, the feds got out of the business of GED because the province insisted that education was a provincial jurisdiction.
- There seem to be more and more people talking about healthy, safe, and equitable communities (for example, the Family Violence Coordinating Committee). How can we pool our thinking? We need some way of connecting groups.
- We need to forget the funding problem for now and just start by talking with each other about the issues.
- Several years ago, HRDC sponsored a project called "Youth Destination 2005". It used the method of open space technology to pull together a broad cross section of people to identify issues and decide on priorities. The process led to some interesting actions. Perhaps, a similar process could be used here. There is value in keeping the focus broad.
- Comprehensive initiatives are complicated. We need to focus. Who is the client? What are the problems most in need of solving? What is the topic? The Caledon Institute's "Vibrant Communities" initiative might be a model to consider. Instead of collaborating on everything, maybe we need to focus on a few key issues.

Next Steps:

The group agreed to meet again on May 5, 1:30 in the HRC Boardroom.

Employment, Income and Health Workshop

Thursday, December 4, 2003, Minutes

Introductions

Stacey Lewis, Director of the Cape Breton Wellness Centre and Vice-Chairperson of the Glace Bay GPI Society, welcomed everyone to the meeting and thanked everyone for braving Cape Breton's first winter storm to participate in the workshop (a list of participants is attached). Stacey reviewed the workshop agenda. The objectives of the meeting were to 1) review and discuss preliminary results on income, employment and health outcomes, 2) provide contextual information that will help explain some of the results, 3) identify questions/directions for further analysis of the results, and 4) to discuss the implications of the preliminary results and possible follow-up action.

Meeting participants introduced themselves and shared with the group why they were interested in the Glace Bay GPI project.

Presentation of Preliminary Results

Peter MacIntyre, professor at UCCB and Chair of the Glace Bay GPI Society, delivered a presentation that had been prepared by Glynn Bissix, professor at Acadia University, and Liesel Carlsson, research assistant at Acadia University. Liesel had been scheduled to present; however, inclement weather prevented her from traveling to Glace Bay. Peter kindly agreed to make the presentation on Liesel's behalf.

Peter presented preliminary results from the Glace Bay GPI survey on the relationship between income, employment patterns and a variety of health indicators including the following:

- perceived health status
- health care utilization,
- BMI,
- tobacco use,
- physical activity, disability, and activity limitations
- chronic stress related conditions
- and prescription drug use

The presentation also looked at perceived prospects of finding a job among unemployed people wanting a job. It also looked at health indicators for split-shift workers, most of whom are employed in health occupations. Overall, the Glace Bay GPI data shows a clear link between employment and positive health outcomes in Glace Bay. The data also show that people with higher household incomes have overall better health outcomes than those with lower household incomes.

The group discussed each of the slides as they were presented and provided valuable information to help contextualize/explain some of the results. A number of questions were also raised as well as suggestions for further analysis. The research team will attempt to integrate the information, questions, and suggestions into a report on income, employment and health outcomes (which is

currently in progress). Some of the questions/comments raised during the presentation are as follows:

- Income levels are lower in Glace Bay than in Kings County, which has also conducted a Community GPI survey. It was suggested that, in the latest census, income levels in Glace Bay would probably be even lower given the loss of good-paying jobs in the mining and steel industries. The jobs that have replaced them are much lower paid.
- Age adjusted data would be very important for program and policy planning purposes.
- Is there a correlation between education and health outcomes? The relationship is not as strong as the relationship between income and health outcomes. For example, many of those working in heavy industrial jobs do not have high levels of education, but are relatively well paid.
- Can we look at the relationship between age, education, income and health outcomes? The sample size is too small to break the data down into three areas.
- There is a very strong relationship between employment and positive health outcomes. The data imply that economic development can take pressure off the health system.
- When the data were collected, almost as many women as men were employed (35% of women were employed as compared to 39% of men). The GPI data was collected after DEVCO closed. If it had been collected before DEVCO closed, the data would be showing more men in the workforce.
- Smoking rates among health workers is very high. (16% of Glace Bay workers are employed in health occupations as compared to 5% nationally. One third of those employed in health occupations are smokers.)
- Split shift workers experience relatively poor health outcomes. Over 36% of split shift workers are employed in health occupations. It was noted that the Cape Breton District Health Authority does not allow split shifts; split shift health workers are most likely employed in non-unionized settings.
- Smoking rates. It would be good to know if smoking rates have gone down since the municipal ban on smoking in public places was put into effect. When the Glace Bay GPI data were collected, there were relatively few smoking cessation programs available to smokers. The situation has improved dramatically; smoking cessation programs are much more accessible, now.

Discussion of Findings

Following the presentation, meeting participants discussed a number of questions. Questions and comments raised during the discussion are recorded below.

What additional information on income, employment, and health would you find useful? Are there other questions that you would like the researchers to respond to?

- It would be interesting to look at the economic impact of the municipal by-law that bans smoking in public places. Hospitality business owners are reporting that food sales are up, but liquor sales and VLT revenues (their main sources of revenue) are down since the by-law went into effect. This may have as much to do with economic conditions as it does with the smoking by-law. Preliminary results from a study carried out in New Waterford show that, over the past

three years, over 40% of respondents have made cutbacks in spending on entertainment and eating out.

- It would be very useful to look at income, employment and children's health outcomes in Glace Bay. Healthy early childhood development is an area that is receiving a lot of policy and program attention.
- It would be useful to have a profile of unemployed youth in Glace Bay (HRDC defines youth as 30 years of age and under). This kind of information would help local agencies plan appropriate interventions.
- Comparative data for Kings would be very interesting.
- Data on impediments to changing health behaviours would be helpful (for example: internal barriers such as knowledge and attitudes as well as external barriers such as availability of recreational facilities, sidewalks for walking, etc.). There is a study on active transportation practices in industrial Cape Breton that is available through the Cape Breton Wellness Centre; it explores some of the internal and external barriers to active transportation.
- In Glace Bay there are many single mothers and their children living in poverty. What can be done to help their situation? Make schools a more supportive place for teen parents so that more young parents can finish their high school education. Glace Bay High has worked with other organizations to offer teen parenting programs in the school; these kinds of initiatives help. We need more of them. The teen pregnancy rate is much lower than it used to be. The teen health centers might be contributing to the reduction in teen pregnancies.
- Caregiving – only 8% of children are in regulated daycare.
- There should be more childcare options available to parents. Lack of affordable, quality childcare can be an employment barrier for parents.
- What kinds of supports are in place/are needed by those who are looking after children in their homes?
- Developmental delays are more likely to be picked up in a regulated daycare than in other childcare settings because there are trained personnel who are more apt to recognize a developmental delay.
- It would be interesting to look at the health behaviours and health outcomes of those who have outmigrated as compared to those who have remained in Glace Bay.
- There are many assets in Glace Bay; for example: HRDC's Adult Day School program, Town Day Care which is recognized nationally and internationally, Glace Bay's Early Intervention Program which was one of the first in the province.
- Cooperation and communication between agencies is key! We often don't know what is out there.
- School Board senior managers need to hear the data and should be invited to GPI meetings. Why aren't schools open to kids after hours?

How might you and/or your organization use the information presented this morning?

- The CBDHA has started a workplace health initiative; for example, they recently carried out a staff survey. The data on the relatively poor health of health care workers provides the DHA with an opportunity to push their workplace health initiative forward. The data could be used to send the message that we should make this a priority.

- Glace Bay is under-represented in people employed in sport and recreation and over represented in people who are inactive. We could use that data to make the case to the municipality for a few more recreation officers. This is particularly important given sharp increases in obesity, Type II diabetes, and osteoporosis.
- Given the decline in the economy, the CBRM is struggling to provide basic services. Recreation programs are usually the first to be cut (at a time when they are most necessary). However, is it realistic to expect the CBRM to hire more recreation officers when populations and tax bases are shrinking?
- Results should be shared with the PACY Active Communities working group.

What kind of follow-up do you think needs to happen? Who do you think should take the lead? Is there anyone else who needs to hear this information in order to ensure that follow-up action is taken?

- We need more cooperation and communication between agencies and sectors. Each sector can't do it all by themselves.
- Need to get the data out to the community at large.
- There is a significant role for the DHA. Need to educate people about healthy behaviours and encourage youth to be physically active.
- We need to bring all partners to the same table. For example, HRDC and CBDHA are rarely at the same tables. We have to remember who all the partners might be. The employment and economic development sector work fairly closely together; however, these sectors rarely work with representatives of the health sector.
- Network for Children and Youth is an interesting model that could be used. However, economic development sector is not at that table. Need better communication and planning between sectors, but also some collaborative action.
- Should present results to elected representatives. Do this first and then get results to community at large.

Closing

Stacey reminded the group that the Glace Bay GPI website address and contact information for both her and Peter was included in the workshop folders. She encouraged people to visit the website; new results are continually being posted on the website as they become available. She also encouraged people to call either her or Peter if they had any further questions, ideas or suggestions for analysis. A final report on income, employment and health outcomes is in progress; the report will attempt to integrate the questions, information and suggestions raised in today's meeting. A copy of the report will be made available to all meeting participants as soon as it is available. Stacey thanked everyone for their participation.

Appendix 15: Invitees and Participants in Glace Bay Workshops on Employment and Health

The results presented to this workshop are described in the attached paper by Mike Pennock. The following were invited to the Glace Bay workshops on employment and health results. Not all were able to attend, but both workshops were well attended. The following invitation list is presented here just to give a sense of the types of community leaders and policy actors who generally attend the workshops at which results of the community health survey are presented. The employment-health workshop is described in the previous appendix:

Mr. Donald Ferguson Savoy Theatre	Ms. Sandra Power Glace Bay Human Resource Centre	Mr. John Whalley Cape Breton Regional Municipality
Mr. Dave Shaw Cape Breton District Labour Council	Prof. John deRoche University College of Cape Breton	Ms. Anne MacPhee Ann Terry Project
Ms. Eileen Oldford Cape Breton Economic Development Authority	Mr. Scott MacKenzie Human Resources Development Canada	Mr. Patrick Dwyer Cape Breton Response Strategy - HRDC
Mr. Ross Kennedy NS Office of Economic Development	Ms. Rosemary Lewis NS Dept. of Community Services	Mr. Sean Butler Children's Aid Society
Ms. Ginger Hogan St. F.X. Extension Dept.	Ms. Louise Smith MacDonald Every Woman's Centre	Mr. John Malcom Cape Breton District Health Authority
Ms. Mary-Lou O'Neill Cape Breton District Health Authority	Ms. Eileen Woodford Public Health Services	Mr. Frank Capstick NS Dept. of Community Services, Eastern Region
Ms. Bea Buckland NS Dept. of Community Services	Ms. Darlene Sponagle Enterprise Cape Breton Corporation	Mr. Rick Beaton Enterprise Cape Breton Corporation
Mr. Wayne Talbot Human Resources Development Canada	Mr. Charlie Campbell Glace Bay Human Resource Centre	Mr. Steve Deveaux DEVCO Career Opportunities Centre - Glace Bay

Mr. Jack Ettinger
Glace Bay High
School

Ms. Christa Rajani
Public Health
Services

Mr. Floyd Reddick
Stirling Outreach

Dr. Michael Gallivan

Mr. Peter Fritz
UCCB

Mr. Peter Goth
UCCB

Ms. Sharon Preeper
Glace Bay High
School

Mr. Owen Fitzgerald
YMCA Entrepreneur
Centre

Mr. Loyd Day
Older Workers

Dr. Gert MacIntyre
UCCB

Dr. Harvey Johnstone
UCCB

Mr. Mel Clarke
East Cape Breton
CHB

Ms. Marilyn Rueland
Employment
Resource Centre

Mr. George
MacDonald
70 MacLeod Rd.

Ms. Anne Michele
Chiasson
UCCB

Ms. Kathleen
MacKinlay
Town House Citizen
Services League

Appendix 16: Minutes of Workshops on Caregiving, Peace and Security, and Tobacco Reduction

Again, please note that similar workshops were held in Kings County, but detailed minutes like these were not kept. The detailed record-keeping in Glace Bay was the innovation of one of our CPHI research program collaborators, Stacey Lewis, Executive Director of the Cape Breton Wellness Centre.

Caregiving Workshop Summary, Glace Bay, April 9, 2003

Welcome and Introductions

On behalf of the research team, Stacey Lewis (Cape Breton Wellness Centre) welcomed everyone to the meeting (a list of participants is attached). Following a round of introductions, Stacey provided a brief background to the meeting and reviewed the purpose of the session which was as follows:

- 1) to share preliminary results from the caregiving section of the Glace Bay GPI survey
- 2) to discuss and to try to make sense of the results
- 3) to identify questions/issues to help guide further analysis of the Glace Bay GPI caregiving data

Overview of the Genuine Progress Index (GPI) and Glace Bay GPI

John Odenthal (GPI Atlantic) provided an overview of the Genuine Progress Index, GPI Atlantic, and the Glace Bay Community GPI project.

Preliminary Caregiving Results

Deborah Kiceniuk (Dalhousie University) presented preliminary caregiving results from the Glace Bay GPI survey. Deborah Kiceniuk and Ron Colman answered questions about the survey and the results following the presentations.

Mapping of Programs Services and Policies that Support Caregivers in Glace Bay

The group spent the next fifteen minutes very quickly mapping out some of the services, programs, and policies that are in place to support caregivers in Glace Bay. The exercise was not meant to generate a comprehensive or exhaustive list; rather, it was intended to provide a basic overview of some of the supports that are in place for caregivers. The following services and programs were identified:

- Victoria Haven has 4 respite beds. There is a charge for these beds; however, in the case of a medical emergency, some assistance is available from the Nova Scotia Department of Health.
- Seaview Manor has 2 respite beds.

- Victoria Haven has a day program for seniors on Thursdays. This program is not being fully accessed.
- Victoria Haven offers a “Meals on Wheels” program on Fridays.
- Townhouse offers a “Meals on Wheels” program on Mondays and Wednesdays.
- Seaview Manor offers a night respite service.
- Home Care offers respite and personal care, if the family is not able to do it.
- Employees of Canada Post who have children with special needs can access the CUPW Special Needs Project. The project, funded by Canada Post, provides qualified families with financial assistance to access appropriate services.
- VON offers the SMART fitness program; it is not specifically designed for caregivers, but they could access it.
- Nova Scotia Department of Community Services provides financial assistance to families with children who have special needs (moderate to severe). This would cover nursing and respite care.
- VON has offered Care for the Caregivers workshops, but these have not been well attended.
- VON provides some in-home RN/LPN respite care (6 hours maximum). This is for people who have a medical need. Nova Scotia Department of Health will pay if the client meets the Department’s criteria; otherwise, the service must be paid for privately.
- Seaview Manor offers a Caregivers Support Group on the last Thursday of every month; it has drawn mostly family members of Seaview Manor residents.
- VON offers the “Frozen Favourites” Meal Program (\$5.00/meal).
- All Kids offers direct home service (home visits) and a variety of drop-in programs.

Reflecting on the mapping activity, several people commented that they had not been aware of many of the programs and supports in place for caregivers. For them, this demonstrated the need for better communication between agencies.

Small Group Discussion

Participants were assigned to small groups and asked to discuss two questions and then report back in a plenary. Key points raised in the report back are listed below.

1. As you listened to this afternoon’s presentation on caregiving results, was there anything that stood out for you?
 - The number of caregivers.
 - There’s no comparison for the caregiver’s role i.e. caring for a person but having to leave to pick up grand kids for lunch.
 - Excellent return on survey.
 - Length of respite – 4 hours isn’t enough.
 - Not only is the actual caregiver stressed. Everyone in the family may be stressed.
 - The number of caregivers who do not go for regular pap tests.
 - The lack of information on alcoholism/drug abuse.
 - How was health defined for people?
 - Was there a correlation between OPD visits and lack of family physicians?

- Would like to see information on caregivers prior to them taking on the role of caregiver. Did they work, how has their economic status been affected?
- Surprised that caregivers were able to volunteer after their day.
- It was surprising the number of male caregivers – 33% was high.
- Review of the programs in the area. There's no compiled list. We tend to work in isolation.
- Had expected that caregivers general health and stress levels would be different from non-caregivers, but they're actually not so different.
- Didn't know that Townhouse houses the GPI office.

2. Based on your experience, and considering the GPI caregiving results and the preliminary mapping of programs, policies and services, what do you think needs to be done to support unpaid caregivers in Glace Bay?

- Provision of affordable respite.
- Increase public awareness about the number of caregivers.
- Something to support women and their unique role in the family.
- A volunteer home visiting program to help with respite.
- Increased financial assistance for caregivers.
- More respite – increase hours.
- Free medical offers to provide a getaway.
- Offer respite services outside the nursing home setting.
- Better communication between agencies; it's lacking.

Meeting Evaluation - Glace Bay GPI Caregiving Meeting: April 9, 2003

One thing I **LIKED** about the meeting was . . .

- Meeting other service providers.
- The diverse group.
- Good cross-section of community representatives.
- It was well facilitated.
- The diversity of groups represented.
- The respect for time passing – presentations were on time; well handled.
- The speakers.
- Small group – comfortable to participate.
- Chance to learn about services available.
- The different information shared regarding services available in Glace Bay.

One thing I would suggest **CHANGING**. . .

- I would like to have read the entire survey prior to the session.
- Would have liked to see the actual survey before the meeting.
- It would have been helpful to have a copy of the survey prior to, or at, the meeting.
- The location. Hard for presenters.

- Hearing was difficult in this venue.
- More publicity to tell people about the topic.
- Smaller room – room was cold.
- Format – difficult listening to stats.
- Place of meeting.

One thing I LEARNED . . .

- Respite services provided by Manor and Victoria Haven.
- The number of caregivers in the area is higher than I had thought.
- What is available in community.
- What GPI stands for!
- A greater number of supports than I anticipated.
- Many good people are concerned with caregivers.
- We as health caregivers need to communicate more.
- All information was interesting – made aware of services that were available.
- Other caregivers have difficulty getting together.
- Nursing home programs other than Victoria Haven.

One QUESTION I have is . . .

- How do we get support in place for families for respite, etc.?
- When can Sydney be done?
- How similar is Kings Co., demographically, to Glace Bay?
- Was a question asked on the survey that would indicate that some caregivers are providing care to persons of different ages – e.g. parents and grandchildren?
- Where do we go from here?
- How do we reach caregivers?

What further analysis of the data would you like to see (questions, comparisons, themes, issues)?

- How can we challenge others to get involved?
- Respite provision.
- Employment stats. – drug and alcohol use.
- Employment status and alcohol-drug abuse. I would like to know what the comparison between Kings County and Glace Bay is. Are there any similarities or are they like apples/oranges?
- Alcohol/substance abuse numbers.
- Pre/Post caregiving family income.
- All of those mentioned – as well as variety of suggestions for help for caregivers.
- All information quite valuable.

Other comments . . .

- It was very interesting. Thanks very much!

List of Meeting Participants: Glace Bay GPI Caregiving Meeting

Diane Desveaux, New Waterford Homemaker Services
Margie Wadden, Continuing Care
Gail Holdner, CUPW Special Needs Project
Myrtle Turnbull-Campbell, community advocate
Marie McPhee, Victoria Haven Nursing Home
Thelma Talbot, Victoria Haven Nursing Home
Carmie MacIntosh, community advocate
Elizabeth MacDonald, VON
Marie MacSween, VON
Lisa Brewster, Cape Breton Family Place Resource Centre
Valerie Donovan ALLKIDS Early Intervention
Margaret Ann Green ALLKIDS Early Intervention
Betty Nearing, East Cape Breton Community Health Board

GPI Team Members:

Stacey Lewis, Cape Breton Wellness Centre
Peter MacIntyre, University College of Cape Breton
Leonard Poetschke, Kings GPI
Ron Colman, GPI Atlantic
John Odenthal, GPI Atlantic
Deborah Kiceniuk, Dalhousie University

Glance Bay GPI Peace and Security Stakeholders Meeting

Workshop Summary

Welcome and Introductions

On behalf of the research team, Stacey Lewis (Cape Breton Wellness Centre) welcomed everyone to the meeting. Following a round of introductions (a list of attendees is attached), Stacey provided a brief background to the meeting and reviewed the purpose of the session which was as follows:

- 1) to share preliminary results from the peace and security section of the Glance Bay GPI survey
- 2) to discuss and try to make sense of the results
- 3) to identify questions/issues to help guide further analysis of the Glance Bay GPI peace and security data

Overview of the Genuine Progress Index (GPI) and Glance Bay GPI

Ron Colman (GPI Atlantic) provided an overview of the genuine progress index, GPI Atlantic, and the Glance Bay and Kings County Community GPI projects.

Preliminary Peace and Security Results

Peter MacIntyre (UCCB) presented preliminary results from the Glance Bay GPI survey, including some comparisons to provincial and national trends. He gave three presentations: 1) Peace and Security in Glance Bay, 2) Crime Victimization in Glance Bay, and 3) Business Losses Due to Crime in Glance Bay. Peter MacIntyre and Ron Colman answered questions about the survey and the results throughout the presentations.

Discussion of Results

Following the presentations, Stacey Lewis facilitated a group discussion on the results. The following questions guided the discussion; key points raised during the discussion are recorded below.

1. As you listened to this morning's presentation on peace and security results, was there anything that stood out for you? Were there any surprises? Did it raise any questions?

- Sexual assault numbers seem low
 - Not sure that people understand what sexual assault is; this could be affecting the number of reports.
- According to Transition House statistics, Glance Bay has one of the highest rates of family violence files in the area.

- Difference between survey results and actual cases might have something to do with how people approach the survey. Survey respondents might be answering according to the “way they want things to be” as opposed to the way things really are. There’s probably some element of denial.
- Much of the survey rang true.
- Perception of the norm vs. the exception - depends on where you are coming from
- Given the nature of childhood sexual assault, victims tend to compartmentalize and choose not to report. There needs to be a certain level of comfort/safety to be able to admit to being a victim of childhood sexual assault. It takes a lot of support and counseling to bring people to the point where they feel safe disclosing abuse. A victim would probably not disclose on a survey.
- Concerns about confidentiality and reporting would also affect the stats.
- It’s concerning if cases don’t show up in the stats. We need more prevention programs and services.
- There’s a mindset specific to Glace Bay among men. It becomes evident during men’s group sessions. Not sure if it has to do with the culture of a mining town. Many men have been abused, themselves (were victims of family violence as children).
- In Glace Bay, victims of family violence are less likely to take referrals.
- There would appear to be a culture of un-reporting for a variety of crimes. People take care of problems on their own and don’t always go to the police.
- Researchers might want to consider including the following question in any future survey: “What do you consider assault?”
- There’s always the issue of definition vs. perception (the difference between how a crime is actually defined and what people understand it to be); for example: robbery vs. theft

2. The results suggest that Glace Bay is different than the national and provincial profile; residents feel safer and crime rates would appear to be significantly lower than in the rest of Nova Scotia and Canada. What do you think explains this difference?

- The culture of under-reporting in Glace Bay.
- Strong social supports
- Social cohesion
- Strong volunteer sector
- Culture of pulling together in tough times
- There’s a real willingness among residents to help out and a desire to get involved
- The results of the survey will be useful at budget time, when we have to defend/preserve community programs and services and prevention initiatives (Cape Breton Regional Police Services). They’re usually the first thing to go.

Meeting Evaluation and Adjournment

Following the discussion of results, participants were asked to complete a meeting evaluation form (feedback is attached). Meeting adjourned.

Meeting Evaluation

One thing I LIKED about the meeting was . . .

- Although there were many presentations, the presenters took questions throughout.
- The optimism and the tool used – GPI – positive vs. negative perspective.
- Informal good information – lots of time for questions.
- Well organized – handouts/power point excellent!
- Very informal – great information
- Good discussions
- The presentations were very well presented and interesting.

One thing I would suggest CHANGING . . .

- Nothing, it was great.
- Nothing – Well facilitated. Having the key people attend, plus the media attending took well coordinated planning.
- More defining of assault, robbery, etc. Recognition in media release of difference between perception and actual stats.
- Room not the most comfortable or warm. Definitions of topics.
- Longer presentation – include elected reps.
- Nothing.

One thing I LEARNED. . .

- How important it is to have youth programs for crime prevention.
- Interesting data.
- That maybe more education of general public is still necessary.
- Citizen issues of priority concerns.
- The nice low of percentages. Positive step.

One QUESTION I have is . . .

- Where will this material surface in the next few years?
- How will these stats be used?

What further analysis of the data would you like to see (questions, comparisons, themes, issues)?

- More detail on family violence issues.
- Domestic violence and/or violence specific.
- Definition of terms – what is . . . as we discussed.
- More comparisons with the nation's average or Eastern Canada.

Other comments . . .

- I hope the data is available to communities to use now and in the future.
- Thank you!
- Excellent presentation.

List of Meeting Participants

Darlene Whiting, Victim's Service
Helen Morrison, Cape Breton Transition House
Rick Chabassol, Correctional Services
Miles Burke, Cape Breton Regional Police Services
Karen Swan, Department of Justice Canada
Sylvia Dearing, Island Community Justice Society
Ms. Shauna Wilson, N.S. Department of Justice

GPI Team Members:

Stacey Lewis, Cape Breton Wellness Centre
Peter MacIntyre, UCCB
Ron Colman, GPI Atlantic
Leonard Poetschke, Kings GPI
John Odenthal, GPI Atlantic

Glance Bay GPI Tobacco Reduction Stakeholders Meeting

Meeting Notes

Welcome

On behalf of everyone involved in the Community GPI project, Stacey Lewis welcomed people to the tobacco reduction stakeholders meeting. She reviewed the objectives for the meeting:

- 1) provide a brief overview of the Glance Bay GPI project,
- 2) provide a preview of some preliminary findings on smoking trends in Glance Bay,
- 3) enlist participants' help in identifying questions that will guide in-depth analysis of the Glance Bay GPI tobacco data.

Stacey explained that the research team is exploring ways to share survey results with the broader community and engage people in data analysis. Today's meeting is somewhat of an experimental process which may serve as a template for future efforts to share results and involve the community in data analysis.

Overview of Glance Bay GPI

Following an ice-breaker, Ron Colman, Director of GPI Atlantic provided a brief overview of the Community GPI project (presentation notes attached in Appendix 2).

Preview of Preliminary Data on Smoking Trends in Glance Bay

Peter MacIntyre provided an overview of the Glance Bay GPI survey. Seventeen hundred surveys were completed by Glance Bay residents (aged 15 years and over). All survey respondents were randomly selected. The survey is detailed and covers a variety of topics including health, care-giving, time use, employment, voluntary work, peace and security, income, and environmental issues. It took 2 hours, on average, for people to complete the survey. The response rate in Glance Bay (82%) was very good considering the length of the survey.

Both Peter MacIntyre and George Kephart emphasized that the data analysis is very much a "work in progress". The data is being double-checked and it is not yet adjusted or weighted according to age. Data analysis, at this stage in the data processing, can show general trends but firm numbers are not yet available. Findings are subject to change and must be viewed as very preliminary.

Preliminary data on smoking trends in Glance Bay were presented. A first sweep of the data revealed a number of interesting trends:

- The smoking rate among both males and females appears to be higher in Glance Bay than it is in the rest of Cape Breton, Nova Scotia, and Canada.

- The large majority of Glace Bay residents report their health as being good, very good or excellent.
- Fewer Glace Bay residents report their health as being very good or perfect compared to the rest of Cape Breton, Nova Scotia, and Canada. More residents of Glace Bay report having moderate to severe health problems compared to the rest of Cape Breton, Nova Scotia, and Canada.
- The number of smokers is highest among 25-44 year-olds.
- Within the population aged $\leq 19-34$, the smoking rate is higher among men than women. However, within the population aged 35-64, the smoking rate is higher among women than men. Among the 65+ population, more men than women smoke.
- Among smokers aged $\leq 19 - 44$, males smoke more cigarettes per day than females; however, among smokers ages 45+ the trend reverses and women tend to smoke more cigarettes per day than men.
- The smoking rate is considerably higher among the unemployed than it is among employed and retired persons, homemakers, and students.
- Smokers who are unemployed or homemakers, tend to smoke more cigarettes per day than smokers who are employed, retired or students.
- The relationship between smoking and level of educational attainment varies: smoking rates are lowest among people who have a university degree; however, the smoking rate appears to be higher among people who have completed grades 9-12 or a community college education than it is among people who have completed grades primary-8.
- Among those who smoke, people with a university degree smoke the lowest number of cigarettes per day; however, smokers with grades 9-12 or a community college education tend to smoke more cigarettes per day than smokers with grades primary-8.
- Compared to smokers in the rest of the province and country, more smokers in Glace Bay are inclined to smoke their first cigarette of the day within 5-30 minutes of waking up. Using this data and data on the number of cigarettes smoked per day, researchers are exploring whether smokers in Glace Bay are more dependent on nicotine than smokers in the rest of Nova Scotia and Canada.

Small Group Discussion

Following the presentation of preliminary results, participants worked in small groups to discuss a number of questions. A volunteer recorder took notes on each small group discussion. Transcribed notes are included below:

1) What was your reaction to the preliminary data on smoking trends in Glace Bay?

Group 1:

- Very precise
- Not surprised, for ex: unemployment & smoking

- Surprised at the initial age to start smoking
- When data is age-adjusted it may not be so surprising or even more surprising, in fact it may be worse or better
- Interesting that in some age categories, men smoke more or smoke less than women. What is it that makes some start during mid-life, and others quit? Perhaps there are differences due to masculinity and femininity. Might be due to change in family structure - empty nest syndrome, breadwinner (coal miner) now unemployed.
- I wonder if high levels of 2nd hand smoke are connected to smoking rate (i.e. what are the implications of 2nd hand smoke and youth smoking?)
- The fact that K-8 educated smoked less than 9-12 is surprising although the numbers are small (171 vs. 844) to draw conclusions
- Very surprised at how soon people reach for that first smoke in the a.m.

Group 2:

- The number of cigs smoked each day by respondents in the survey was seen by our group members as low (no more than 20?? or so). The question which came from this observation was where are the "pack-a-day plus" smokers?
- The age at which smokers reported starting smoking for the first time was considered by our group members as high at age 16. This raised the question - why is the age so much higher than the national and provincial average of 12.7 years?
- Group members were generally surprised that the GPI study was reporting smoking rates higher among respondents with higher than grade 8 education compared to respondents with less than grade 8 education.
- Group members suggested that more existing data on youth smoking trends could be tied into the GPI study

Group 3:

- It mirrored gender, education, location, employment. It gave us more concrete data on Glace Bay. It did compare us to other areas.
- Nobody was shocked.
- We were wondering if sample size was larger under 19 years would be larger percentage of smokers.
- Methodology design - did it reach the young people.

2) In-depth analysis of the smoking data in the Glace Bay GPI survey has now been carried out. The research team used input from meeting participants to guide further analysis. Participants were asked: What additional data on smoking trends in Glace Bay would you find useful? The following was suggested:

Group 1

- Smoking during pregnancy

- We already have good data on smoking during pregnancy
- Would be nice to capture the positive (for ex: the high rates of voluntarism) to balance out in the media
- Action planning around protective factors as they relate to smoking. These need to be brought out and supported. i.e. the role of exercise
- Curious to learn how many "walkers" are non-smokers or ex-smokers
- Interesting to know more about how people define/see health in relation to how they rate their own health
- Survey in Sydney (Tarponds) indicated differences in how smokers respond to perceived health concerns (vs. non-smokers)
- Be careful how the survey is released; we don't want to take away what pride is left in the community
- Unemployed smoke more and they want to quit but need help; can't afford NRT (patch), or even the nominal fee. Yet, some people say "if you can afford to smoke, you can afford the patch..."
- The value of the survey is that it looks at indicators of health, captures a lot of assets
- The media has tremendous influence and there needs to be not an over-emphasis on the negative report that people are doing their best under trying circumstances

Group 2

Did not have enough time to answer question.

Group 3

- District Health Authority needs more information on smoking and health related problems. Did illness, etc./age/smoking/gender relate to chronic disease?
- Obesity/diabetes and health – how does this relate to the smoking trends?
- Lifestyle/physical activity and smoking trends
- Community availability and smoking trends
- How do communities build more healthy communities, which may lead to less smoking (ex: soccer programs).

3) How might the Glace Bay GPI survey data help you with program development and evaluation?

Group 1

- By-law support
- Reducing smoking is good for the healthcare system
- Raising the price is a deterrent
- Show cost-benefits of cessation support vs. treatment
- There should be direct coverage or a top-up for those on EI
- Need to consider the social context; smoking has a social element
- Need to look at alcohol; there is a nest of addictions

- Need to address youth/children, with greater cooperation with education system and schools
- Not necessarily; the Dept. of Education has an excellent curriculum, it falls down during the implementation. We need to look at how we can support the system and the curriculum.

Group 2

Did not have enough time answer question.

Group 3

- How do I target homemakers/unemployed?
- How do unemployed get access to replacement therapy?
- What can I put in my program to help people through the first half hour of their day? (Buddy System may not work.)
- Building partnerships to build better program facilitation.
- Population health research - might be able to use survey for more community, family methodology design compared to individual design.
- GPI has allowed research capacity building in the community.
- Will help to target programs (which people to target?). Canadian data versus local data.

4) Are there any additional questions on smoking that you would like to see included in future community GPI surveys?

Group 1

Did not have enough time to answer question.

Group 2

Group 2 organized their answers to this question into three categories: questions for smokers, questions for former smokers and general comments.

Questions for Smokers:

- Why did you start smoking?
- Why do you continue to smoke?
- What would it take to make you quit smoking?
- What do you need to help you quit?
- Do you agree with strong smoking legislation? Why?
- If you were ready to try to quit smoking what public smoking policies do you think would help you in your efforts to quit?
- What level of tax (how much of a dollar value) increase would put the price of a package of cigs out of reach so that you could not afford to buy them?
- What other activities would you like to do with your leisure time to help you lead a healthier lifestyle away from smoking?

Questions for Former Smokers:

- Why did you start smoking?
- Why did you quit?
- What was the defining moment in your life that brought you to the realization that, no matter what, you knew you were ready to try to quit for good?
- Do you agree with strong smoking legislation? Why?
- What other activities would you like to do with your leisure time to help you lead a healthier lifestyle away from smoking?

General Comments:

- It was felt by group members that data collected from specific focus groups would be helpful in putting a different perspective on the results of the survey. Suggested focus groups could comprise Families (of traditional and non-traditional varieties), youth, professionals, etc....

Group 3

- Help with program development - cessation program - what works and what doesn't?
- What may help to keep people smoke-free (one week, one year)?
- Smoking By Law – Did it work? Did people cut down on smoking? What is public opinion?
- What community supports were used?
- What community supports were participants aware of in the community?

Report Back and Wrap-Up

Each group briefly reported on their discussion. Stacey indicated that the questions and suggestions raised throughout the meeting would be incorporated into the next stage of data analysis. A follow-up meeting will be organized in the fall to report on the results of the in-depth analysis of tobacco data.

On behalf of the research team, Stacey thanked everyone for their participation and input. Participants were encouraged to complete meeting evaluation forms (results of evaluations are included below).

Agenda

1. Welcome and Introductions
2. Overview of Glace Bay GPI Project
3. Presentation of Preliminary Data on Smoking Trends in Glace Bay
4. Small Group Discussion
 - 1) What was your reaction to the preliminary data on smoking trends in Glace Bay?

- 2) In-depth analysis of the smoking data in the Glace Bay GPI survey will soon be carried out. The research team needs your input into questions to guide further analysis. What additional data on smoking trends in Glace Bay would you find useful?
- 3) How might the Glace Bay GPI survey data help you with program development and evaluation?
- 4) Are there any additional questions on smoking that you would like to see included in future community GPI surveys?
- 5) Report-Back and Wrap-Up

MEETING EVALUATION

One thing I **LIKED** about the meeting was...

- Great location and atmosphere, lovely mix of professionals and champions – GREAT!!
- Upbeat, positive
- Good cross-section of participants
- Meeting other stakeholders involved in tobacco reduction strategy and discussing utilization of info. that was collected and owned by Glace Bay.
- Great location, very friendly/open atmosphere
- Very organized and diverse perspective even within the smoking field
- Bringing a focused group together
- The diversity of persons @ meeting
- Slide presentation update
- Participants
- Presentation/approach
- Awareness of project
- Networking!!
- The chance to meet so many other people from various backgrounds all with a interest in helping address these problems.

One thing I would suggest **CHANGING**...

- Nothing, great job
- Two hours was far too short to get the background to really address the 4 questions.
- Make it longer
- Would have been nice to network with others in attendance
- Good job
- Well done!
- You did a great job!
- A little chilly
- More time (as you already know)
- More time please

One thing **I LEARNED**...

- Smoking problem much bigger and complicated than what's indicated. We truly need to get focused and, as a community, do something! Very happy to hear that it (study) won't be left on the shelf – very useable study
- Great to know we're going beyond lifestyle risk factors and making other linkages (deeper).
- That there are a lot of people within the Glace Bay community that are willing to commit to address this issue of smoking and to develop programs and resources to assist with this
- Contextual information about Glace Bay
- Even smoking stakeholder meeting
- The broader determinations of health are always being brought up, e.g. "nothing to do in Glace Bay for kids, so they smoke", also, the personal testimony of the effect of the by-laws and smoking ban in the high school.
- Current data soon available
- Research resources in the area (i.e. Peter)
- Great support for the need (critical need) for local data
- Commonality of views "all on the same page"!
- That there are so many varied groups working on this

One **QUESTION** I have is ...

- How will you guarantee that this will have a positive spin? (When it hits the press?) Clients are already very negative about their situation – I would hate for the press to have a field day.
- What's next and when?
- The effect of environmental policies on individual smoking practices, e.g. smoke free by-laws.
- When is the next meeting?
- Will there be a further meeting

How would you like to be kept informed of the Glace Bay GPI results?

- More updates like today. Great presentations. Need this style to keep all of us grounded. Big, very big problem, and seeing and hearing what others are doing is a great way of not duplicating energies.
- All day session by your group to fully discuss the meaning and implications of the final report/date.
- E-mail, fax, mail out
- Updated session once report is available for launching. Could session allow time for a Q/A period?
- Meetings like this; mailed results
- Would like to be active partner (agency)
- Any way I can!
- Very much so

Other comments...

- Thank you for a productive day. It was great!
- The temperature of the room was too cool.
- Perhaps a question relating to community resources you access, and which ones you would access, if they were available (perhaps qualitative rather than quantitative).
- Stakeholder partnerships for longitudinal follow-up, as this will strengthen findings over time and gives opportunity to evaluate any intervention strategies.
- Thanks – great session!
- Thanks for the opportunity to be part of this excellent initiative!!

List of Meeting Participants

Vince Steele, Tobacco Reduction Coordinator, Public Health
Larry Maxwell, Health Educator, Public Health Services
Christa Rajani, Public Health Nurse, Glace Bay
Mary Lou O'Neill, Director Population Health and Research, DHA 8
Noreen Rowe, Canadian Cancer Society – Eastern Region
Marie Aucoin, Nurse, Glace Bay Youth Health Centre
Mary Passerini, Vice Principal, Glace Bay High
Mike Gallivan, Glace Bay physician
Eileen Woodford, Director, Public Health Services
Kelly MacIsaac, Glace Bay Health Promotion Clinic
Pat Steele, Nurse, Chest Clinic - Cape Breton Health Care Complex & Lung Assoc.
Judy MacInnes, Program Coordinator, Cape Breton Family Place Resource Centre
Ron Gillis, Addictions Services
George Kephart, Population Health Research Unit
Alison James, Population Health Research Unit
Marie Palmer, GPI Atlantic
Trisha MacKinnon, Glace Bay GPI
Debbie Prince, Glace Bay GPI
Ron Colman, GPI Atlantic
Deborah Kiceniuk, Healthy Balance Research Program
Peter MacIntyre, University College of Cape Breton
Stacey Lewis, Cape Breton Wellness Centre
Steven Samis, Canadian Population Health Initiative
Heather Dunn, volunteer, Canadian Cancer Society – Eastern Region
Ed Michalik
Cecilia Driscoll

Regrets:

Catherine Cote, Program Coordinator, Addictions Services
Lee Easterly, Assistant to the CEO, DHA 8

Everett Harris, Director, Addictions Services
Jack Ettinger, Principal, Glace Bay High
Mel Clarke, Chair, East Cape Breton County CHB
Mary Beth LeBlanc, Coordinator of Cape Breton Youth Health Centres
Donald Ferguson, Chair, DHA 8 Board
Gordie LeDrew, member, East Cape Breton County CHB
Josie Steel, President, local chapter of NS Heart and Stroke Foundation
Bea MacInnes, Prevention Coordinator, Community Services

Appendix 17: Broadening the Definition of Health Conference

20 June 2003: Presentation of research results

This conference, held at UUCB was attended by approximately 150 faculty, MDs, health professionals and interested community members. The CPHI community health indicators session was to an overflowing room of more than 50 People. The short presentations included an overview of the CPHI community health indicators project, and a very preliminary analysis of results on Core Values, Crime Victimization, and Tobacco Use. Further work on these topics was conducted in the late summer and fall of 2003.

The presentations to the conference are available on the website (Presentations to the Community) found at:

http://discovery.uccb.ns.ca/glacebay_gpi/presentcomm.html

Appendix 18: Draft Article on Caregiving and Health submitted to *Canadian Journal on Aging*

COMMUNITIES IN PROFILE: A COMPARISON OF CAREGIVING IN TWO RURAL NOVA SCOTIA

COMMUNITIES

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Acknowledgements: George Kephart, PhD., Director of the Population Health Research Unit, Dalhousie University and Ronald Colman, PhD., Director of GPI Atlantic for their review of this report. Aimee St. Croix, Research Assistant, Department of Economics, St. Mary's University, for her assistance with the analyses of the time use data. The Atlantic Centre of Excellence for Women's Health, Healthy Balance Research Program for partial funding for this report.

Dear Dr. Colman,

Please find attached a draft copy of an article that, when completed, will be submitted to the Canadian Journal on Aging. This journal is a refereed, quarterly publication of the Canadian Association of Gerontology. The article, entitled "Communities in Profile: A Comparison of Caregiving in Two Rural Nova Scotia Communities," is currently a work-in-progress. Further editing, and the addition of tables and graphs, are needed before it can be submitted in a format that is acceptable to an academic journal.

If you have any questions, please do not hesitate to contact me. As always, it has been a pleasure to work with you on this interesting project.

Best regards

Deborah Kiceniuk, PhD
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Population Health Research Unit
Department of Community Health and
Epidemiology
Dalhousie University
Halifax, NS

Background

This research project has been community-driven since its inception in 1999 and involves collaboration among an extensive variety of partners. With input from a variety of community organizations a questionnaire was developed to collect baseline data on several variables related to health, caregiving, labour force participation, peace and security, voluntary/civic work, impact on the environment, and other elements of well-being. Many previous reports on caregiving focus on the services available, profiles of caregivers, and burden of care. These reports have, most often, reported aggregated data at the provincial and national levels. This project is unique in that it provides community level information from the original survey data collected from two Nova Scotia communities. In particular, the focus of this study was to examine the differences and similarities between caregivers and non-caregivers in two communities of Appleton and Ferryville²⁵, Nova Scotia in relation to socio-demographic variables and health status, health service utilization, and health behaviours.

Literature

The changing nature of families, population demographics, economics, roles in the workplace, and health services have brought the issues of family caregiving and unpaid work to the forefront of policy debate. Recent trends have indicated that families are less stable and more diverse, with an increasing prevalence of children moving away from their families and communities to find work or attend school (Fast & Keating, 2000). These trends, combined with the increase in longevity and new patterns in chronic illness, leave much of the caregiving responsibilities for elderly parents with spouses and friends. Additionally, the devolution of health care services to the community has also transferred considerable responsibility for care to unpaid caregivers (Cheal, 1998). Furthermore, because of the severe fiscal restraints that have been placed on health services in recent years, this care can be technically demanding, complex, and costly when patients are sent home at earlier stages in the treatment process (Payne et al., 2001). Romanow (2002) reported “home care has become a partial substitute for care that was previously provided primarily in hospitals or by physicians.” This transfer of responsibility has various affects on family caregivers, and impacts all aspects of their lives: mental and physical, social, family, labour force participation, and financial (Guberman, 1999). Statistics Canada’s 2001 Census found a 17% increase in the number of Canadians providing care for seniors since the 1996 Census. The number of Canadians spending 10 or more hours per week caring for the elderly increased by 20%. In addition, nearly twice as many women as men spend long hours caring for the elderly - 3.5% and 1.9%, respectively (Statistics Canada Census, 2001).

Definition of caregiving

Unpaid caregiving has been referred to as “informal care” (Romanow, 2002); as opposed to formal care given by a paid health care worker (Fast and Frederick, 1999). Unpaid work has been defined as “the unpaid work households do by and for themselves, including domestic chores, childcare, and shopping” (Economic Justice Report). However, central to the focus of this report is the concept of unpaid caregiving defined as ‘unpaid work conducted for family

²⁵ Names of the communities have been replaced by pseudonyms

members, friends, and neighbours (either adults or children) that require care or help with daily activities.’ These activities fall into two categories. The first, “instrumental tasks” include grocery shopping, assistance with transportation, and yard or housework. The second, “personal care” includes activities such as bathing, dressing, or grooming (Statistics Canada, Cranswick, 1997).

Caregivers

In the United States, it is estimated that unpaid caregivers contribute almost \$200 billion annually to the economy in unpaid health care (Health Affairs, 2001). Fast and Frederick conducted a cost replacement analysis on unpaid caregiving in Canada using data from the General Social Survey and Statistics Canada. They reported, “The aggregate replacement cost for all Canadian caregivers in 1996 is estimated between \$5.1 and \$5.7 billion.” This estimate does not include other personal costs such as lost wages, inability to contribute to pension plans, inability to maintain a full-time job, and costs to the health care system associated with adverse health effects due to their caregiving activities. Also, many of these estimates may be an underestimate of actual costs, since they may only include care provided to the elderly and exclude costs associated with providing care to mentally or physically challenged children and young adults. In Nova Scotia in 1997, GPI Atlantic estimated the value of unpaid work and childcare to range from \$8.5 to \$10.5 billion. This figure depends on the evaluation method used but represents 42-51% of the annual value of the GDP (GPI Atlantic 1998, 95).

Changing trends in labour force participation, characterized by an increase in the number of women employed in paid labour, has significant effects on who will assume the care-giving role in the home. Women’s paid labour force participation has been steadily increasing since the 1960s, although it has levelled off in the 1990s. In Canada, women comprise 46% of the labour force and 70% of women between the ages of 25 and 44 of age work outside the home in paid labour (Statistics Canada, 1999). However, employed women are as likely to assume caregiving activities as unemployed women (Pavalko and Artis, 1997). Women are reported to experience more role conflict with respect to their home and paid labour responsibilities than men (Kramer & Kipnis, 1995). The relationship between stress, disease, and the increased utilization of health care resources has been highly recognized. Factors that appear to mediate the impact of unpaid caregiving and employment stress are income and money. Duxbury and Higgins (2001) found that stress is higher in families where income is problematic than in those where money was not an issue. Financial resources appear to be able to assist people in coping with the stress of work-life balance. Other factors could also alleviate the pressures of work-life balance include support from extended family, job satisfaction, control at work, and employer programs (Phipps, 2002).

Caregiver Well-being

The burden associated with caregiving responsibilities has been reported in the literature to include: well-being; physical and psychological health effects or outcomes; and quality of life. Generally, most studies report that caregivers suffer increased risks for physical and psychological health, although this fact may be confounded by other factors such as type and duration of caregiving, age, and income (Shultz, Vistainer & Williamson, 1990).

Health Practices

It has been suggested that, higher rates of psychological distress, emotional stress, and impaired family and social functioning in relation to unpaid caregiving responsibilities may translate into higher health care utilization rates. The results indicated that for those caregivers that had adequate access to health professions and services, there were no differences in their health care practices than those of the comparison group. A Canadian study on secondary data from a longitudinal study on elderly caregivers revealed similar results (Baumgarten et al., 1997). The annual cost of physician services for caregivers and non-caregivers was similar. However, there were differences in the type of physician services used between caregivers and non-caregivers. Caregivers had a significantly higher frequency of use of internal medicine and psychiatrists than the comparison group. However, physician use was strongly associated with age and the caregiver suffering from a chronic condition. Cochrane, Goering & Rogers (1997) also reported that caregivers used services for mental health problems at nearly twice the rate of non-caregivers.

Objectives and Research Methodology

The objectives of this study were:

1. To examine the relationship between caregiving and health behaviours and practices in relation to socio-demographic variables.
2. To examine the similarities and differences in health behaviours and practices between caregivers and non-caregivers in two Nova Scotian communities .

Survey Instrument

The original survey collected information on basic demographics and education, community values, population health, civic and voluntary work, care-giving and support networks, employment and income, time use, peace and security, consumption patterns, and other variables. To allow provincial and national comparisons, particular questions were drawn from existing surveys including the General Social Surveys, National Population Health Surveys, Labour Force Surveys, Survey of Work Arrangements, national volunteer surveys, and other survey instruments

It was determined that 1,900 surveys from Appleton and 1,700 from Ferryville were required to allow for two cross-tabulations, and analysis by gender, age, education, income level, employment status and other determinants of health. With assistance from the Electoral Commission and HRDC, a random sample of 1,900 (AV) and 1,700 (CB) respondents was selected. The survey was “pilot-tested” to 200 respondents both communities, and necessary adjustments were made to the questionnaire and the survey process prior to the final survey administration. Survey administration was conducted as follows: An initial telephone call was made to each respondent to set up an interview; the instructions were explained face-to-face; the survey was left with the respondent; a follow-up phone call was made after 4 days; the survey was picked up and checked for completion; respondent names were discarded to ensure confidentiality.

Demographic Variables

Demographic variables were included in the analyses for comparative purposes. Community and gender were dichotomous variables (e.g. either Appleton or Ferryville; male or female). Marital status, education, age, and household income were categorical variables.

Health Status Variables

A number of variables were utilized to determine both objective and perceived health status for both physical and emotional indicators. Perceived health status was categorized on a 5-point Likert scale and respondents were asked to rate their health between excellent and poor. Other variables included as indicators of health status were restriction of activities, and medication use. Respondents were asked to indicate whether they experienced pain sufficient enough to restrict their activities.

Health Care Utilization

The questions concerning health care utilization were separated by type of health care provider. Types of health care providers were physicians, other health care professionals, emergency/outpatient visits, and mental health professionals.

Health Behaviours

These questions included risk behaviour indicators on smoking, frequency of pap smears and mammograms, and exercise patterns.

Social Support

There were several variables included in the analyses that were used as a reflection of social support. Respondents were asked to indicate how often they had contact with family/relatives not living with them, and neighbours. In addition, their ability and frequency of partaking in community events were also considered important indicators of a respondent's ability to maintain a social network.

The Communities

Appleton is a predominantly agricultural area of the province and has a population of approximately 58,870. It is one of only a few communities in Nova Scotia which is experiencing population growth, and it is an area of the province which has relatively high health status, based on premature mortality rates (Pennock, 1998). The general population gender split is 49% males and 51% female and the unemployment rate is 9.1% (compared to 12.4% for the whole province). The median age is 38, and 58% are either married or living in common law relationships. Approximately 56% percent of the population have a university or community college education, (compared with approximately 35% of all Canadians with post-secondary education), and the average income is \$24,196 compared with \$26,239 for all of Nova Scotia.

Ferryville has a population of 21,187 and is experiencing both population and economic decline. It is located in a part of Nova Scotia that is notable for its low levels of health status (Veugelers & Guernsey, 1999). The unemployment rate is high at 19.4%. The gender split is 47% males and 53% females and the median age is 41.3. Forty-six percent of the population have a university or community college education and the average income is \$22,602. Consequently, the two communities represent very different occupational and socio-economic profiles

Data Analysis

Chi-squared tests of association were used to examine relationships between categorical variables such as demographic (gender, age, and marital status) and socioeconomic (household income, employment status, and level of education) characteristics. These tests were only used with categorical data and between variables with cell counts of at least five. In many cases low numbers restricted the analyses of various associations. Accordingly, where appropriate, the entire sample of caregivers was compared to the sample of non-caregivers to allow for higher numbers in the samples (controlling for age). The significance level for all Chi-square analysis was $P < .05$.

The associations investigated with the chi-square tests can be misleading if observed associations are due to factors other than caregiving. For example, caregivers were, on average, older than non-caregivers. Accordingly, an association between caregiving and health status might be due to the fact that caregivers are less healthy because they are older. To address this problem, statistical methods are used to investigate if the health status of caregivers is, on average, different among persons of the same age.

Logistic regression was used to estimate associations between caregiving and health status, health system utilization, and health practices. These associations were adjusted for age, sex, education, income and marital status.

Results

The response rate of the questionnaire has been 82% for Ferryville, and is 70% for Appleton. The large sample size will allow for two cross-tabulations of data, with a confidence level of 95% and a margin of error of 5%. The total number of respondents for both Appleton (1874) and Ferryville (1694) was 3568. In general, for the total sample, the respondents were similar in both communities by gender – 57.2% female (Ferryville) and 55.1% in (Appleton). The results indicated that there were significant differences between the two communities with respect to marital status, income, education level, employment status, and age ($p < .05$).

There were no significant differences in the proportion of caregivers in each community. The results indicated that there were 206 caregivers in Ferryville and 221 in Appleton representing 12.1% and 11.8% of the sample, respectively. In addition, caregivers were similar with respect to gender and age with women representing 57.5% of caregivers in Ferryville and 60.9% in Appleton. Most caregivers (70.2% for both communities) reported that they were over 45, as compared to 57.2% of non-caregivers. However, there were significant differences between the two communities with respect to caregiver's household income ($p = 0.008$). Nearly 42% of caregivers in Appleton reported an income below \$35,000, while slightly over 59% reported

being in the same household income category in Ferryville ($p=0.01$). There were no significant differences in the education levels between caregivers in the two communities. However, there were a higher percentage of caregivers in Appleton who reported they had completed university or community college than in Ferryville - 39.7% and 29.6% respectively. Of all 427 caregivers, most were married or living in a common-law relationship (72.6%).

Caregivers in both communities reported similar health status, with 41.8% of caregivers in Ferryville reporting excellent or very good health and nearly 41% in Appleton reporting the same health status. An examination of activity limitations due to a chronic health problem as an indicator of health status was incorporated in our analysis of caregivers. Caregivers groups from both communities reported similar 'limited activity levels due to physical/mental health problems' with only 27.6% of all caregivers reported that they had limited activity due to a long-term illness. However, regression analysis revealed that for the entire sample of respondents from both communities, non-caregivers had significantly higher (37.5%) odds than caregivers of reporting better health. Furthermore, non-caregivers had significantly lower odds (by 23.6%) than caregivers of being limited in their activities due to a chronic health problem.

Respondents were asked to indicate, from a list of possible chronic health problems, the disease(s) from which they suffered. For the entire sample of caregivers and non-caregivers in both communities, the five most reported chronic diseases were: arthritis/rheumatism; high blood pressure; back problems excluding arthritis; allergies excluding food allergies; and, migraine headaches. However, the results suggested that caregivers were more likely to suffer from certain types of chronic diseases compared to non-caregivers. That is, twice as many caregivers suffered from migraine headaches, stomach or intestinal disorders, and urinary incontinence than non-caregivers, and nearly three times as many caregivers as non-caregivers suffered from bowel disorders.

Medication use was also examined as an indicator of health status. In general, caregivers in Appleton did not differ from their Ferryville counterparts with respect to their medication use. The results indicated that, for both groups of caregivers, they used anti-inflammatories (49.9%) tranquilizers (3.6%), heart medicine (7.8%), sleeping pills (7.6%), and stomach remedies (17.6%), between one and seven times per week. However, Ferryville caregivers used anti-depressant medications twice as much on a daily basis as Appleton caregivers, 10.2% and 4.8% respectively. In comparison to this result, there was a difference between Appleton and Ferryville caregivers with respect to asthma medication use. The results indicated that Appleton caregivers (7.6%) used asthma medication on a daily basis over twice as much as Ferryville caregivers (3.2%). There were significant differences in the use of blood pressure medication between caregiver groups. Ferryville caregivers used blood pressure medication more often than Appleton, 29.6% and 17.1% respectively ($p=0.011$).

The results revealed that caregivers responded similarly on indicators of both stress and emotional health, . In general, both groups were similar with respect to their feelings of: sadness (2.6%); nervousness (5.6%); restlessness (6.7%); hopelessness (2.7%), worthlessness 6.9%), and feelings that everything was an effort (6.9%), all or most of the time. However, between 70.5% and 89.5% of all caregivers reported that they did not experience these feelings. Although there were no between caregiver group differences with respect to stress, the results revealed that

many caregivers were stressed. For the entire sample of Ferryville and Appleton communities, caregivers had higher odds of reporting less control in their lives than non-caregivers. For all caregivers, 60.7% reported that they could not accomplish what they wanted, 48.2% indicated that they worried that they did not spend enough time with their family or friends, or that they were constantly under stress trying to accomplish more.

The results concerning the respondent's happiness in their lives were also considered an indication of emotional health. The odds ratio results revealed that, for the entire sample of both communities, non-caregivers had significantly higher odds (by 55%) of reporting happiness in their lives than caregivers.

Health system use, health behaviours and practices were examined controlling for age and sex where appropriate. These questions included doctor or other health care professional visits, preventive health practices, and healthy/high risk behaviours. Ferryville caregivers reported that they visited their physicians significantly more often than Appleton caregivers ($p=0.004$). Thirty-seven percent of Ferryville caregivers reported that they visited their physician "3-12 times per year" while only 30% of Appleton indicated this. The values for visiting their physicians were collapsed and after this procedure it was revealed that three times more Ferryville caregivers than Appleton caregivers visited their physicians equal to or more than thirteen times per year (15.5% and 5.7%, $p=0.004$).

Consistently, Ferryville caregivers visited other health care professionals, mental health professionals, and emergency/outpatient departments significantly more often than Appleton caregivers ($p<.01$ to $p=0.010$). In addition, there were significant differences between caregiver groups with respect to 'being sick in bed more than a day' with 21.8% of Ferryville and 5.7% of Appleton caregivers reporting being ill enough to be in bed for more than a day ($p=0.001$).

With respect to examining the between community samples (the entire sample), the results were unlike those of the between community caregiver samples. In fact, the odds ratio revealed that as a whole, Appleton respondents had similar odds of visiting their physicians as Ferryville. Furthermore, for the total sample of caregivers and non-caregivers, odds ratios analyses showed that, non-caregivers had significantly lower odds (by 83.2%) than caregivers for the number of times they contacted a mental health professional. Analysis of the entire sample revealed that non-caregivers had significantly lower odds (by 27.5%) than caregivers of visiting an outpatient department or hospital emergency than caregivers. Again, it is cautioned that these numbers, in some cases, are based on low cell counts. Every effort has been made to collapse categories in order to provide a higher cell count.

An examination of health practices and behaviours revealed that both groups of caregivers were very similar on these indicators. Both caregiver groups indicated that they had mammograms (63.3%) and pap smears (60.8%) within the last year. In addition, there were no between caregiver group differences with respect having their blood pressure checked. Nearly 13% of all caregivers reported that they had their blood pressure checked with the last 12 months. However, odds ratios revealed that non-caregivers had significantly lower odds (by 38.2%) than caregivers of not having had their blood pressure checked in the year previous to the survey.

Upon examination of respondents' exercise patterns, caregivers reported similar exercise behaviours. That is, 27.4% of caregivers exercised greater than three times per week, 38.2% one to three times per week, and 34.4% less than once week. In addition, there were no differences in the exercise patterns of caregivers and non-caregivers for the total sample. However, respondents from Ferryville had significantly (22%) higher odds than those of Appleton of exercising more.

Smoking patterns were also considered as part of the analyses of health behaviours. The results indicated that caregivers in Ferryville (31.7%) smoked significantly more on a daily basis than caregivers in Appleton (21.5%, $p=0.050$). Logistic regression results showed that, for the sample as a whole (both caregivers and non-caregivers), Ferryville respondents had significantly higher (by 55.8%) odds of smoking than those of Appleton.

Social support and caregiver's ability to participate in voluntary activities were also of interest to our analyses. Results were significant between caregiver groups for those respondents who were in contact with family members who did not live with them ($p=0.020$), and for frequency of contact with neighbours ($p<.01$). Ferryville caregivers reported that they had more contact with neighbours and relatives than Appleton caregivers. Eighty-three percent of caregivers in Ferryville reported having contact with relatives at least one to seven times per week as opposed to 80% of Appleton caregivers. However, when questioned about their contact with neighbours the results showed a larger difference between groups. Nearly 85% of Ferryville caregivers reported that they visited their neighbours at least one to seven times per week as compared to 64.4% of Appleton caregivers. With respect to volunteer work, a higher proportion of Appleton caregivers (52.5%) reported that they volunteered for an organization in the last twelve months, compared to only 34.5% of Ferryville caregivers. However, both groups of caregivers similarly reported that the main reasons for not volunteering were lack of time (69%) and health problems (15.4%).

Discussion

The purpose of this project was to examine caregiver characteristics, health status, and health behaviours and practices in two Nova Scotian communities. Compared to other surveys of this kind, such as the Nova Scotia Health Survey and the General Social Survey, actual numbers of caregivers were high in relation to the population (Appleton – 211 and Ferryville – 206)

Caregivers

There have been various studies describing the characteristics of caregivers. For this study, the caregivers from each community were examined for similarities and differences on a variety of demographic variables that allowed a profile of caregivers to be created. Our results indicated that 11.8% of the sample of Appleton and 11.8% of Ferryville respondents were caregivers. These proportions are similar to those of a Canadian study by Cranswick (1997) who reported that 12.06% of the Canadian population provided unpaid care to someone with long-term health problems. The proportion of women to men caregivers was slightly lower in our sample (Ferryville-67.48% and Appleton-60.91%) for both communities than the reported 69% in the Canadian study. However, most caregivers from both communities were women over 45 years

of age, and were married or living in a common-law relationship, and these results are similar to the national findings. Additionally, the caregivers in our sample were older than the national sample.

Caregivers in both communities reported similar education levels with most completing high school, and slightly more completing university and community college in Appleton as compared to Ferryville. Caregivers in Appleton were also slightly younger as compared to those of Ferryville. Many of the caregivers were employed (nearly 50%) which was also higher than expected. The remainder of caregivers reported being unemployed, retired or homemakers, with caregivers in Appleton showing higher proportions of the sample being employed and retired. Caregivers in Appleton reported slightly higher income levels, but the lower employment rate and slightly older population in Ferryville may explain this. However, we hypothesized that caregivers would have lower income and education levels than non-caregivers and this was not supported by our results. Caregivers and non-caregivers had similar education and income levels.

Health Status

Caregiver's adverse psychological and physical outcomes due to their caregiving responsibilities have been supported in some studies. Our results also provide support that caregivers have significantly lower perceived health status than non-caregivers. Furthermore, these results were consistent between the two communities with caregivers in both communities reporting a lower perceived rating of health.

Of interest to our study of health status, is caregivers' limited activity levels imposed by chronic health problems as a reflection of physical health. Our results supported the notion that caregivers have more activity limitations than non-caregivers, and this may reflect poorer physical health status. Nonetheless, we could not determine in this study whether these limitations were a result of their caregiving responsibilities or had been present prior to assuming their caregiving responsibilities.

Many studies refer to negative emotional and mental health effects on caregivers in relation to the burden of caregiving. Our results indicated that caregivers have higher stress levels than non-caregivers. In fact, the findings revealed that caregivers experienced feelings of nervousness and worthlessness, and felt more stressed and time pressured than non-caregivers. In addition, our findings suggested that non-caregivers had higher odds of reporting happiness in their lives than caregivers. These findings are similar to those by George and Gwyther who found that caregivers experienced three times more stress than a comparison population. The findings of this study are comparable to those of others that report on the negative emotional health (Snow-Spracklin, 1998) of caregivers due to their caregiver responsibilities.

Medication can also mirror factors associated with health status. Although there appeared to be a dearth of literature surrounding medication use and caregiving, we believe that the results found in this study are an important issue for future caregiver research. In general, caregivers used more anti-inflammatory medication, anti-depressants, sleeping pills, stomach remedies, and asthma medications than non-caregivers. It could be maintained that these findings may be

reflective of high stress levels and perceived poorer emotional health reported by caregivers in both communities.

Between the communities, caregivers in Ferryville reported using more anti-depressants than Appleton. Comparatively, Appleton caregivers used asthma medications nearly twice as much on a daily basis than Ferryville caregivers. Although we were unable, from the data available, to examine associations to explain the difference associated with asthma medications, it may be due to environmental factors rather than being a caregiver.

In summary, our findings partially support the idea that caregivers report poorer emotional health with respect to stress and other factors than non-caregivers. In addition, our findings suggested that caregivers reported more physical limitations than non-caregivers, although the reason for these limitations could not be credited to their caregiving responsibilities. Also, caregivers reported higher use of medications associated with emotional or psychological health issues compared to the non-caregiver population.

Health Care Utilization

Many studies have suggested the idea that a higher level of morbidity in caregivers could translate into higher health care utilization. The majority of studies report that, in general, caregivers do not visit their physician more often than a comparative population. However, Baumgarten et al. (1997) found that stratifying by types of physicians or health care workers indicated that caregivers visit psychiatrists and internal medicine consultants more often than comparable non-caregivers. Our findings also supported the notion that, in general, caregivers and non-caregivers did not differ with respect to their health care utilization patterns with family physicians, and this was similar in both communities. However, when the entire sample of caregivers and non-caregivers was examined it revealed that caregivers visited mental health professionals more frequently than non-caregivers. These findings are quite similar to those of Baumgarten (1997) in that she found that caregivers visited psychiatrists more often than non-caregivers.

Between community results for the entire sample also revealed conflicting results. The results indicated that, as a whole, the frequency of physician visits was similar for Appleton and Ferryville respondents. However, odds ratios revealed that Ferryville had lower odds of visiting other health care providers than Appleton. This result may be indicative of the differences in the types of health care services in the communities. As explained in the community descriptions, the community of Appleton is slightly larger and has more access to a variety of health care services than Ferryville, which is more isolated. Furthermore, the between community caregiver sample analysis revealed that, controlling for age, Ferryville caregivers reported that they visited their physicians and other health care professionals more often than Appleton.

On the surface, similar health care visiting patterns (except for mental health professionals) between caregivers and non-caregivers appears to be contradictory to our findings that caregivers report poorer health status than non-caregivers. That is, based on their reported poorer health status, it would be reasonable to assume that caregivers would have a higher frequency of visiting health care professionals. However, there are several plausible explanations for these

findings. First, we did find that caregivers are stressed and feel that they cannot accomplish what they feel they need to, and therefore it could be assumed that they may not have time to visit their health care provider more than they indicated. Consequently, caregivers would not show a higher frequency of visits. Second, caregivers may feel that their symptoms could not be alleviated by professional treatment, and therefore, do not seek help. Third, it could be suggested the responsibilities of caregiving can reflect an implicit selection process in that only those people that become caregivers are those that are physically and mentally capable of maintaining a caregiving role. Therefore, those people that require high levels of health care utilization either give up, or never undertake, caregiving responsibilities. Of course, frequency of visits to health care providers may always depend on the types of health care services available in a given area. A lack of physician services could also account for the inability of caregivers to seek medical care. Although we were not able to control for this confounding factor, future research should consider the resources available in the community under study.

In general, our results indicated that caregivers and non-caregivers had similar health care utilization patterns. However, when investigating the between community differences, the results indicated that Ferryville caregivers utilized health care services more frequently as compared to Appleton caregivers, and this held true when controlling for age. Additionally, our results also indicated that Ferryville reported higher utilization rates than Appleton with respect to visits to mental health professionals. It is suggested that further study in this area could address some of the reasons why caregivers' reported poorer health status is not reflected in their utilization patterns and the types of services available in the specific areas.

Health Behaviours

Our results indicated that, with only one exception, there were no differences between caregivers and non-caregivers with respect to preventive health behaviours. The only exception to this finding is that Ferryville non-caregivers had their blood pressure checked more often than caregivers, and only a small portion of the entire sample indicated this. These results were similar to those found by Scharlach (1997) who investigated differences between caregivers and a comparison group on a variety of health behaviours such as exercise, nutrition, and smoking. Nonetheless, the between caregivers group analysis revealed that caregivers in Ferryville smoked more frequently than Appleton, but that Ferryville caregivers exercised more often than Appleton.

Social Support

Social support as an intervening factor in caregiver emotional health has been investigated by Snow-Spracklin (1998). Studies examining social support in caregiver's lives vary because of the conceptualization of social support. For the purposes of our study we examined associations with the caregivers ability to: (1) partake in community and religious events; (2) visit/contact with neighbours; and, (3) to visit/contact relatives who did not live with them. According to our results both caregivers and non-caregivers participated in religious events and community volunteer activities in similar patterns. Nonetheless, between caregivers, Appleton caregivers were able to participate in voluntary activities more often than Ferryville caregivers. Both groups indicated that they did not participate in voluntary activities because of health problems

and lack of time. However, differences were revealed in the respondents' relationships to their neighbours. Ferryville caregivers had contact with their neighbours more frequently than non-caregivers. Appleton caregivers had more frequent contact with relatives than non-caregivers. Between communities, caregiver differences indicated that Appleton had far less frequent visits with neighbours than Ferryville.

From our results, it appears that all caregivers suffer from high levels of stress. Additionally, each community appears to have a unique method in which to seek social support, and this could act as an intervening factor in ameliorating stress for caregivers. We concluded that the types of social support used in each community vary. Ferryville caregivers utilize neighbours more than Appleton and, and Appleton seek family or relatives more than Ferryville. Several factors could account for these findings. Keefe and others found that rural caregivers use more informal supports than urban caregivers. Both these communities are considered rural areas of Nova Scotia and may not have formal services available as would be in the larger centres.

Additionally, lack of transportation may also be a factor in the types of social support caregivers choose, or have to rely on, to relieve the burden associated with their caregiver responsibilities. Consequently, our results may be a reflection of caregivers using the informal supports of family and friends to alleviate stress and caregiver burden. These results may reflect the varying culture and family structures in each community. Additionally, Ferryville has higher unemployment rates and an older population than Appleton. Some of these findings may reflect the out-migration of young people to seek employment in larger centers, and therefore are not available as a support to their family. Consequently, Ferryville caregivers may have to rely on neighbours rather than family for their social support.

In summary, caregivers appear to rely on informal resources for social support. These social support patterns manifest themselves in a variety of ways in each community. However, we have also shown that caregivers use mental health services more than non-caregivers that may be an indication that some caregivers do access professional services to alleviate stress, or for other emotional health issues.

Suggestions for future research

One of the limitations of this study was the small numbers of caregivers and consequently the small cell sizes associated with it. When possible, values and groups were collapsed to allow for more robust analyses. However, much of the information gleaned from our results appears to compare to other national studies. Future research should include factors associated with: the resources available to caregivers in the communities under study; specific factors associated with the care-receiver's illness; the length of time in the caregiver role; and, the caregiver's health status before the caregiver role was undertaken.

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Appendix 19: Volunteerism and Health

The following preliminary results are from a current research project funded by the Canadian Volunteer Initiative, which uses the Glace Bay and Kings County community health indicators results to assess the relationship between voluntary work and health. This is one of several new research projects spawned by the Canadian Population Health Initiative research program on community health indicators.

Volunteerism & Health

Preliminary Analysis of Results from the Glace Bay and Kings County Community Health Surveys

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For

GPI Atlantic

Introduction

The objective of this paper is to explore the relationship between volunteerism and health-related issues in Glace Bay and Kings County. Between 2001 and 2003, both communities were involved in the design and execution of a comprehensive community survey in collaboration with GPI Atlantic, the Population Health Research Unit at Dalhousie University, and other partners. The objective of the survey was to collect baseline data for the monitoring of community well being and progress. The survey was exceptionally comprehensive and included detailed questions on a variety of topics such as:

- Health
- Voluntary Activity and Community Service
- Household Demographics
- Labour Force Activity
- Core Values
- Care Giving
- Voluntary Activity and Community Service
- Personal Security and Crime
- Ecological Footprint
- Time Use

A total of 1,708 respondents from Glace Bay and 1,907 respondents from Kings County spent an average of 3-5 hours filling out the 78-page survey, yielding over an 80% response rate in Glace Bay, and more than 70% in Kings County.

Literature Review

There are two basic types of volunteers; the formal volunteer and the informal volunteer. This report will focus on the formal volunteer; that is, one who works on behalf of established charities or organizations, such as after-school tutoring programs, food banks, or fundraising for the Heart and Stroke Foundation. The category of informal volunteering includes unstructured activities, such as helping elderly neighbours clean house or do yard work.

Some researchers have investigated the effect volunteering has on an individual's health and well being. A common thread emerged from those studies indicating that those who volunteer, either formally or informally, do report generally better well being and overall health.

Most of the research has focused on the perceived health benefits among those who are 65 and older. Volunteering can be seen as a solution to the monotony and potential loss of meaning or purpose that many individuals face in retirement (Dossey, 2002). In studying a national random sample of 1644 persons aged 60 or older, McIntosh and Danigelis (1995) concluded: *"It is clear that the most important productive activity for predicting [well being] among seniors is informal volunteering, and the least important is paid work."* In older adults, particularly seniors, *"remaining active in older age, and thereby [being] socially involved, results in a positive identity and high well being"* (Luoh & Herzog 2002). The increasing importance of volunteerism for seniors appears to be related to the declining importance of other major life roles, including

paid work. Some seniors may be left feeling depressed by the lack of a sense of meaning that may accompany the end of a career, but this tends to dissipate if new roles (such as volunteering) replace old roles. Volunteering may therefore represent an important adaptation for individuals, by allowing them to feel beneficial to society (Luoh & Herzog 2002). Further findings suggest that performing more than 100 annual hours of unpaid volunteer work has both independent and significant protective effects against subsequent poor health and premature death. However, volunteer work beyond 100 annual hours doesn't appear to be related to particular health outcomes. (Luoh & Herzog 2002).

If the health benefits of volunteering can be observed among elderly persons, it is possible that the population in general also benefits. This will be the focus of the present report. Attending to the needs of others has been shown to increase one's sense of relevance in the community. Volunteering is also usually done in the company of others, which enlarges social networks and contacts, which in turn act as an important determinant of health. Health Canada has identified social supports as a key determinant of health. Evidence also indicates that helping others contributes to mental health by making people feel happier and more alive. Arizona State University psychologist Robert Cialdini has called it the "helper's high" in a study that shows that helpers live longer than those who do not participate in such helping roles (Dye, 2002).

The direction of causality, however, is not clear. Some researchers suggests that the health of individuals can influence whether or not they volunteer, and how much. *"People who were happier, more satisfied with their lives, higher in self-esteem, in good health, and low in depression work more volunteer hours"* (Thoits & Hewitt, 2001). Nationally, over 21 per cent of Canadians said they did not volunteer due to health problems. Given the literature showing that volunteering may improve health, it is possible that at least a portion of these 21 per cent might benefit from becoming volunteers. One study found that those with an internal locus of control, with higher self-esteem, and with greater emotional stability contribute more and are better able to handle volunteer situations than those with low self-esteem and an external locus of control. (Penner & Finkelstein, 1998). Therefore, it appears that the healthy characteristics associated with volunteering might be partly a contributor and partly a consequence of volunteering. Thoits and Hewitt (2001) suggest a model to explain the characteristics a volunteer is likely to possess. Their personal well being model examines personality characteristics as well as mental and physical health status as determinants of becoming involved in volunteer activities.

" ... Individuals who volunteer-for whatever reason, motivation, or goal - are more likely to possess such personal resources, enabling them to pursue their values or goals more easily or effectively. Just as people are selected into achieved statuses such as marriage and employment partly on the basis of their personality characteristics, interpersonal skills, and physical and mental health, so they may be selected into or select themselves into volunteer associations and volunteer work by similar factors. "

Thoits and Hewitt (2001) suggest six personality characteristics that appear to influence participation in volunteer activities: well being, life satisfaction, happiness, self-esteem, physical health, and mastery. They found that the number of hours spent volunteering was positively correlated with the six personality characteristics.

There is a surprisingly small amount of literature on the potential health costs of volunteering. There have been a few qualitative studies, but even fewer quantitative studies in this area. Certain organizations may be especially prone to problematic outcomes. In one example, Claxton et al. (1998) suggest that due to high stress situations, “AIDS buddies” (supportive networks of individuals for those suffering from AIDS) will likely experience stress and burn-out, thus raising the drop-out rate in such programs, and leaving the organizations scrambling for new volunteers to recruit and train (1998). Other types of volunteering, such as mentoring youth with psychological issues surrounding physical abuse, neglect, or sexual abuse, appear to have outcomes and rates of burnout similar to those identified in Claxton’s study of AIDS volunteers. Grossman and Rhodes (2002) indicate that mentors of these troubled youth sometimes quit prematurely because they feel overwhelmed, unappreciated, and burned out from dealing with individuals with such special needs.

Every community has a wide range of volunteer organizations. The focus on one or two types of organizations may not be painting the complete picture. What is needed is a study at the community level, showing the physical and psychological outcomes associated with volunteering. The present study, by GPI Atlantic, does just that.

Methods and Data Collection

In the summer of 2001, the 78-page GPI survey was distributed to the residents of two Nova Scotian communities: Glace Bay and Kings County. The survey took, on average, two to three hours to complete, and received an 82 per cent response rate in Glace Bay with 1,708 residents completing the survey. The response rate in Kings County was more than 70%. Data were then painstakingly cleaned and entered. For the following results, simple frequencies and cross tabulations were used to compare volunteers and non-volunteers across a number of variables. In addition, an independent samples t-test was conducted to compare volunteers and non-volunteers on a measure of psychological distress.

The Glace Bay Volunteer

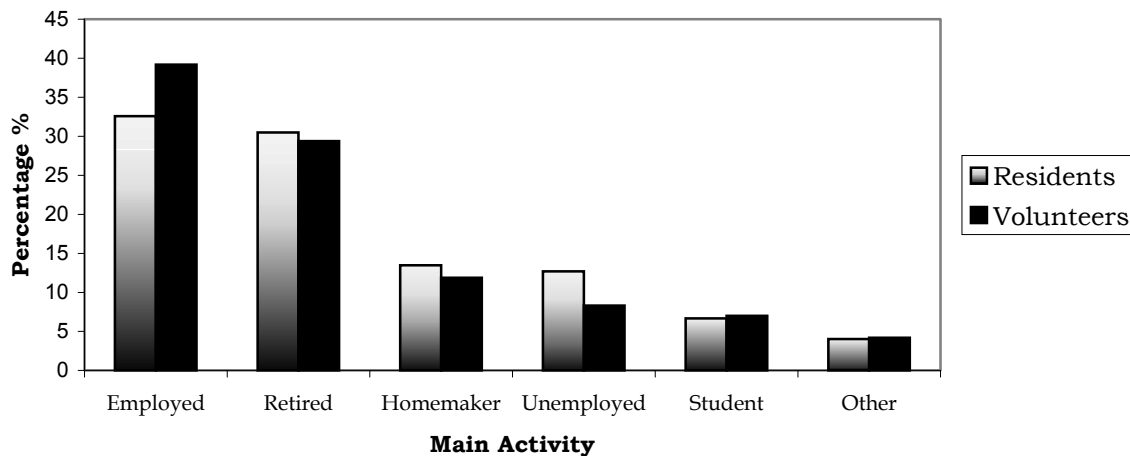
The Community GPI data on volunteerism allow us to gain a look into the life of a typical volunteer in Glace Bay. Over 28 per cent of residents reported volunteering with a formal organization in the past 12 months, which is slightly above the national average of 27 per cent (NSGVP, 2001). On average, Glace Bay volunteers spend approximately 204 hours per year volunteering, which is well above the national average of 162 hours (NSGVP, 2001). Overall, greater than 90 per cent of volunteers indicated that their volunteer work was important or very important in their lives.

Using the survey data, we can identify some of the categories into which a typical Glace Bay volunteer falls. The typical volunteer is female, between the ages of 45-54, married or living common law, and is employed (see Figure 1). Almost 80 per cent of those who volunteer have children. In addition, the majority of volunteers hold a grade 12 or postsecondary education, with a much higher rate of volunteering among university degree holders (see Figure 2). Glace Bay residents tend to volunteer (in order of importance) through

religious, sport and recreation, and educational organizations (see Figure 3). Nationally, the top areas of volunteering are in sport and recreation, social services, followed by religious organizations.

Figure 1

Comparison of Employment Status of Glace Bay Residents & Glace Bay Volunteers



A multiple regression analysis showed that satisfaction with volunteering was predicted ($R = .21$, $p < .001$) by three core values: spiritual faith, responsibility, and less emphasis on financial security. This is consistent with the previous finding demonstrating that a large number of volunteers in Glace Bay volunteer through religious organizations.

A significant body of literature on volunteerism indicates increasing difficulties in obtaining and retaining volunteers for the long term. Through analysis of the GPI data we have been able to identify the barriers Glace Bay residents face and perceived benefits they gain from volunteering. Non-volunteers reported that the top three barriers preventing them from volunteering included not having enough time (27%), health problems (16%), and a lack of interest. It is noteworthy that over 22 per cent of Glace Bay males, but only 9 per cent of females, reported that they were simply not interested in volunteering. The pattern is different nationally where, of those who do not volunteer, over 69 per cent say they do not have the extra time, 46 per cent are unwilling to make a year-round commitment, and 38 per cent say that they gave money instead of time (NSGVP 2001).

Participants were also asked about their reasons for volunteering, or what benefits they obtained from volunteering. Glace Bay volunteers cited the following top three benefits and reasons for volunteering: 53 per cent wanted to help others, 42 per cent said they volunteered because it was something they liked to do, and over 41 per cent reported that volunteering gave them a feeling of accomplishment. The national statistics reflect somewhat different reasons. Nationally, almost all (95%) volunteer because they believe in the cause, 81 per cent volunteer because they want to

put their skills and experience to use, and 69 per cent volunteer because they are affected by the cause the organization supports (NSGVP 2001). Hopefully, local volunteer organizations will be able to use this information to recruit and train new volunteers.

Figure 2: Education Status Of Volunteers vs. Non- Volunteers in Glace Bay

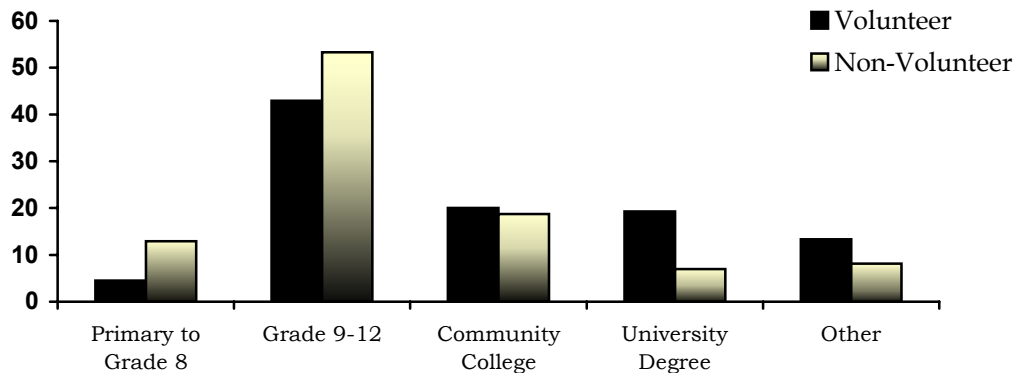


Figure 3: Where Glace Bay Volunteers Spend their Volunteer Time

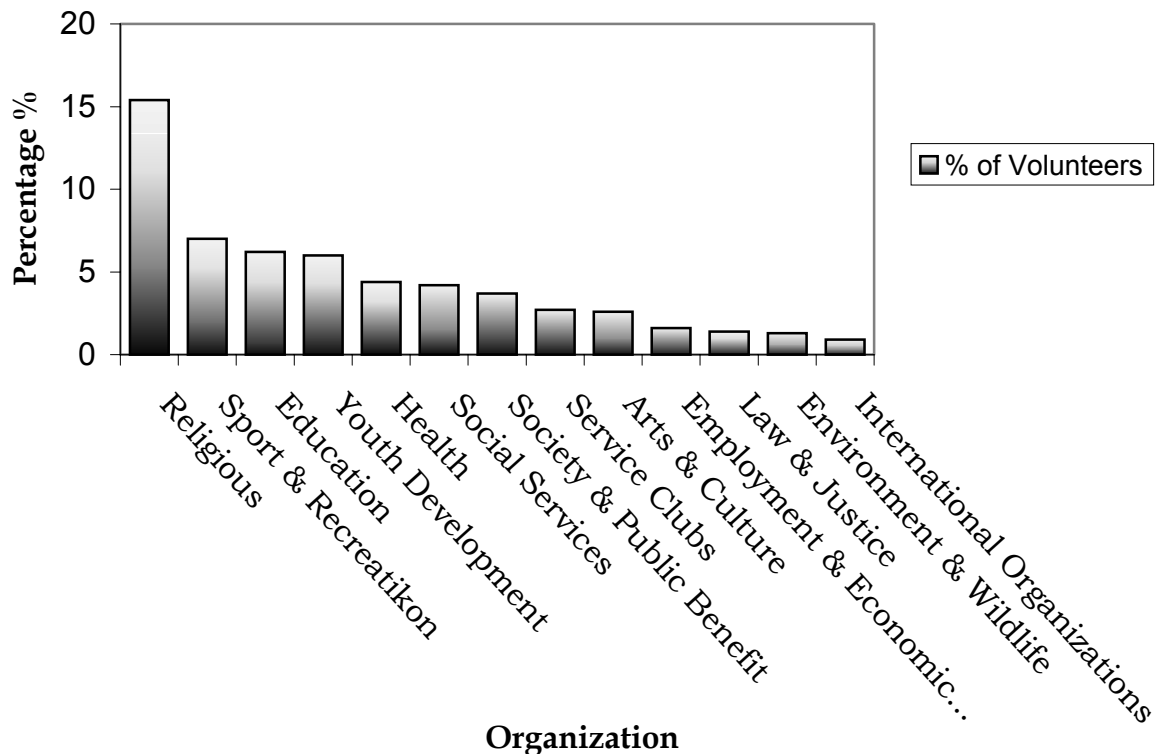
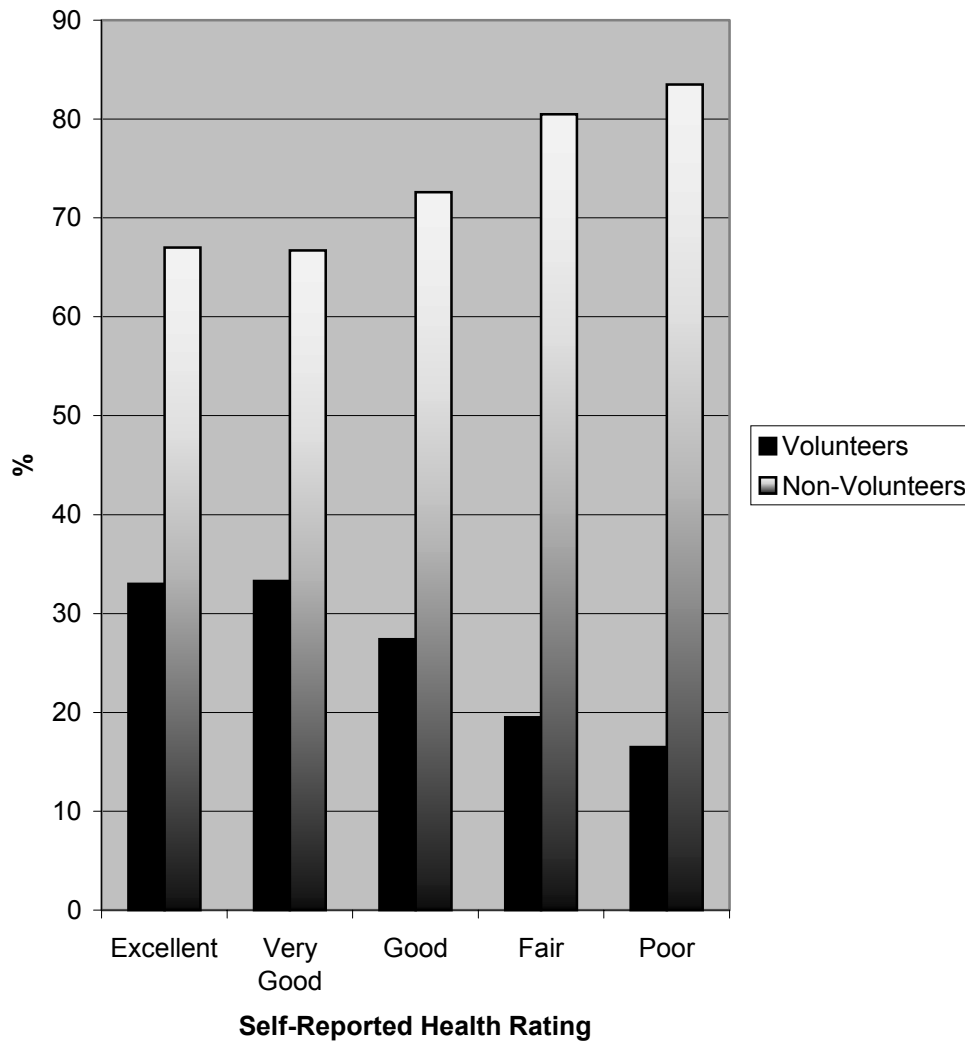


Figure 4

**Rate of Volunteering in Five Health Status Groups
in Glace Bay**



Volunteering and Health in Glace Bay

The Glace Bay GPI survey allows us to make a contribution to the quantitative research on volunteering. Health is a very broad term that encompasses a number of different variables, and a number of these variables are reflected in the current research. In order to include indicators of both physical and mental health, as well as risk factors and health outcomes, we investigated self-rated health, rates of physical activity, stress, time pressure, satisfaction, happiness, psychological distress, and medication usage.

In general, volunteers in Glace Bay reported their health as very good or excellent, as compared to their non-volunteering counterparts (54.6% vs. 43.8%). However, as noted above, it is difficult to determine the direction of causality and to assess whether poorer health inhibits volunteering or whether volunteering produces better health. The Glace Bay GPI survey also found that health problems were a major barrier to volunteering. Notably, the rate of volunteering declined precipitously as self-reported health status declined (see Figure 4).

Self-reported health status is recognized as a highly reliable predictor of actual health outcomes, disability, and longevity. The survey found that the self-rated health of volunteers is higher than that of non-volunteers and that those who volunteer are more physically active than non-volunteers. In the three months leading up to the survey, almost 84% of volunteers reported engaging in some form of sport or recreation, whereas only 56% of non-volunteers did the same. This may be due to the fact that sport and recreation organizations play host to the second highest number of volunteers in Glace Bay, so the sporting organizations and activities for which some people volunteer help to keep them in good physical shape and thus lead to perceived better health.

Approximately 60 per cent of Glace Bay residents rate themselves as happy and interested in life; the rate jumps to 71.2 per cent among volunteers and is only 54.8 per cent among non-volunteers. An explanation for these findings may be found in why people choose to volunteer. “Doing something I like” is one of the top reasons why residents chose to volunteer in Glace Bay, so this motivation may contribute to feelings of happiness. It is reasonable to assume that if more people were to be introduced to the psychological benefits of volunteering, this may help to alleviate feelings of despair and depression by enabling a focus on helping others.

In Glace Bay, the GPI survey showed a link between life satisfaction and volunteering. It was found that 39.8 per cent of Glace Bay residents were very satisfied with their lives, including 48.5 per cent of volunteers, and 36.4 per cent of non-volunteers. Of concern are the 7.9 per cent of Glace Bay residents who said they were somewhat dissatisfied with their lives; the rate was 8.9 per cent of non-volunteers, and only 5.2 per cent of volunteers. There appears to be a psychological advantage to volunteering, though not in all cases.

There were two health-related indicators on which volunteers did not fare as well as non-volunteers. Self-ratings of stress and time pressure suggested volunteers experience somewhat more stress (46.5%) than non-volunteers (45.1%), and volunteers feel more pressed for time (49.3% vs. 45.4%). One possible explanation for these findings is that typically, volunteers are married, employed, and have children, all of which contribute to the stress and time pressures a volunteer may experience. These conditions may take a toll on volunteers. In order to determine to what degree these conditions may be affecting the psychological health of volunteers overall, a 10-item composite index was used. The 10 items included happiness, anxiety, hopelessness, worthlessness, effort, stress, life satisfaction, control, and agitation. All items were coded such that a high score indicates a higher level of psychological distress. The range of possible scores was from zero to 34. An independent samples t-test revealed a large statistically significant difference ($t(9480)=14.6, p<.001$) between the psychological distress of volunteers ($M=5.6$) and non-volunteers ($M=6.9$).

Finally, medication usage was investigated as an indicator of health. The survey asked about the various medications used by Glace Bay residents and the frequency of medication usage. For the purpose of the following analyses, only participants under the age of 65 are included, and all references are to daily usage of medication. All but one of the medications was used more frequently among non-volunteers than volunteers. It would appear that in Glace Bay, there are two categories of medications that show noteworthy differences. Mood-altering medications, such as tranquilizers, antidepressants, codeine, Demerol, morphine, and sleeping pills, are used much more frequently among non-volunteers than volunteers. In addition, diabetes medication and insulin usage show a similar trend.

This *appears* to suggest that individuals who suffer from conditions which require them to take medications are less likely to volunteer. However, among those of working age (under 65 years) who stated they were limited in activity due to long-term physical or mental health problems, 27.6 percent still volunteered, as compared to 29.1 per cent among those who were not limited. Clearly, volunteerism rates are still high, regardless of physical or mental limitations.

Thus, we pose the following question: Is there something about individuals who take less medication that makes it more likely they will volunteer, or is there something about volunteering that makes it less likely that people will take medication? Based on the overall findings of this report, including the core values of volunteers, their familial and work-related responsibilities, and self-rated health, the latter appears more likely. The complete list of medications studied and differences between volunteers and non-volunteers with regard to medication usage are shown in Table 1.

Table 1 Percentage of Daily Medication Use among Volunteers and Non-Volunteers in Glace Bay

Type of Medication	Volunteers (% using)	Non-Volunteers (% using)
Pain Relievers (i.e. Tylenol)	21.5	24.0
Tranquilizers	0.5	2.3
Diet Pills	0.4	0.4
Antidepressants	4.5	6.5
Codeine, Demerol, or Morphine	0.8	2.0
Allergy Medicine	2.7	3
Asthma Medicine	3.1	4
Cough or Cold Medicine	0.9	1.1
Penicillin or Other Antibiotics	7.9	8.8
Medicine for Blood Pressure	22.6	25.5
Diuretics	5.8	7.3
Steroids	1.0	1.7
Insulin	1.0	2.3
Diabetes Medication	2.3	5.8
Sleeping Pills	1.0	2.9
Stomach Remedies	11.4	10.5
Laxatives	1.1	1.3
Hormones for Menopause	5.5	6.1
Birth Control Pills	5.0	5.0

Overall, volunteers in Glace Bay use less medication, show higher levels of happiness and life satisfaction, and lower levels of psychological distress than non-volunteers in the community. This supports previous findings that volunteers tend to be healthier than non-volunteers. However, due to more time constraints and personal commitments, volunteers tend to show higher levels of stress.

Kings County Volunteers

In Kings County, the volunteering rate is particularly high. Over 49 per cent of Kings County residents report that they have volunteered with a formal agency in the past 12 months. This is well above the national rate of 27 per cent and also well above Glace Bay's rate of 28 per cent. Moreover, Kings County volunteers give considerably more time per year (250 hrs) than the national average of 162 hrs, and more than Glace Bay volunteers (204 hours). In Kings County, 88.3 per cent of residents rated their volunteer activities as either important or very important in their lives.

The typical volunteer in Kings County is much like the typical volunteer in Glace Bay. Kings County volunteers tend to be female and employed, almost 70 per cent are married or living common law, over 78 per cent have children, and over 34 per cent have a grade nine to 12 education (see Figure 5 and 6). In addition, among university graduates almost twice as many volunteer as those who do not volunteer.

There is an age difference between volunteers in Glace Bay and Kings County, with volunteers in Kings County generally younger, typically 35-44 years of age, whereas Glace Bay volunteers are more likely to be in the 45-54 year age group. This difference may also represent the generally older age profile of the Glace Bay population.

The types of organizations for which people volunteer in Kings County are similar to those in Glace Bay. Glace Bay volunteers are more likely to volunteer for their churches and other religious organizations. In order of importance, Kings County volunteers are associated with sport and recreation, education, and religious organizations (see Figure 7).

Figure 5 Education Status Of Volunteers vs. Non- Volunteers in Kings County

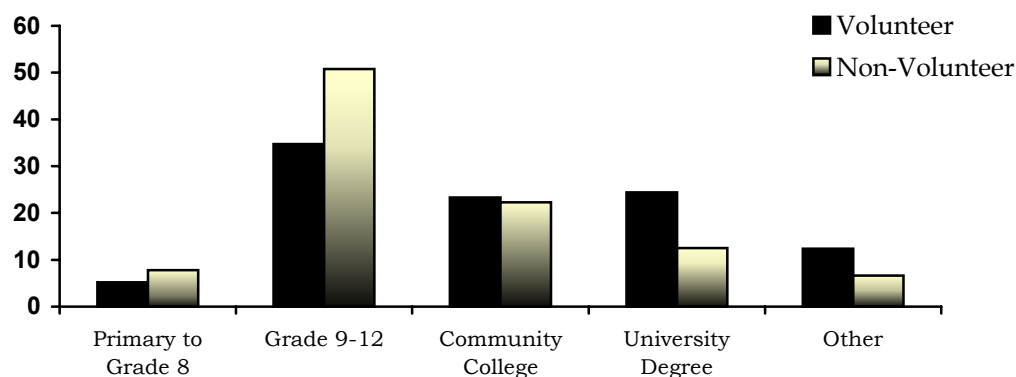


Figure 6

*Employment Status Of Kings County
Volunteers and Non-Volunteers*

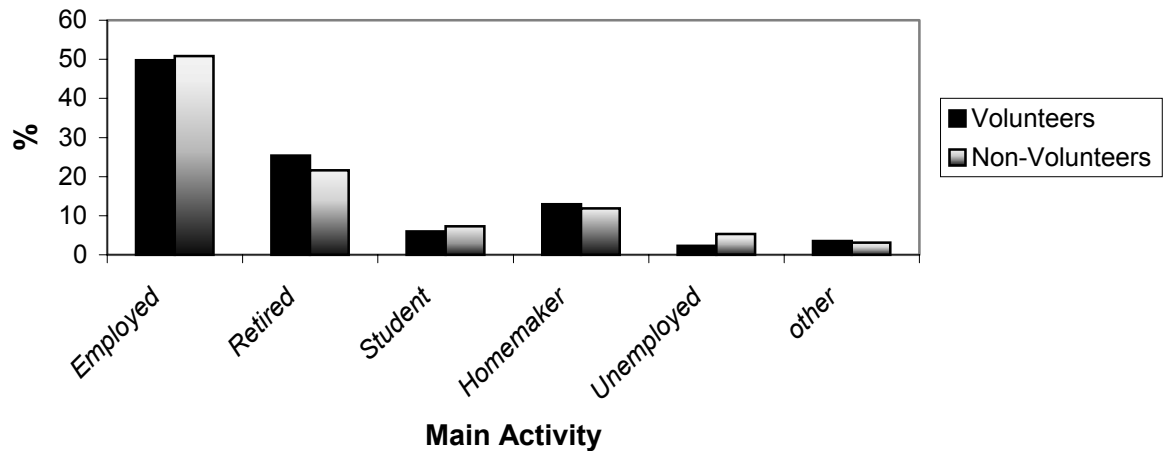
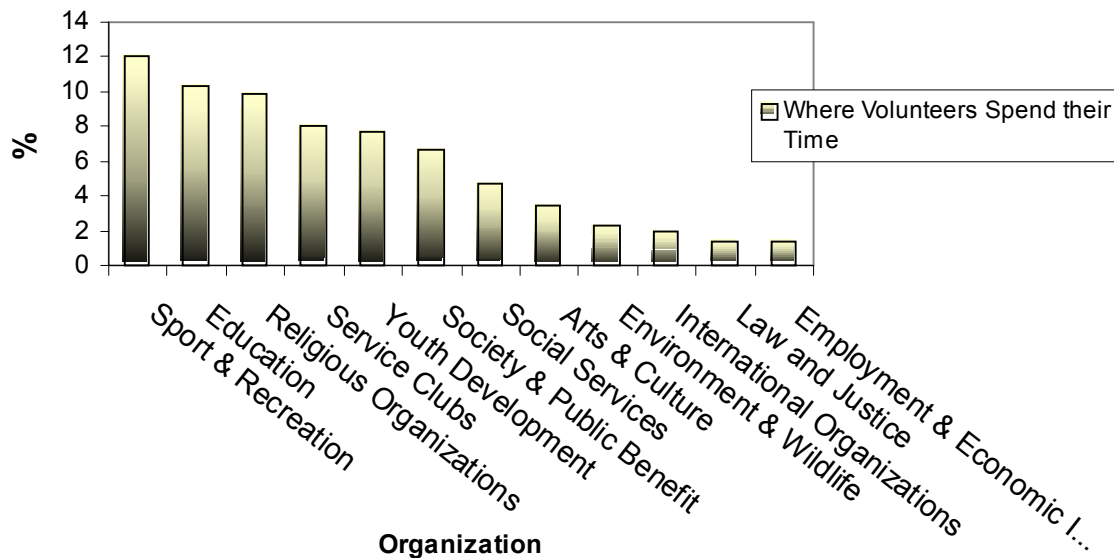


Figure7

Where Kings County Volunteers Spend their Time



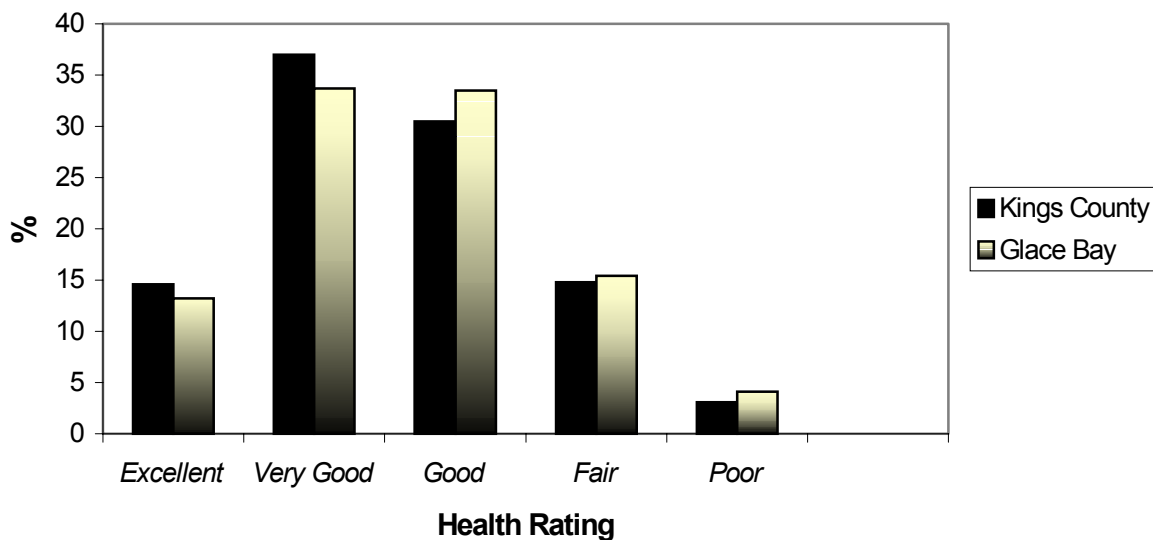
A multiple regression analysis showed that satisfaction with volunteering was predicted ($R = .302$, $p < .001$) by three core values: generosity, spiritual faith, and friendship. This compares with the Glace Bay finding that satisfaction with volunteering was predicted by spiritual faith, a sense of responsibility, and less emphasis on financial security, in that order. In both

communities the importance of spiritual faith as a predictor of volunteerism is consistent with the finding that with a substantial portion of volunteers contribute to religious organizations.

The barriers to volunteering were investigated in Kings County as well. Kings County residents reported that the top three reasons they did not volunteer were, in order of importance: not enough time (22%), not willing or interested (9.4 %), and they were not personally asked (9%) (see Figure 9). The major difference between the two communities in this variable is that Kings county residents did not rate health among their top three reasons for not volunteering; only 7.2 per cent of Kings County non-volunteers cited this barrier, (compared to 16% of non-volunteers in Glace Bay). Overall, the health profile is marginally better for Kings County where a few more people rate their health as very good to excellent (see Figure 8).

Although identifying why individuals do not volunteer is important, equally important are the reasons why people do choose to volunteer. The top three reasons given by Kings County volunteers as to why they volunteer are (in order of importance): helping others (61%), doing something you like (55%), and that it gives a feeling of accomplishment (54%) (see Figure 10).

Figure 8
Self-Rated Health for Kings County vs. Glace Bay



The Health of Kings County Volunteers

The overall psychological distress of volunteers in Kings County was investigated by conducting an independent samples t-test. Unlike Glace Bay, there was no statistically significant difference ($t = 1.75$, $p > .05$) in psychological distress between the volunteers ($M = 8.04$) and non-volunteers ($M = 8.46$), though the difference *approached* statistical significance ($p = .080$) and tended to suggest the same conclusion observed in Glace Bay where volunteers were less distressed than non-volunteers.

Finally, the differences in medication usage were also investigated. Differences between volunteers and non-volunteers, as well as comparisons between Kings County and Glace Bay were explored. Contrary to the Glace Bay findings, there was a remarkable similarity in medication usage between volunteers and non-volunteers, with the exception of birth control pills. Among non-volunteers, birth control pills are used at a rate twice that of volunteers.

Figure 9

Barriers To Volunteering in Kings County

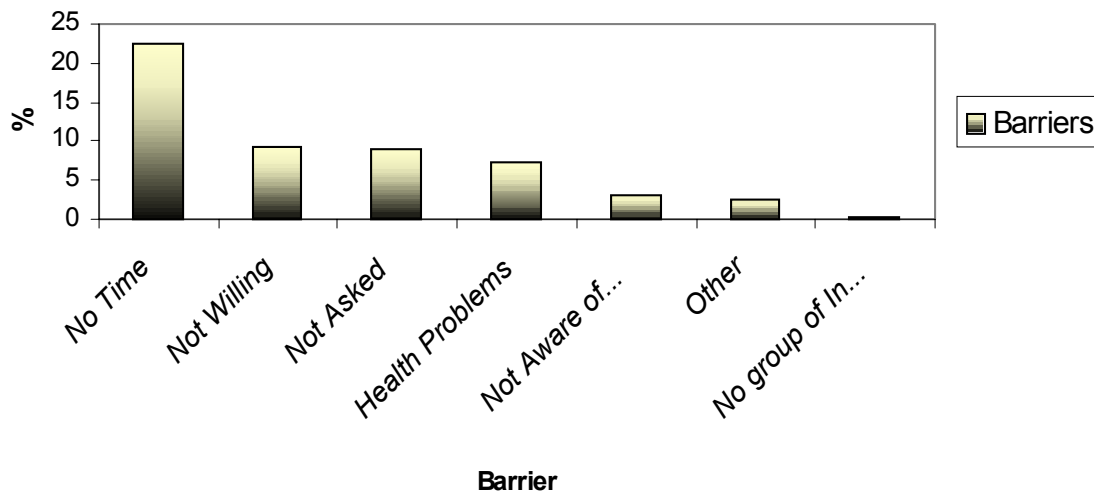


Figure 10

Reasons for Volunteering in Kings County

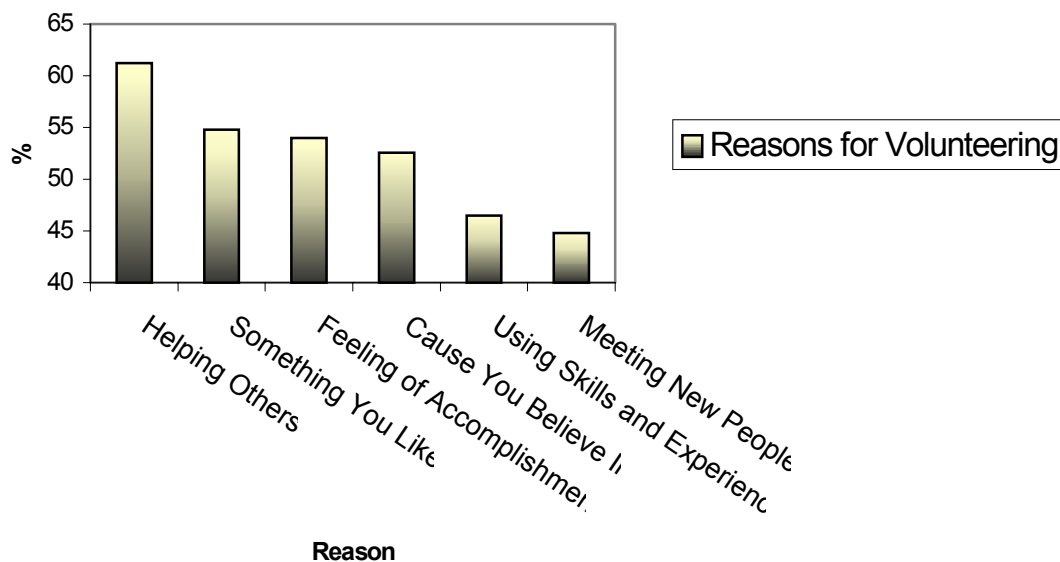


Table 2 Percentage of Daily Medication Use among Volunteers and Non-Volunteers in Kings County

Type of Medication	Volunteers (% usage)	Non-Volunteers (% usage)
Pain Relievers (i.e. Tylenol)	11.8	13.3
Tranquilizers	0.8	0.4
Diet Pills	0.8	0.8
Antidepressants	4.6	5.3
Codeine, Demerol, or Morphine	0.4	0.7
Allergy Medicine	2.8	2.0
Asthma Medicine	3.3	2.7
Cough or Cold Medicine	1.1	1.3
Penicillin or Other Antibiotics	2.3	3.9
Medicine for Blood Pressure	8.8	9.2
Diuretics	3.5	2.9
Steroids	1.5	0.9
Insulin	0.4	1.5
Diabetes Medication	1.7	1.9
Sleeping Pills	1.6	2.3
Stomach Remedies	4.9	5.5
Laxatives	0.7	0.9
Hormones for Menopause	6.7	5.4
Birth Control Pills	5.5	10.9

Summary

The relationship between volunteerism and health has been explored in previous research, yet most of the research has been qualitative and not quantitative and has focused on select samples (e.g., elderly persons). Research using the results of the Glace Bay and Kings County GPI surveys has allowed a contribution to the small amount of community-level, quantitative research that exists on volunteerism and health. Through this research, it has been discovered that there are significant health advantages to volunteering. On average, the self reports of volunteers suggest that they are in better health, are more satisfied with life in general, are happier, and engage in more physical activity than their non-volunteering counterparts. However, they do experience more stress and time pressure. In addition, those who volunteer in Glace Bay are less psychologically distressed than non-volunteers. In sum, there appears to be a significant advantage to one's health and well being when one volunteers.

The GPI data have allowed us to put together a profile of the typical Glace Bay and Kings County volunteer. The demographic categories with the highest rates of volunteerism are female, between the ages of 45-55, (35-44 in Kings County), married or living common law, are employed, and who typically possesses a grade 9-12 education. In addition, volunteers tend to spend their time volunteering for religious and sporting organizations.

The information on health outcomes and the profile of a typical volunteer have many implications for the local volunteering community. Equipped with this information, organizations that depend on volunteers can first look at whom they might target for volunteer

recruitment and what methods may be more successful in recruiting (for example, the health benefits of volunteering). The information may also be useful in helping these agencies devise strategies to retain volunteers. In addition to these implications for the local volunteer community, this research is contributing to a broader field of research into volunteerism. By better understanding the factors that contribute to or detract from volunteerism, as well as its outcomes for the individual and the community, at the local level, we can develop models of volunteerism with wide applicability. Given that we have found similarities, but also some striking differences in two small Nova Scotian communities, there is much left to be learned about the voluntary sector in Canada.

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Appendix 20: Description of Employment-Health Research Currently Under Way

Attached here is a description of a research project currently being undertaken for Health Canada's "Health Impact of Economic Change" research program. The work builds on and extends the preliminary analysis of employment-health correlations described in this report. Lead researcher, Dr. Sean Rogers, Economics Department, Dalhousie University, is presently conducting analyses of the Kings County and Glace Bay community health databases to elucidate the employment-health nexus as described below.

Health Impact of Economic Change

1. Purpose of this Research

Health Canada has recognized for well over a decade that the determinants of population health include key social and economic influences. To shape policy, however, recognition is not enough. It is essential to assess the complex impact of economic change on health through empirical evidence, and to trace the specific pathways and interrelationships through which these changes exert their influence. Such hard, defensible evidence is critical for the department to initiate policy change.

2. GPI Atlantic and project team

GPI Atlantic is a non-profit research organization well placed to contribute to the understanding of the impact of economic change on health. As part of its mandate to develop economic, social, and environmental indicators of wellbeing, GPI Atlantic's extensive network of researchers has conducted considerable research over the last six years specifically designed to elucidate connections between economic change and health²⁶. GPI Atlantic's close working partnerships

²⁶ GPI Atlantic's related projects include:

- preparation of a discussion paper for Health Canada's Atlantic region office on "Equity and Disease";
 - a CIHR research project in collaboration with Ron LaBonte, Ph.D, University of Saskatchewan and Dennis Raphael, Ph.D, York University, on "Income and Health";
 - a Canadian Population Health Initiative funded project to administer the detailed community health surveys in Glace Bay and Kings, and to conduct in-depth research projects on the relation between unpaid caregiving and health outcomes; and on the relation between time use and health;
 - two reports assessing *Women's Health in Atlantic Canada*, for the Atlantic Centre of Excellence for Women's Health, including one volume on the social determinants of women's health in Atlantic Canada;
 - a report for the NS Health Department on the *Cost of Chronic Disease in Nova Scotia*, which includes a major chapter on the social determinants of health;
 - a report for the NS Health Department on the *Economic Impact of Smoke-Free Workplaces*;
 - a report on *Income Distribution in Nova Scotia*, which includes a major section on equity and health;
 - reports on the economic cost of smoking, obesity, physical inactivity, and HIV/AIDS;
 - reports on the economic value of unpaid work, including voluntary work, and unpaid housework and child care.
- For a full list of these and other relevant GPI research reports and publications, please visit the GPI Atlantic web site at www.gpiatlantic.org.

in this field with five Atlantic Canada universities will bring a highly qualified project team to bear on the proposed project.

3. Background and Context: Economic Change

The past quarter century has seen rapid and dramatic economic and social changes, which have both direct and indirect health impacts. For example:

- The increasingly competitive global economy has had domestic impacts on firm structure, real wages, income disparities, work hours, the environment, and other health determinants.
- An economy based increasingly on knowledge and information, rather than plant and equipment, has affected educational and health disparities.
- Unbridled energy and natural resource consumption have had impacts on climate, fish stocks, forests, farmland, and water resources that were unanticipated 25 years ago.
- The shift from family farms and local food sources to industrial agriculture, highly processed foods, and long-distance transportation of food may have affected the nutritional value of food, and produced unintended health impacts.
- Women have doubled their employment and labour force participation rates, with impacts on gender roles, children, family structure, time stress rates, and free time.
- An era of fiscal restraint has affected family wellbeing as well as access to health services and social supports.

The impact of these changes on health is not well understood. There has been frank acknowledgement of the inadequacy of knowledge on the nature of the changes themselves, and particularly on the reasons for the increasing co-variance of income, education, age, and other factors. For example, concerning shifting gender patterns, Heisz et al. (2002) admit that “little is known regarding these relative shifts in earnings, employment and unemployment, and this remains one area requiring further research.”²⁷ Similarly Statistics Canada analyst, Marie Drolet (2001), has acknowledged that “roughly one half to three quarters of the gender wage gap cannot be explained” by any of 14 employment, industry, education, or demographic factors.²⁸ Despite the widely acknowledged influence of income and equity on health outcomes,²⁹ the impact of

²⁷ Heisz, Andrew, A. Jackson, and G. Picot, *Winners and Losers in the Labour Market of the 1990s*, Statistics Canada, catalogue no. 11FOO19, no. 184, March, 2002, page 17.

²⁸ Drolet, Marie, *The Persistent Gap: New Evidence on the Canadian Gender Wage Gap*, Statistics Canada, catalogue no 11F0019-MPE, no. 157, January, 2001, page; Drolet, Marie, *The Persistent Gap: New Evidence on the Canadian Gender Wage Gap*, Income Statistics Division, Statistics Canada, December, 1999, catalogue no. 75F0002MIE-99008, page 13, and table 3.

²⁹ For example, Ross, Nancy. et al., “Relation between income inequality and mortality in Canada and in the United States,” *British Medical Journal* 2000; 320: 898-902; Wilkinson, R.G., *Unhealthy Societies: The Afflictions of Inequality*. Routledge. London. 1996; Kawachi I, Kennedy BP, Wilkinson RG, eds. *The Society and Population Health Reader, Volume I: Income Inequality and Health*. New York: New Press, 1999; Lynch, J.W., Davey-Smith, G., Kaplan, G.A., and House, J.S. 2000. “Income Inequality and Health: A Neo-Material Interpretation.” *British Medical Journal* 320:1200-1204. A *British Medical Journal* review of evidence concluded: “What matters in determining mortality and health in a society is less the overall wealth of the society and more how evenly wealth is distributed. The more equally wealth is distributed, the better the health of that society.” In “Editorial: The Big Idea,” *British Medical Journal* 312, April 20, 1998, page 985.

these gender gaps and labour market shifts on health, and the pathways between economic change and health, are even less well understood.

New data sources such as the Kings County and Glace Bay community health database developed through a CPHI research program (see section 5.1) now allow the discrete contribution of economic factors to health status gradients to be assessed more accurately and in more detail through multiple regression analyses. Even more important, the health impacts of economic change can be both direct and indirect, since they are frequently mediated by social factors. Understanding this interconnected process is vital to assist policy makers.

Many key social processes operate at the community level. However, national survey data lack sufficient power to study them. Thus, the availability in Atlantic Canada of unique small-areas community survey data (section 5.1) will be an important asset in this project.

This process-oriented approach, which will be used in the proposed RFP-12 research project, will link health outcomes to a range of economic factors including:

- impacts of women's changing employment patterns, and of the changing gender division of labour, on family formation and health;
- the relationship of these employment patterns to income and income sources; changing job/industrial mix; equity – including income and wealth distribution; and the co-variance of these factors with education;
- the role of changing employment patterns in shifting consumption patterns, and the impact of those changes in consumption on the physical environment and health;
- the differential impact of these economic changes on different regions, with particular emphasis on Atlantic Canada.

4. Objectives

- To investigate the impact of changing employment patterns in Canada on health, and to assess the pathways and mediating social factors that affect this dynamic. Analysis will be empirically based, and use new data described below. Because other economic factors are clearly related to changes in employment patterns, the project will investigate the synergy between these changing patterns and related economic changes and their combined impacts on health.
- To trace changed employment patterns to their antecedents. Changed employment patterns not only interact with other economic and social changes to affect health, but may also be *driven by* those factors, such as changes in real wages and consumption patterns.
- To examine “place” and particular regional, historical, and cultural factors that may act as intervening variables in the relationship between shifting employment patterns and health. Given the presence of new Atlantic Canada data sources, and a project team from five Atlantic universities, this aspect of the investigation will focus on Atlantic Canada.
- To investigate the policy implications of the association between economic change and health. In particular, interventions designed to mitigate potentially adverse health impacts of changes in employment patterns will be studied with a view to identifying where such interventions may be most successful.

Each of these objectives is outlined in more detail below, using examples.

4.1 Objective 1: To investigate the impacts of changing employment patterns on health

An example is provided by a review of women's changing employment patterns and the changing gender division of labour. It demonstrates both the policy relevance and utility of this analysis, and the range of possible pathways linking economic change to health. These same considerations will apply in researching the other economic factors noted in section 3 above.

Women have more than doubled their rate of labour force participation in the last 40 years, with the sharpest recent increases in employment among women with infants. Since 1976:

- women without children have increased their employment rate by 26%;
- women with a youngest child aged 6-15 have increased their employment rate by 62%;
- women with a youngest child 3-5 have increased their employment rate by 83%; and
- women with a youngest child aged 0-2 have increased their employment rate by 124%.³⁰

To assess the impact of this dramatic economic change on family structure and health requires an assessment of women's total workload, including unpaid work, a subject that GPI Atlantic has been researching in depth for several years (Colman 1998, 2000, 2003).³¹ For example, Statistics Canada has found that full-time working mothers put in an average 75-hour work week,³² that time stress rates have increased sharply since 1992, and that working mothers are the most time-stressed demographic group. Women in 1998 registered rates of time stress that were more than 30% higher than those of men.³³ Stress, in turn, has recently been assessed as the most costly of all health risk factors.³⁴

But the new gender division of labour is likely to have indirect impacts on health through consequent changes in family formation, family structure, and child-rearing practices. For example, the gender division of labour within the household has not changed nearly as dramatically as that in the market economy, and women still do nearly two-thirds of the unpaid household work.³⁵ This double burden has led to an absolute loss of free time for women, which in turn has had effects on wellbeing and quality of life. It has also led to changes in lifestyle that have their own health impacts. For example, a Statistics Canada study has linked longer work

³⁰ Statistics Canada, *Women in Canada: Work Chapter Updates*, catalogue no. 89F0133-XIE, April 2002, pages 6 and 12, Table 5

³¹ Colman, Ronald, *The Economic Value of Unpaid Housework and Child Care in Nova Scotia*, GPI Atlantic, Halifax, 1998; Colman, Ronald, *Women's Health in Atlantic Canada: A Statistical Profile*, GPI Atlantic and Atlantic Centre of Excellence for Women's Health, Halifax, 2000; Colman Ronald et al., *Women's Health in Atlantic Canada: 2003 Update*, GPI Atlantic and Atlantic Centre of Excellence for Women's Health, Halifax, forthcoming February 2003.

³² Statistics Canada, *Overview of the Time Use of Canadians in 1998*, catalogue no. 12F0080-XIE, Ottawa, November, 1999, Table 1, page 5, and Table 3, page 14.

³³ Statistics Canada, *The Daily*, November 9, 1999.

³⁴ Geotzel, Ron (ed), "The Financial Impact of Health Promotion," *American Journal of Health Promotion* 15 (5), May / June, 2001.

³⁵ Colman, Ronald (2000), *Women's Health in Atlantic Canada*, Atlantic Centre of Excellence for Women's Health and GPI Atlantic, Halifax, page 26, and *Women's Health in Atlantic Canada 2003 Update*, Atlantic Centre of Excellence for Women's Health and GPI Atlantic, Halifax, forthcoming February, 2003.

hours with decreased physical activity, and with increases in smoking, alcohol consumption, unhealthy weight gain, and depression.³⁶

The increased work burden of dual earner families has also led to a sharp increase in the proportion of the household food budget spent eating out.³⁷ These shifts, too, have impacts on health, and the proposed RFP-12 project will explore whether healthy diets have suffered, and whether this trend has contributed to the sharp increase in obesity.³⁸

A Harvard University study of 16,000 children released in 2000 found that the more frequently families ate together, the more fruits and vegetables and the less fried foods were consumed. Children who had regular family meals also had a comparatively higher intake of important nutrients and had healthier diets at other times of day as well.³⁹

Thus, the health impacts of any economic change, like the increased employment rates of women, are mediated through a wide range of social processes, including changes in family structure, household patterns, lifestyle behaviours, and the physical environment. This example of women's changing employment patterns is presented here in some detail to illustrate the multi-dimensional approach that will be adopted in the proposed project.

In this project, three basic approaches will be used to examine and assess these relationships and those described in the other objectives below:

Analytical approaches, using existing survey data, will be used to examine the social correlates of particular economic characteristics and economic change, and to assess how economic change operates at the level of the individual.

By using different surveys with comparable questions, the project team will have the ability to make comparisons between areas with different economic characteristics.

Comparisons over time will be made both through use of repeated cross-sections (e.g. General Social Surveys compared across years) and through longitudinal same-persons data (e.g. National Population Health Surveys, Survey of Labour and Income Dynamics).

4.2 Objective 2: To investigate the synergy of related economic changes and their combined impacts on health

The proposal recognizes that economic changes do not stand in isolation from one another. Employment, for example, strongly influences levels of income. A Statistics Canada study found

³⁶ Shields, Margot, "Long Working Hours and Health," Statistics Canada, *Health Reports* 11 (2), Autumn, 1999, pages 33-48.

³⁷ Statistics Canada, *General Social Survey: Overview of the Time Use of Canadians*, November, 1999, Table 1: Canada, regions and provinces, special tabulations run for GPI Atlantic; Statistics Canada, *Initial Data Release from the 1992 General Social Survey on Time Use*, catalogue no. 11-612, #30, Table 1; Statistics Canada, *Family Food Expenditure in Canada*, catalogue no. 62-554, and *Family Expenditure in Canada*, catalogue no. 62-555; Colman, Ronald, *The Economic Value of Unpaid Housework and Child Care*, GPI Atlantic, Halifax, 1998

³⁸ Statistics Canada, *Canadian Community Health Survey 2000/01*, "Counts and rates by body mass index (international standard)," reported in Statistics Canada, *The Daily*, May 8, 2002.

³⁹ Randi Hutter Epstein, "Linking Children's Health to Family Meals: Study shows families who eat together have better eating habits," *The New York Times*, reprinted in *The Chronicle-Herald*, Halifax, 29 March, 2000.

that the polarization of working hours in Canada in the 1980s was the key factor in increasing the level of inequality in weekly earnings.⁴⁰ A decline in the standard work week had led paradoxically both to larger numbers of workers putting in longer hours, and larger numbers unable to get the hours they needed. Both overwork and unemployment have been found to be stressful and to have health impacts. One Japanese study found that the underemployed and overworked had equally elevated risks of heart attack.⁴¹

Employment has also been demonstrated to have an independent effect on both physical and mental health.⁴² Marie Jahoda's seminal studies of the 1930s Depression showed that employment provides far more than income:

*"Employment makes the following categories of experience inevitable: it imposes a time structure on the waking day; it compels contacts and shared experiences with others outside the nuclear family; it demonstrates that there are goals and purposes which are beyond the scope of an individual but require a collectivity; it imposes status and social identity through the division of labour in modern employment; it enforces activity..."*⁴³

Conversely, Jahoda demonstrated that unemployment damages mental health.

In assessing the health impacts of economic change, the greatest challenge in this proposal arises from recognizing that any aspect of employment can affect health status. For example, job strain, overwork, lack of control or decision latitude in one's work, and job dissatisfaction can all have adverse health impacts. A survey of 3,000 young people over eight years in Australia found that those who were employed but dissatisfied with their jobs were indistinguishable in terms of mental health scores from those who were unemployed.⁴⁴ Thus, the impacts of changed employment patterns are clearly multi-dimensional.

4.3 Objective 3: To investigate potential antecedents to the identified economic change

Changed employment patterns may be *driven* by other economic and social factors, such as:

- changes in the real wage;
- changes in consumption patterns and in wealth (relative assets and debts);
- changes in social policy (such as reduced social transfer, employment insurance, and social assistance);
- changing gender relations (such as a narrowing of the gender gap in education, and changed gender social roles), and other factors.

⁴⁰ Morissette, Rene, "Why has inequality in weekly earnings increased in Canada?" Analytical Studies Branch research paper series, Statistics Canada, Catalogue No. 11F0019MIE, 1995080, July 30, 1995.

⁴¹ Sokejima, S. and S. Kagamimori, "Working hours as a risk factor for acute myocardial infarction in Japan: Case Control Study," *British Medical Journal* 317, 1998, pages 775-780.

⁴² On the health impacts of unemployment, see Canadian Public Health Association, *The Health Impacts of Unemployment: A Position Paper*, CPHA, Ottawa, 1996; Evans, R, *Why are some people healthy and others not?* Canadian Working Paper No. 20, Institute for Advanced Research, Program in Population Health, December, 1992.

⁴³ Jahoda, Marie, *Employment and Unemployment: A Social-Psychological Analysis*, Cambridge University Press, 1982.

⁴⁴ Fryer, David, "Unemployment: A Mental Health Issue," C.S.Myers lecture, British Psychological Society, annual conference, Brighton, U.K., in *The Jobs Letter* 24:9, September 1995.

While the second objective, above, investigates the synergy between the identified economic change and related factors from the point of view of consequences and impacts, the third objective attempts to trace the identified economic change to its potential antecedents. This is an essential step from a policy perspective.

To give just one example, shifts in employment patterns may change the composition of total income by increasing market income, but they may also be the *consequence* of prior changes in the composition of total income (e.g. a decline in transfer payments). The importance of this analysis for an understanding of our primary objective is illustrated by the fact that Nova Scotia in recent years has seen the largest increase in income after taxes and transfers for female lone-parents in the country. That in turn, has resulted in the most dramatic drop in low-income rates among children of single mothers in the country (from more than 70% in 1997 to 35% in 2000) – an outcome likely to have health consequences, given the demonstrated association between child poverty and adverse health outcomes.⁴⁵

Closer examination, however, reveals that these gains are entirely due to the higher market incomes of employed single mothers, with increase in employment strongly influenced by reductions in social assistance benefits in the 1990s. Low-income rates for non-employed single mothers actually increased between 1998 and 2000, and remain at about 90%.⁴⁶ By contrast, rising social assistance benefits in the 1980s acted as an employment disincentive for those single mothers who preferred to raise their children at home.⁴⁷ Repeated cross-sections and longitudinal data will be used to examine the consequences of these economic changes over time, with particular focus on the sharp changes in Nova Scotia as a case study.

4.4 Objective 4: To investigate the role of “place” in the impact of economic change on health, with focus on Atlantic Canada.

The fourth objective is to examine “place” and regional, historical, and cultural factors that may act as intervening variables in the relationship between shifting employment patterns and health. Atlantic Canada is an outstanding laboratory for this investigation, as it has seen the demise or decline of key industries associated with the “old economy” (e.g. coal, steel, fishing), and is therefore in the midst of major societal shifts that will impact health in significant ways. These changes currently manifest in sharp intra-provincial differences. For example, results from the 2000/01 Canadian Community Health Survey show that Cape Bretoners currently live more

⁴⁵ Statistics Canada, *Income in Canada 2000*, catalogue no. 75-202-XIE. For associations between child poverty and poor health, see for example: Health Canada, *Toward a Healthy Future: Second Report on the Health of Canadians*, Health Canada, 1999, page 85 and chapter 3; Ross, David, “Rethinking Child Poverty,” *Insight, Perception* 22:1, Canadian Council on Social Development, Ottawa, 1998, pages 9-11 (analysis based on Statistics Canada’s National Longitudinal Survey on Children and Youth); and Morrongiello, Barbara, “Preventing Unintentional Injuries among Children,” *Determinants of Health: Children and Youth*, in Canada’s Health Action: Building on the Legacy, volume 1, National Forum on Health, 1998.

⁴⁶ Statistics Canada, *Income in Canada 2000*, catalogue no. 75-202-XIE.

⁴⁷ Heisz, Andrew, A. Jackson, and G. Picot, *Winners and Losers in the Labour Market of the 1990s*, Statistics Canada, catalogue no. 11F0019, no. 184, March, 2002, page 26.

years with disabilities than residents of any of the other 138 health districts in Canada, while the health profile of Halifax more closely resembles that of central Canada.⁴⁸

Changes in employment opportunities are also changing the rural-urban mix in the Atlantic region, which will also affect health outcomes. The Atlantic region currently has a far higher proportion of its population living in rural areas than the rest of Canada. The Romanow Commission recognized the impacts of rural residency:

“Canadians in rural communities often have difficulty accessing primary health care and keeping health care providers in their communities, let alone accessing diagnostic services and other more advanced treatments In 1993, there was less than one physician per 1,000 people in rural and small town areas, compared to two or more physicians per 1,000 people in larger urban centres.”⁴⁹

Shifting employment patterns are also changing other elements of the economic dynamic and social fabric in Atlantic Canada more rapidly than in the rest of Canada. For example, even though Atlantic Canada has lower employment rates for both men and women than in the rest of the country, the female *share* of jobs has increased more rapidly in the Atlantic provinces than elsewhere. In fact, PEI was the only province in the country that actually had more women working for pay than men.⁵⁰

Employment and earned income also comprise a different share of total income in Atlantic Canada. In examining the relative importance of place, it will therefore be important to locate the impact of shifts in employment patterns in relation to transfers and other income sources.⁵¹ A 2001 GPI Atlantic analysis of income groups by quintile examined the relative contribution of shifts over time in market income, transfer payments, and taxes to changes in total and disposable income distribution.⁵² Such regional influences will therefore be examined.

New Atlantic Canada data sources will allow far better analyses of the influence of place on economic change than have hitherto been possible and on the impact this change on health. The 2000/01 Canadian Community Health Survey has detailed information on health determinants and health status for 21 Atlantic Canada health districts. The Newfoundland Community Accounts will allow labour force patterns over time to be correlated with data on changes in health behaviours and health outcomes gathered in two provincial health surveys in 1985 and 2001. And GPI Atlantic’s own detailed surveys in two Nova Scotia communities, conducted as part of a CPHI research program on community health indicators, include extensive data on employment patterns, income, work schedules, health status, disease outcomes, utilization of health services, and other variables.⁵³

⁴⁸ Shields, Margot, and Stephane Tremblay, “The Health of Canada’s Communities,” Supplement to *Health Reports*, volume 13, 2002, Statistics Canada, catalogue no. 82-003.

⁴⁹ Romanow, op. cit., page 162.

⁵⁰ Statistics Canada, *Labour Force Historical Review 2002*.

⁵¹ Statistics Canada, *Income in Canada 2000*, catalogue no. 75-202-XIE allows this analysis by source of income.

⁵² Dodds, Colin, and Ronald Colman, *Income Distribution in Nova Scotia*, GPI Atlantic, Halifax, July, 2001.

⁵³ GPI Atlantic’s community health survey is available at <http://www.gpiatlantic.org/pdf/communitygpi/>.

The proposed project team includes partners from five Atlantic Canada universities: Dalhousie University and St. Mary's University in Halifax; Acadia University in Kings County; University College of Cape Breton in industrial Cape Breton; and Memorial University in St. John's will all play an active role in data analysis. In addition, the Newfoundland Statistics Agency will be an active partner in use and analysis of the Newfoundland Community Accounts.

4.5 Objective 5: To contribute to policy development by investigating the policy implications of identified associations between economic change and health

Finally, the policy implications of the association between economic change and health will be investigated. Descriptive and empirical analysis will be used, including extensive reference to the epidemiological literature, to assess whether policy interventions geared to ameliorating the potential social impacts of changing employment patterns have had an impact on population health. Canadian and U.S. cases will be referenced, but almost all macro-policy interventions in this sphere have occurred in Europe, particularly the Netherlands, France, Belgium, Germany, and the Scandinavian countries. Those experiments will be assessed both for their impact in their own jurisdictions, and for their applicability to Canada.

A key challenge of the RFP-12 proposal will be to identify the key pathways between economic change and health outcomes, using both statistical sources and the epidemiological literature. The project will attempt to identify those social processes that affect potentially adverse health outcomes, and thereby suggest where policy interventions can be most effective.

For example, while health promotion efforts continue to focus on lifestyle changes, and while analyses of social health determinants focus largely on income and poverty, the brief sketch presented above indicates that effective policy interventions might also focus on changes in employment policies. The Netherlands is one of several European countries that have reduced both unemployment rates and long work hours by redistributing work hours. The Netherlands has made part-time work more attractive by prohibiting discrimination against part-time workers – ensuring them equal hourly pay, pro-rated benefits, and equal opportunities for advancement. The Netherlands now has the shortest average work hours of any OECD country, and the highest hourly rate of labour productivity.⁵⁴

Innovative European employment practices will be examined, with reference to the epidemiological literature, to assess their success in improving health status. Policies that support flexible work arrangements will also be examined.

⁵⁴ For an excellent account of shorter work time initiatives in Europe, see Hayden, Anders, *Sharing the Work, Sparing the Planet: Work Time, Consumption, and Ecology*, Between the Lines, Toronto, 1999. For Danish figures and comparative free time estimates among nations, see Harvey, Andrew, "Canadian Time Use in a Cross-National Perspective," *Statistics in Transition*, November, 1995, volume 2, no. 4, pages 595-610, especially Table 3, page 603. For comparative annual work hours, see International Labour Organization, *Key Indicators of the Labour Market*, September, 1999, available at <http://www.ilo.org/public/engish/60empfor/polemp/kilm/kilm.htm>. See also European Industrial Relations Observatory, Netherlands, 1999, "Political compromise on proposed part-time work legislation," available at <http://www.eiro.eurofound.ie/1999/10/inbrief/NL9910170N.html>.

Other policy interventions that will be examined focus on social supports for women's increased rate of labour force participation. The proposed project will explore a wide range of policy interventions that hold potential for improving the health of Canadians in the face of economic change. Throughout, this examination will be empirical and evidence-based. Unknowns and data gaps will be frankly described in the hope that they lead to further research.

5 Methodology and Work plan

5.1 New data sources to be utilized in this project

Statistics Canada, Health Canada, CIHI, provincial statistical agencies, and independent research groups have been developing new data sources that, for the first time, allow a detailed examination of many of the impacts of economic change on health. This proposed project will use these new data to study the mediating role of social supports, volunteerism, family formation, time stress, and other factors can now be examined.

These new data sources include:

- The 2000/01 Canadian Community Health Survey (CCHS), due to its large sample size (130,000), for the first time allows the correlation of socio-economic and demographic variables with health behaviours and health outcomes at the health district level. We have long known that national and provincial averages conceal major rural-urban and other intra-provincial differences in health status. The recently released CCHS data for 139 Canadian health districts can now be systematically correlated at the health district level with census, demographic, and labour force data on income disparity, low-income, unemployment, migration, Aboriginal status, immigrant status, housing affordability, and a wide range of other variables, and with administrative data on health service utilization and screening rates.
- The use of cross-sectional data to study process has substantial limitations, since inferences about process over time require strong equilibrium assumptions. For this reason, the CCHS data will be supplemented with longitudinal data from the National Population Health Surveys (NPHS) to allow an analysis of how the processes of economic change unfold and impact health outcomes. In addition, Statistics Canada's Survey on Labour and Income Dynamics provides useful information on changes in economic wellbeing over time and on the determinants of labour market and income changes. Project team members will have access to the new Atlantic Region Data Centre, allowing full access to this longitudinal data and to relevant Statistics Canada data sets.
- The province of Newfoundland and Labrador has recently made public its remarkable Community Accounts, which contain health, income, employment, and other economic and demographic data for 400 communities. The province's recent health survey for the first time provides 15-year trend lines that will allow an assessment of the health impact of dramatic economic changes, including the collapse of the ground-fishery.
- Regional data from Statistics Canada's 1999 Survey of Financial Security, the first national survey of assets, debts, and wealth since 1984, became available in December 2002. Almost

all studies of the impact of equity on health have relied on income statistics. The new SFS data now allow wealth disparities to be taken into account.

- In 2001-2002, GPI Atlantic undertook its own extensive community health survey in rural Kings County, Nova Scotia, and in Glace Bay, in industrial Cape Breton, as part of a Canadian Population Health Initiative research program on community health indicators. That survey, of 3,600 respondents, will allow for two full cross-tabulations of data, and the correlation of health data with corresponding data on employment, underemployment, work schedules, income, volunteer work, educational attainment, social supports, and a wide range of other health determinants. The survey (available at <http://www.gpiatlantic.org/pdf/communitygpi/>) includes both a time diary and food consumption diary, as well as information on energy use, transportation, and other data that allow calculation of an ecological footprint at the community level. The survey administration is complete, all data have been entered, and data cleaning has also been completed. Without a doubt, these surveys provide the most detailed community health data available for any community in Canada.

Advice and oversight by Statistics Canada's Social Survey Methods Division, and close partnerships with Dalhousie University's Population Health Research Unit, and with academics at Acadia University (Kings County) and University College of Cape Breton ensure the highest standards of statistical validity and analysis. Careful phrasing of questions, under Statistics Canada's guidance, ensures that results are comparable to national and provincial data sets. A comparable community health survey is now being initiated in the Halifax Inner City, a diverse community with a population that is about one-third Black.

This proposal under RFP-12 will allow an assessment of the health impacts of the profound economic changes experienced by these communities. Industrial Cape Breton, and Glace Bay in particular, have seen the loss of three major industries of the "old economy" on which the area depended – fishing, coal, and steel. What has been the impact of depressed economic conditions, high unemployment, youth out-migration, and a rapidly aging population on health? To what extent have a strong voluntary sector, relative equity, low crime rates, and other elements of social capital mitigated the impacts of the drastic economic changes? By contrast, Kings County has experienced economic growth and low unemployment, but is likely to show greater inequities and less social cohesion.

Other data sources for this study include the time use and time stress data in Statistics Canada's 1992 and 1998 General Social Surveys, labour force data from 1976 to 2002 from Statistics Canada's Labour Force Surveys and Labour Force Historical Review; income, wage gap, and low-income data by family type (1980 to present) from Statistics Canada's Income in Canada, Survey of Consumer Finances, and Survey of Labour and Income Dynamics ; Statistics Canada's new Health Services Access Survey (2001); the family violence data in Statistics Canada's 1999 General Social Survey; the 2000 National Survey on Giving, Volunteering, and Participating and comparable 1987 and 1997 surveys.

5.2 Work plan

5.2.1 Principal Investigators and Researchers Conference I: Detailed framework construction and work plan task assignment. The project team will meet to construct and approve a framework, outline, and detailed work plan for the research tasks and a basic table of contents for the first draft report. All items in this proposal will be organized into discrete tasks. In particular, the data sets will be carefully reviewed.

5.2.2 Assembly of empirical data from existing sources: Sept. – Dec. 2003

Canadian and provincial data will be examined, as well as more detailed community level and health district data for the Atlantic region. With the exception of the Halifax Inner City data, which will become available in 2003-2004, all data sources are now available to the project team, and the Newfoundland, Glace Bay, and Kings data sets, in particular, are complete and ready for analysis. For a list of key sources, as noted above, please see Appendix A.

5.2.3 Data analysis, trend analysis, multiple regression analysis: January-October, 2004

The nature and impact of economic change will be assessed by comparisons across time and between places. To assess economic change over time, as well as the role and impact of social processes, trend analysis will be conducted, using labour force, income, time use, and population health data. Repeated cross-sections of the population and longitudinal data sets from Statistics Canada surveys will be used, including the General Social Surveys, National Population Health Surveys (NPHS), Labour Force surveys, and Survey of Labour and Income Dynamics.

Labour force survey data are presented by Statistics Canada in relatively consistent form since 1976. For longer historical trend lines that reference earlier periods, historical data from other publications will be referenced, such as Statistics Canada's publications on *Charting Canadian Incomes: 1951-1981*, *Women in Canada*, and *Women in the Workplace*.⁵⁵ To allow comparisons in debts, assets, and wealth over time, Statistics Canada has adjusted results from its 1999 Survey of Financial Security to make them comparable to the 1984 Assets and Debts survey. Further adjustments allow some comparisons with earlier asset and debt surveys back to 1970. Time use data are from the 1986, 1992, and 1998 General Social Surveys, and Statistics Canada's historical extrapolations allow some comparisons back to 1961, 1971, and 1981. Population health data are available in relatively consistent form from the 1994/95, 1996/97, and 1998/99 NPHS and from the 2000/01 CCHS, and some comparisons can also be made with 1985 and 1990 population health data.

Employment patterns and economic data will be correlated with health data, and multiple regression analyses will be conducted to assess the role of economic factors in determining health outcomes. Analysis will be conducted of intervening social variables, and of potential synergies between changes in employment and other economic factors that may affect health.

⁵⁵ Statistics Canada, *Charting Canadian Incomes: 1951-1981*, catalogue no. 13-581E; Statistics Canada, *Women in Canada*, catalogue no. 89-503E; Statistics Canada, *Women in the Workplace*, catalogue no. 71-534.

As noted, cross-sectional and longitudinal data will be used. The cross-sectional data provide a wide range of rich sources for small areas that are comparable to national and provincial data sets. These data, used as repeated cross-sections, will allow the team to assess how the population distribution of employment characteristics and social factors has changed, taking particular account of differences between regions of the country and within Atlantic Canada. A great deal of previous work has documented changes in employment characteristics. A unique contribution of this study will be to examine changes in the strength and direction of associations between economic characteristics, social factors and health. Longitudinal data from the NPHS will be used to examine the impact of economic change on individuals.

For the cross-sectional analysis, multiple regression models will be used to examine the degree to which changes in social processes can be accounted for by changes in economic characteristics. Regression models will also be used to examine the degree to which variability in health outcomes can be accounted for by social processes and associated economic changes. The models will be used to examine both direct and indirect effects. In particular, a series of nested regression models will be used to assess the role and effect of social processes as mediating factors between the economic variables and health.

For all cross-sectional analysis, appropriate multivariate regression models will be used for each dependent variable. Standard errors will be adjusted for the complex sample design, using either linearization methods (Stata) or Bootstrap. We anticipate that analyses will be conducted using Stata or SAS. For the longitudinal analysis, population-averaged (GEE) models, random effects, and fixed effects will be used. These models, particularly the fixed effects and random effects models, will permit the project team to distinguish between-person effects from within-person effects.

5.2.4 Comparison of findings with relevant literature: May, 2004 – October, 2004

Project findings will be compared and contrasted with related findings in the literature. This comparison will include an assessment of the relative importance of “place,” culture, and history, in understanding how the importance of economic factors in Atlantic Canada results may differ from findings reported in other studies. (For more detail, please see Appendix B.) Theoretical literature will be assessed to describe the potential pathways between employment and health.

5.2.5 Principal investigators and researchers conference II; Report framework/outline approved: Halifax, June, 2004

Since the project team comprises analysts from five Atlantic region universities in two provinces, it will be necessary for them to meet. In addition, we will invite independent analysts and policy analysts to provide objective feedback on the findings to date. Data gaps, need for further analysis, and priorities and directions for the remainder of the project will be determined.

5.2.6 Spreadsheets, tables, charts, further data analysis, and first draft report for discussion purposes: June – November, 2004

During this period, systematic construction of spreadsheets, tables, and charts, detailing results will be prepared. Further analysis will be conducted, as recommended by the first conference of principal investigators and researchers. A draft report will be prepared.

5.2.7 Expert review and revisions: November, 2004-January, 2005

The draft report will be reviewed by a wide range of experts. Feedback will be assessed and incorporated into the report. Revisions will be made and further data analysis will be conducted.

5.2.8 Principal investigators and researchers: Conference III: Early January, 2005

The principal investigators and researchers will meet a second time, again with independent experts to plan the final report and to resolve the greatest difficulties and challenges.

5.2.9 Final report: January – March, 2005: Preparation of final report

5.2.10 Policy conferences and dissemination: March 2005

Four conferences will be held to disseminate the results. One major one will be in Halifax, to which health policy and other government analysts both from Ottawa and the four Atlantic provinces will be invited. Subsequent presentations will be made to policy planners and community representatives in Newfoundland, and two smaller community level conferences will be held in Glace Bay and Kings County.

6. Project team

A list of the project team and summary of their roles is attached.

7. Ethics Review

Pending notification of conditional funding, this project will be presented for approval to Dalhousie University's Ethics Review Committee. Dr. George Kephart, director, Population Health Research Unit, will present the project to the committee on behalf of the project team.

8. Dissemination of Results

In consultation with Health Canada, GPI Atlantic will disseminate the research findings of this "Health Impact of Economic Change" project through the following approaches:

- GPI's website at gpiatlantic.org.
- Selected mailings. Relevant senior policy advisers in both Atlantic Canada and Ottawa.
- Ottawa policy session. In partnership with Health Canada.
- Economics and Health Conferences. As above in 5.3.

- Reality Check Newsletter. A special issue of *Reality Check: The Canadian Review of Wellbeing*, will be devoted to the findings of the project and mailed to 5,000 of the most significant players in policy and politics across Canada.
- Academic journals.

9. Products

In sum, the outcome of this project will be a significant contribution to understanding the impacts of economic change on the health of Canadians, including current trends and their potential consequences, the pathways through which these changes exert their influence on health, and an assessment of measures being taken in Canada and abroad to intervene in the economy in order to improve population health.

The actual products of the work will be a major report, and a series of carefully researched papers addressing each of the objectives outlined in section 3 above. The proposed conferences will provide opportunities for government, academic, and community organizations to discuss the project results and to assess how findings can be incorporated into their own action plans and into joint policy initiatives. The ultimate goal in understanding the important relationships between economic change and health is to provide practical assistance to those dedicated to improving the health of all Canadians.

Appendix A: List of key sources relating to assembly of empirical data from existing sources (section 5.2.2)

- Statistics Canada sources, including the Canadian Community Health Survey (especially health district data), National Population Health Surveys (particularly longitudinal data), Labour Force Surveys, Survey of Consumer Finances, Survey of Labour and Income Dynamics, Survey of Financial Security, Family Expenditure surveys, General Social Survey time diaries. CIHI data will also be examined to assess the extent to which health service utilization may be used to assess level of health.
- Newfoundland and Labrador Community Accounts and Newfoundland provincial health surveys 1985 and 2001.
- Glace Bay and Kings County community health surveys, developed as part of a Canadian Population Health Initiative research program, particularly new data on employment, underemployment, job security, work hours and work schedules, income, health status, health behaviours, health service utilization, caregiving, time use, and food consumption.
- Administrative data, primarily housed in provincial health departments and at the Population Health Research Unit, Dalhousie University, for information on health service utilization.

- Other relevant data compilations, including Statistics Canada data and analyses of characteristics of dual earner families, child care, time use, gender roles, and so on.⁵⁶

Appendix B: Comparison of findings with relevant literature (section 5.2.4)

Project findings will be compared and contrasted with other, related findings in the literature. This comparison will include an assessment of the relative importance of “place,” culture, and history, in understanding how the importance of economic factors in Atlantic Canada results may differ from findings reported in other studies.

The comparison will include but not be limited to the following:

- Epidemiological literature will be examined to assess connections between changed labour force and employment patterns and health outcomes. Statistics Canada’s Health Reports will be examined, including those on relationships between work hours and health.
- Labour studies and Statistics Canada’s analytical papers will be assessed to determine connections between shifting employment patterns and other economic and social factors, such as changes in real wages, consumption patterns, the composition of total income, social policy, and family formation.
- Literature on unpaid work will be analyzed to assess the impact of the doubling of women’s paid employment rate on women’s total work burden and family formation.

⁵⁶ For example, Statistics Canada, *Canadian National Child-Care Study*, catalogues no. 89-A-90, volume II, 89-527E, 89-529E, and 89-536-XPE; Statistics Canada, *Characteristics of Dual-Earner Families*, catalogue no. 13-215-XPB; Statistics Canada, *Women in Canada*, catalogue no. 89-503E; Statistics Canada, *Caring Communities: Proceedings of the Symposium on Social Supports*, catalogue no. 89-514E, page 113; Frederick, Judith, *As Time Goes By...Time Use of Canadians*, catalogue no. 89-544E; Statistics Canada, *Women in the Workplace*, catalogue no. 71-534.

Appendix 21: Data Access Guidelines: Glace Bay

For the most recent, properly formatted, and up-to-date version of the Data Access Guidelines, please visit the Glace Bay GPI web site at http://discovery.uccb.ns.ca/glacebay_gpi/dataaccess.html. Interested researchers should access the current guidelines on the Glace Bay GPI web site. It is suggested that these data access guidelines, developed with CPHI funding, may be a useful tool for community-based research throughout Canada.

Data Access Guidelines

GLACE BAY COMMUNITY GPI SURVEY

May 30, 2003

Dear Community Member / Researcher,

The Glace Bay Community GPI Project is co-sponsored by GPI Atlantic, the Population Health Research Unit of Dalhousie University, the University College of Cape Breton, the Cape Breton Wellness Centre and is funded by the Canadian Population Health Initiative.

The Glace Bay Community survey is a unique survey of the community and represents a "snapshot in time" of the community profile. The survey collected information on employment issues, volunteer activity, health indicators, a time-use survey, household food consumption and a range of other indicators related to the determinants of health.

The objectives of the Glace Bay Community Survey are to make available to community members and researchers detailed data about the community of Glace Bay. This rich source of data is intended to support community development activities, increase knowledge about the determinants of health through research and to assist in the development of healthy public policy.

The purpose of the Data Access Guidelines is to outline the policies and procedures for accessing information contained in the databases managed by Glace Bay Community GPI Project. This document also outlines our responsibilities for respecting the confidentiality and integrity of the databases managed by Glace Bay Community GPI Project.

We have tried to strike a balance between promoting easy, user-friendly access to the database while at the same time respecting the privacy of the individuals who contributed to the survey. Contained in the document is a step-by-step procedure that outlines how you can apply for access to data contained in the Glace Bay Community GPI Project database.

Our commitment is to promote and encourage research and development projects that improve the health and well-being of the community.

If you have any questions or need assistance in determining your information needs please contact us.

Sincerely,

*Peter MacIntyre, Ph.D
University College of Cape Breton
President, GPI Glace Bay Society*

1.0 Statement of Purpose

1.1 Objectives

The objectives of Glace Bay Community GPI Project are, in essence, to make available to the community and researchers data to facilitate community development and research on the determinants of health. In accordance with the policies outlined herein the Glace Bay Community GPI Project manages (for research and community development purposes) the Glace Bay Community GPI Project database.

The purpose of this document is to establish a process to ensure fair and reasonable access to data while preserving the integrity and confidentiality of the information contained in the database.

The policies and procedures for accessing the Glace Bay Community GPI Project databases were developed in accordance with the Federal Personal Information Protection and Electronic Documents Act and the Canadian Standard Association's Model Code for the Protection of Personal Information (CAN/CSA-Q830-96).

1.2 Accountability

The Research Director of Glace Bay Community GPI Project is the individual responsible and accountable for the implementation and monitoring of compliance with the policies outlined in this document.

2.0 Guidelines for Accessing Data

2.1 Applicants wishing to access the database will be required to submit a written request to access Glace Bay Community GPI Project data. There are two forms that can be used for accessing the data See Appendix B:

- a) **Form A (Quick Access Form)** should be used by applicants who are looking for access to aggregate level data that is not available from the GPI Glace Bay Project web site.
- b) **Form B (Research Form)** is intended to provide applicants with more complex data that would commonly be defined as data for research purposes.

Applicants are encouraged to contact Glace Bay Community GPI Project and discuss their data and information requirements prior to completing the application form.

- 2.2 If the Application for data is approved, applicants applying under Form B (Research Form) will be required to sign a contractual agreement with Glace Bay Community GPI Project (See Appendix C)
- 2.3 All applications for access to Glace Bay Community GPI Project data that are considered research, as defined by the Tri-Council Policy Statement, must receive prior approval from a Research Ethics Board of an accredited University. Glace Bay Community GPI Project reserves the right to refer a data request to a University Research Ethics Board for an opinion to determine if the request constitutes research.
- 2.5 As part of the application process applicants using Glace Bay Community GPI Project data will be required to disclose the purposes for which the information will be used. Glace Bay Community GPI Project management may deny access to information if it is determined that the purpose for which the data will be used is not consistent with the objectives of the Glace Bay Community GPI Project.

3.0 Confidentiality and Security of Data

3.1 Confidentiality

Glace Bay Community GPI Project places the highest importance on the protection of confidentiality and security of the data housed in Glace Bay Community GPI Project database. Researchers should be aware that, depending on the nature of their data request, they may be required to view and manage data on a secure Glace Bay Community GPI Project computer.

Applicants who violate conditions for release of data or any provision of this policy, or who misrepresent the nature of data supplied to them by Glace Bay Community GPI Project, may be subject to sanctions, which may include refusal of future access to data, seizure of the data released, and/or legal action.

In cases where a data set is transferred to the Researcher or if the Researcher has access to person level data the following conditions will apply:

- 3.1.1 Only the minimum data required to fulfill the purpose outlined by the Applicant in the Application form will be considered for release.
- 3.1.2 Data must be used only for the purposes for which it was requested and may not be distributed, sold or otherwise transferred to other parties without advance approval in writing from Glace Bay Community GPI Project. Any additional uses or transfer of data must be approved in advance, in writing by Glace Bay Community GPI Project.
- 3.1.3 Data files shall be returned to Glace Bay Community GPI Project when no longer required for the purpose for which they were made available, and any copies of the data shall be destroyed. The applicant will be required to certify in writing that this has been done.

- 3.1.4 Applicants will be required to make their employees -- and anyone who will have access to Glace Bay Community GPI Project data -- aware of the importance of maintaining the confidentiality of personal information. The applicant must provide Glace Bay Community GPI Project with the identities of all individuals who will have access to the data. Employees or anyone who will have access to Glace Bay Community GPI Project data will also be required to sign a Pledge of Confidentiality (See Appendix D).
- 3.1.5 In cases where it is deemed appropriate, the knowledge and consent of the individuals in the data may be required prior to the release of the information.
- 3.1.6 All applicants who are requesting the release of data to be transferred to another computer will be required to sign a contractual agreement. (See Appendix C).

3.2 Security

The following principles apply to the security of databases managed by Glace Bay Community GPI Project:

3.2.1 The data centre in which Glace Bay Community GPI Project database is housed will be secure and appropriate technology will be utilized to protect data sets from unauthorized access or tampering. Security measures shall include restricted physical access, security clearance (appropriate authorization for access), passwords and encryption. Access to Glace Bay Community GPI Project data will be restricted to authorized Glace Bay Community GPI Project personnel only.

3.2.2 Policies regarding file retention periods, methods of destruction and disaster recovery will be clearly defined and subject to ongoing review by the Glace Bay Community GPI Project Committee.

4.0 Glace Bay Community GPI Project Data Access Request Review Criteria

The Glace Bay Community GPI Review Committee will review all applications for data. The Review Committee will be comprised of one member representing the community of Glace Bay (to be appointed by the Glace Bay Community GPI Project) and one member from the University College of Cape Breton.

The Committee will use the following criteria to evaluate the application:

4.1 Form A (Quick Access Form)

- 4.1.1 All applications will be reviewed by the Glace Bay GPI Project Review Committee to determine that the application form is complete and that the request is appropriate and consistent with the objectives of the Glace Bay Community GPI Project.

- 4.1.2. Applications that are deemed appropriate will be approved and where appropriate the data will be released to the applicant within a seven day period.

4.2 Form B (Research Form)

- 4.2.1 All applications will be reviewed by the Glace Bay GPI Project Review Committee to determine if the application form and supporting information is complete.
- 4.2.2 All data requests must be accompanied by an approval from the Research Ethics Board of an accredited university.
- 4.2.3 In the process of reviewing the application Glace Bay Community GPI Project Review Committee will evaluate the applicant's proposed intent for the use of the data and application of the knowledge. If it is determined that the request does not constitute research (as defined by the Tri-Council Policy Statement) the data may be made available without Research Ethics Board approval.
- 4.2.4 The data requested must be appropriate and specific to the research project and methodology. The data analysis methodology must be sufficiently detailed to allow for the evaluation of the data requested.
- 4.2.4 In circumstances where data is transferred to the applicant, the applicant shall ensure and demonstrate adequate physical, technical and administrative protections to comply with Glace Bay Community GPI Project standards for privacy and confidentiality of the data.
- 4.2.5 The applicant shall be notified at the earliest possible date whether the Application has been approved or whether the Management Committee requires additional information or revisions.
- 4.2.6 If there is any question regarding the purpose or intent of the data request then the Committee may consult with the Chair of the Research Ethics Board of the University College of Cape Breton to determine if the application requires approval by the Research Ethics Board.

5.0 Cost Recovery

- 5.1 In instances where the data request is significant or complex or if the data request requires extraction or information management resources above and beyond those of a normal data request, the Review Committee may determine that costs must be assessed for the service. The Applicant will be notified and provided with a written cost and time estimate.

Approved by the Glace Bay Community GPI Project Committee:

Director

Date

Appendix One

Glace Bay Community GPI Project Policy Statement on Privacy and Confidentiality

The Glace Bay Community GPI Project acknowledges the importance of maintaining structures and processes to ensure that Glace Bay Community GPI Project database is protected and secure. The Glace Bay Community GPI Project believes that protecting the confidentiality and the protection of privacy of the citizens that participated in the survey is the highest priority.

As a result the following Policy Statement shall apply to all the activities of Glace Bay Community GPI Project:

It is the policy of the Glace Bay Community GPI Project to protect and safeguard its data and information technology assets in the following manner:

1. Glace Bay Community GPI Project shall protect all data where unauthorized disclosure could possibly harm the interests of individual participants in the Community survey.
2. Glace Bay Community GPI Project shall protect any information technology (software and hardware) assets when their confidentiality, integrity, availability or value warrants safeguarding.
3. Glace Bay Community GPI Project shall guard the confidentiality, integrity, and availability of information holdings or assets in accordance with security standards and risk assessments, utilizing both physical and information technology security measures.
4. Glace Bay Community GPI Project shall ensure that access to information holdings and assets are limited to those whose duties require such access.
5. Glace Bay Community GPI Project shall investigate and report violations of this Policy and apply corrective measures and, where warranted, take appropriate administrative or disciplinary action.
6. Glace Bay Community GPI Project shall ensure that all employees are made aware of, and are given training in, security measures in a manner that is consistent and appropriate for their job function and to fulfill the requirements of this Policy.

Accountability

1. The Director of Glace Bay Community GPI Project is ultimately accountable for implementing, evaluating and monitoring the compliance with this Policy.
2. All employees are individually accountable for how they access and use Glace Bay Community GPI Project information and information technology resources.
3. All employees of Glace Bay Community GPI Project will be required to sign a pledge of confidentiality.
4. All Researchers who are granted use of Glace Bay Community GPI Project data will be required to comply with the confidentiality and protection of privacy provisions of this policy.

Monitoring

The Glace Bay Community GPI Project Review Committee shall be responsible for monitoring the compliance with this Policy

Date Approved: _____

Signed: _____

Appendix Two Application Forms for Access to Data

The information contained on these forms will be used to evaluate your request for access to Glace Bay Community GPI Project data. Please complete every section of the form and provide any additional information that is requested.

If this request for access to data is approved you will be required to sign a contractual agreement that outlines the conditions on which the data will be made available. In instances where data sets have been transferred to the applicant/researcher, they will be required to sign a Pledge of Confidentiality (See Appendix D).

If you have any questions regarding the form or your application please contact:

Peter MacIntyre, Ph.D
Department of Psychology
University College of Cape Breton
PO Box 5300, Sydney, Nova Scotia, Canada B1P 6L2
Peter_Macintyre@uccb.ns.ca
902-563-1315 (phone)
902-563-1246 (fax)

GLACE BAY COMMUNITY GPI SURVEY

FORM A**"Quick Access Form"****Application Form for Access to Data**

General Information		
Name:		
Position:		
Organization:		
Mailing Address:		
Phone:	E-Mail:	Fax:
Data Request		
Please provide a detailed description of the data you are requesting:		
What do you intend to do with the information?		
When would you like to receive this data?		
Signature:		Date:

Please send this Data Request to: Peter MacIntyre, Psychology Department,
University College of Cape Breton, PO Box 5300, Sydney,
NS B1P 6L2

GLACE BAY COMMUNITY GPI SURVEY

FORM B

"Research Form"

Application Form for Access to Data

Part A: General Information		
Principal Applicant		
a) Name:		
b) Position:		
c) Organization:		
d) Mailing Address:		Courier Address: (If different)
e) Telephone:	Fax:	e-mail:
In addition, please attach the following:		
1) If the applicant is a student, please provide contact information for the Academic Advisor		
2) Please attach a copy of the Curriculum Vitae of the applicant and the Curriculum Vitae for the Academic Advisor if the applicant is a student.		
3) If there are Co-Investigators please provide their names and contact information.		

Part B: Description of Research Project

a) Project Title:

b) Description and Objectives of the Project:

c) Proposed Methodology: (Additional pages may be required)

d) Budget and Time Schedule (Include source of funding):

Please attach the following:

- 1) A copy of the Research Ethics Board Approval.
- 2) A document confirming sources and amounts of funding for the project.
- 3) A copy of the Literature Review.

Part C: Description of Data and Information Management Requirements	
a)	Please provide a detailed description of the data you are requesting, including rationale and justification:
b)	Please specify any data analysis, programming, or other information management services you require:
c)	Please provide any relevant time scheduling requirements:
<p>If the Researcher requests person specific information please provide the following information:</p> <p>a. An explanation of how person-level information will be used, including a description of any proposed linkages to be made between person-level information contained in the file and any other personal information;</p> <p>b. An explanation of why the research project cannot be reasonably accomplished without access to person-level information in identifiable form.</p>	

Part D: Security

a) Please describe how the data will be protected to ensure that unauthorized access or disclosure will not occur. Describe physical, technical and administrative safeguards that will be employed.

I agree to abide by the terms and conditions set out in the document entitled, "Data Access Guidelines" and the "Glace Bay Community GPI Project Policy Statement on Privacy and Confidentiality"

Signature of Applicant

Signature of Academic Supervisor (if Applicant is a student)

Date: _____

Please send this Data Request and a properly signed pledge of confidentiality to:

Peter MacIntyre, Psychology Department
University College of Cape Breton
PO Box 5300, Sydney, NS B1P 6L2

Appendix C

Glace Bay Community GPI Project

Contractual Agreement for Data Access

Between:

Glace Bay Community GPI Project, (hereafter referred to as “Glace Bay Community GPI Project”)

And:

Insert name of Applicant and/ or Institution
(hereafter referred to as “The Applicant”)

1.0 Purpose of the Agreement

The purpose of this agreement is to specify the conditions under which Glace Bay Community GPI Project grants data access to the Applicant for the project titled: *(Insert title of Research Project)*.

2.0 Glace Bay Community GPI Project Data Access Guidelines and Procedures

The Applicant acknowledges that he/she has read and agrees to comply with the Data Access Guidelines and the Policy Statement on Privacy and Confidentiality.

3.0 Data Provision by Glace Bay Community GPI Project

- 3.1 Glace Bay Community GPI Project will provide to the Applicant access to the data described in the appended Application Form for Access to Data by *(Insert Date)*.
- 3.2 Glace Bay Community GPI Project will provide access to the data to the Applicant in *(insert format type)*, via the following medium: *(Insert agreed upon medium for data transfer)*
- 3.3 The Applicant will provide confirmation to Glace Bay Community GPI Project within two weeks of receiving the data that it meets the specification of the request.
- 3.4 In the case of the data not meeting the specifications of the request, Glace Bay Community GPI Project will reconfirm the specifications with the Applicant and re-issue the data.

4.0 Security of Data

- 4.1 The Applicant agrees that all security measures outlined in the Application Form for Access to Data and Information Management Expertise will be implemented prior to receipt of the requested data from Glace Bay Community GPI Project.
- 4.2 Any breach of security of the data shall be reported in writing to Glace Bay Community GPI Project immediately.

5.0 Return of Materials at Termination

In circumstances where data has been released, at the point of project completion, the Applicant will:

- 5.1 Ensure the return all data that was provided by Glace Bay Community GPI Project. Destroy all working files, backup files, regardless of media, that contains Glace Bay Community GPI Project data or linked records generated with the Glace Bay Community GPI Project data.
- 5.2 Send a written notice to Glace Bay Community GPI Project confirming destruction of the files in accordance with the contractual agreement.
- 5.3 Researchers may request, in writing, that data be archived by Glace Bay Community GPI Project for specified purposes. Costs, if any, of archiving data to be determined by Glace Bay Community GPI Project.

6.0 Publication of Data

- 6.1 The Applicant retains the right to publish research findings provided that results reported include only summary data and statistical analysis that do not in any way identify individuals that completed the Community Survey.
- 6.2 The Applicant agrees to provide Glace Bay Community GPI Project with an advance copy of any publications that report the results of research that uses the Glace Bay Community GPI Project data, at least four weeks prior to the publication date.
- 6.3 The Applicant agrees that, where appropriate, all publications including Glace Bay Community GPI Project data must contain the following acknowledgement: "The data (*or portions of the data*) used in this report were made available by the Glace Bay Community GPI Project". In addition, the following disclaimer should be included, "Although this research is based on data obtained from the Glace Bay Community GPI Project the observations and opinions expressed are those of the authors and do not represent those of the Glace Bay Community GPI Project".

7.0 Confidentiality

- 7.1 The Applicant agrees to comply with the confidentiality and security provisions outlined in the Data Access Guidelines, the Glace Bay Community GPI Project Policy Statement on Privacy and Confidentiality.
- 7.2 The Applicant agrees to comply with the provisions outlined in the “Tri-Council’s Policy Statement on the Ethical Conduct for Research Involving Humans”.
- 7.3 The Applicant acknowledges that any breach of these provisions may result in sanctions on future access to Glace Bay Community GPI Project data, and possibly legal action.

8.0 Transfer of Liability

In the event the Applicant as the Primary Investigator leaves their position --for whatever reason -- it is the responsibility of the Applicant to ensure that the liability is transferred to the new Primary Investigator, otherwise the liability remains that of the original Applicant. Glace Bay Community GPI Project should be notified in writing, in advance of this transfer of liability and appropriate documentation provided.

The Applicant acknowledges that she/he has read this contract and that she/he fully understands its contents.

Executed this _____ day of _____, 20____.

Signed _____
Insert name of Applicant Witness

Signed _____
Glace Bay Community GPI Project Witness

If the P.I. is a student the signature of the Academic Advisor is required.

Signed _____
Academic Advisor

Appendix D

GLACE BAY COMMUNITY GPI PROJECT

Pledge of Confidentiality

The Glace Bay Community GPI Project acknowledges the importance of maintaining processes to ensure that the Glace Bay Community GPI Project database is protected and secure. Maintaining the confidentiality and the protection of privacy of records is the highest priority for Glace Bay Community GPI Project management and staff.

Confidentiality extends to everything an employee learns, or of which they become aware, in the exercise of their employment duties and responsibilities.

I solemnly declare that I will not disclose any confidential information that has been entrusted to me for research and statistical purposes from the Glace Bay Community GPI Project (Glace Bay Community GPI Project).

I acknowledge that any breach of confidentiality or inappropriate use of personal information obtained through the workplace may result in disciplinary action, including dismissal.

I acknowledge that I have read and will abide by the terms and conditions of the "Data Access Guidelines" and the "Policy Statement on Confidentiality and Protection of Privacy".

I make this declaration knowing it is of the same legal force and effect as if made under oath.

Signature

Date

Witness

Appendix 22: Kings County Data Access Guidelines

Data Access Guidelines

KINGS COUNTY GPI SURVEY

September 4, 2003

Approved: Glyn Bissix
4 September 2003.

Dear Community Member / Researcher,

The Kings County GPI Project was co-sponsored by GPI Atlantic, the Population Health Research Unit of Dalhousie University, the Kings county Economic development Agency and was funded by the Canadian Population Health Initiative.

The Kings County survey is a unique survey of the community and represents a "snapshot in time" of the community profile. The survey collected information on employment issues, volunteer activity, health indicators, a time-use survey, household food consumption and a range of other indicators related to the determinants of health.

The objectives of the Kings County Survey are to make available to community members and researchers detailed data about the community of Kings County. This rich source of data is intended to support community development activities, increase knowledge about the determinants of health through research and to assist in the development of healthy public policy.

The purpose of the Data Access Guidelines is to outline the policies and procedures for accessing information contained in the databases managed by Kings County GPI Project. This document also outlines our responsibilities for respecting the confidentiality and integrity of the databases managed by Kings County GPI Project.

We have tried to strike a balance between promoting easy, user-friendly access to the database while at the same time respecting the privacy of the individuals who contributed to the survey. Contained in the document is a step-by-step procedure that outlines how you can apply for access to data contained in the Kings County GPI Project database.

Our commitment is to promote and encourage research and development projects that improve the health and well-being of the community.

If you have any questions or need assistance in determining your information needs please contact us.

Sincerely,

Glyn Bissix for Acadia University and Earle Illsley for GPI-Kings Society

1.0 Statement of Purpose

1.1 Objectives

The objectives of Kings County GPI Project are, in essence, to make available to the community and researchers data to facilitate community development and research on the determinants of health. In accordance with the policies outlined herein the Kings County GPI Project manages (for research and community development purposes) the Kings County GPI Project database.

The purpose of this document is to establish a process to ensure fair and reasonable access to data while preserving the integrity and confidentiality of the information contained in the database.

The policies and procedures for accessing the Kings County GPI Project databases were developed in accordance with the Federal Personal Information Protection and Electronic Documents Act and the Canadian Standard Association's Model Code for the Protection of Personal Information (CAN/CSA-Q830-96).

1.2 Accountability

The Research Director of Kings County GPI Project is the individual responsible and accountable for the implementation and monitoring of compliance with the policies outlined in this document.

2.0 Guidelines for Accessing Data

2.1 Applicants wishing to access the database will be required to submit a written request to access Kings County GPI Project data. There are two forms that can be used for accessing the data See Appendix B:

- a) **Form A (Quick Access Form)** should be used by applicants who are looking for access to aggregate level data that is not available from the GPI Kings County Project web site.
- b) **Form B (Research Form)** is intended to provide applicants with more complex data that would commonly be defined as data for research purposes.

Applicants are encouraged to contact Kings County GPI Project and discuss their data and information requirements prior to completing the application form.

2.4 If the Application for data is approved, applicants applying under Form B (Research Form) will be required to sign a contractual agreement with Kings County GPI Project (See Appendix C)

- 2.5 All applications for access to Kings County GPI Project data that are considered research, as defined by the Tri-Council Policy Statement, must receive prior approval from a Research Ethics Board of an accredited University. Kings County GPI Project reserves the right to refer a data request to a University Research Ethics Board for an opinion to determine if the request constitutes research.
- 2.5 As part of the application process applicants using Kings County GPI Project data will be required to disclose the purposes for which the information will be used. Kings County GPI Project management may deny access to information if it is determined that the purpose for which the data will be used is not consistent with the objectives of the Kings County GPI Project.

3.0 Confidentiality and Security of Data

3.1 Confidentiality

Kings County GPI Project places the highest importance on the protection of confidentiality and security of the data housed in Kings County GPI Project database. Researchers should be aware that, depending on the nature of their data request, they may be required to view and manage data on a secure Kings County GPI Project computer.

Applicants who violate conditions for release of data or any provision of this policy, or who misrepresent the nature of data supplied to them by Kings County GPI Project, may be subject to sanctions, which may include refusal of future access to data, seizure of the data released, and/or legal action.

In cases where a data set is transferred to the Researcher or if the Researcher has access to person level data the following conditions will apply:

- 3.1.1 Only the minimum data required to fulfill the purpose outlined by the Applicant in the Application form will be considered for release.
- 3.1.2 Data must be used only for the purposes for which it was requested and may not be distributed, sold or otherwise transferred to other parties without advance approval in writing from Kings County GPI Project. Any additional uses or transfer of data must be approved in advance, in writing by Kings County GPI Project.
- 3.1.3 Data files shall be returned to Kings County GPI Project when no longer required for the purpose for which they were made available, and any copies of the data shall be destroyed. The applicant will be required to certify in writing that this has been done.
- 3.1.4 Applicants will be required to make their employees -- and anyone who will have access to Kings County GPI Project data -- aware of the importance of maintaining the confidentiality of personal information. The applicant must provide Kings County GPI Project with the identities of all individuals who will

have access to the data. Employees or anyone who will have access to Kings County GPI Project data will also be required to sign a Pledge of Confidentiality (See Appendix D).

- 3.1.5 In cases where it is deemed appropriate, the knowledge and consent of the individuals in the data may be required prior to the release of the information.
- 3.1.6 All applicants who are requesting the release of data to be transferred to another computer will be required to sign a contractual agreement. (See Appendix C).

3.2 Security

The following principles apply to the security of databases managed by Kings County GPI Project:

- 3.2.1 The data centre in which Kings County GPI Project database is housed will be secure and appropriate technology will be utilized to protect data sets from unauthorized access or tampering. Security measures shall include restricted physical access, security clearance (appropriate authorization for access), passwords and encryption. Access to Kings County GPI Project data will be restricted to authorized Kings County GPI Project personnel only.
- 3.2.2 Policies regarding file retention periods, methods of destruction and disaster recovery will be clearly defined and subject to ongoing review by the Kings County GPI Project Committee.

5.0 Kings County GPI Project Data Access Request Review Criteria

The Kings County GPI Review Committee will review all applications for data. The Review Committee will be comprised of one member representing the community of Kings County (to be appointed by the Kings County GPI Society) and one member from Acadia University.

The Committee will use the following criteria to evaluate the application:

4.1 Form A (Quick Access Form)

- 4.1.1 All applications will be reviewed by the Kings County GPI Project Review Committee to determine that the application form is complete and that the request is appropriate and consistent with the objectives of the Kings County GPI Project.
- 4.1.3 Applications that are deemed appropriate will be approved and where appropriate the data will be released to the applicant within a seven day period.

4.2 Form B (Research Form)

- 4.2.1 All applications will be reviewed by the Kings County GPI Project Review Committee to determine if the application form and supporting information is complete.

- 4.2.7 All data requests must be accompanied by an approval from the Research Ethics Board of an accredited university.
- 4.2.8 In the process of reviewing the application Kings County GPI Project Review Committee will evaluate the applicant's proposed intent for the use of the data and application of the knowledge. If it is determined that the request does not constitute research (as defined by the Tri-Council Policy Statement) the data may be made available without Research Ethics Board approval.
- 4.2.4 The data requested must be appropriate and specific to the research project and methodology. The data analysis methodology must be sufficiently detailed to allow for the evaluation of the data requested.
- 4.2.9 In circumstances where data is transferred to the applicant, the applicant shall ensure and demonstrate adequate physical, technical and administrative protections to comply with Kings County GPI Project standards for privacy and confidentiality of the data.
- 4.2.10 The applicant shall be notified at the earliest possible date whether the Application has been approved or whether the Management Committee requires additional information or revisions.
- 4.2.11 If there is any question regarding the purpose or intent of the data request then the Committee may consult with the Chair of the Research Ethics Board of Acadia University to determine if the application requires approval by the Research Ethics Board.

5.0 Cost Recovery

- 5.1 In instances where the data request is significant or complex or if the data request requires extraction or information management resources above and beyond those of a normal data request, the Review Committee or the Vaughan Memorial Library of Acadia University may determine that costs must be assessed for the service. The Applicant will be notified and provided with a written cost and time estimate.

Approved by the Kings County GPI Project Committee:

For Acadia University GPI Group

Date

For Kings GPI Society

Date

Appendix One
Kings County GPI Project
Policy Statement on Privacy and Confidentiality

The Kings County GPI Project acknowledges the importance of maintaining structures and processes to ensure that Kings County GPI Project database is protected and secure. The Kings County GPI Project believes that protecting the confidentiality and the protection of privacy of the citizens that participated in the survey is the highest priority.

As a result the following Policy Statement shall apply to all the activities of Kings County GPI Project:

It is the policy of the Kings County GPI Project to protect and safeguard its data and information technology assets in the following manner:

1. Kings County GPI Project shall protect all data where unauthorized disclosure could possibly harm the interests of individual participants in the Community survey.
2. Kings County GPI Project shall protect any information technology (software and hardware) assets when their confidentiality, integrity, availability or value warrants safeguarding.
3. Kings County GPI Project shall guard the confidentiality, integrity, and availability of information holdings or assets in accordance with security standards and risk assessments, utilizing both physical and information technology security measures.
4. Kings County GPI Project shall ensure that access to information holdings and assets are limited to those whose duties require such access.
5. Kings County GPI Project shall investigate and report violations of this Policy and apply corrective measures and, where warranted, take appropriate administrative or disciplinary action.
6. Kings County GPI Project shall ensure that all employees are made aware of, and are given training in, security measures in a manner that is consistent and appropriate for their job function and to fulfill the requirements of this Policy.

Accountability

1. The President of the Kings GPI Society and the Coordinator of the Acadia University GPI Group are ultimately accountable for implementing, evaluating and monitoring the compliance with this Policy.
2. All employees are individually accountable for how they access and use Kings County GPI Project information and information technology resources.
3. All employees of Kings County GPI Project will be required to sign a pledge of confidentiality.
4. All Researchers who are granted use of Kings County GPI Project data will be required to comply with the confidentiality and protection of privacy provisions of this policy.

Monitoring

The Kings County GPI Project Review Committee shall be responsible for monitoring the compliance with this Policy

Date Approved: _____

Signed: _____

Appendix Two Application Forms for Access to Data

The information contained on these forms will be used to evaluate your request for access to Kings County GPI Project data. Please complete every section of the form and provide any additional information that is requested.

If this request for access to data is approved you will be required to sign a contractual agreement that outlines the conditions on which the data will be made available. In instances where data sets have been transferred to the applicant/researcher, they will be required to sign a Pledge of Confidentiality (See Appendix D).

If you have any questions regarding the form or your application please contact:

Glyn Bissix, Ph.D.: Acting Director of the School of Recreation Management and Kinesiology, and Coordinator of the Acadia University GPI Group.

KINGS COUNTY GPI SURVEY
FORM A: "Quick Access Form"
Application Form for Access to Data

General Information		
Name:		
Position:		
Organization:		
Mailing Address:		
Phone:	E-Mail:	Fax:
Data Request		
Please provide a detailed description of the data you are requesting:		
What do you intend to do with the information?		
When would you like to receive this data?		
Signature:		Date:

Please send this Data Request to:

Glyn Bissix, Ph. D.: Acting Director, School of Recreation Management and Kinesiology,
Acadia University, Wolfville, NS B4P 2R6.

OR

Glyn.bissix@acadiau.ca (only if using your own e-mail address)

KINGS COUNTY GPI SURVEY
FORM B
"Research Form"
Application Form for Access to Data

<i>Part A: General Information</i>
Principal Applicant
a) Name:
b) Position:
c) Organization:
d) Mailing Address: Courier Address: (If different)
e) Telephone: Fax: e-mail:
<p>In addition, please attach the following:</p> <ul style="list-style-type: none">4) If the applicant is a student, please provide contact information for the Academic Advisor5) Please attach a copy of the Curriculum Vitae of the applicant and the Curriculum Vitae for the Academic Advisor if the applicant is a student.6) If there are Co-Investigators please provide their names and contact information.

Part B: Description of Research Project

a) Project Title:

b) Description and Objectives of the Project:

c) Proposed Methodology: (Additional pages may be required)

d) Budget and Time Schedule (Include source of funding):

Please attach the following:

- 4) A copy of the Research Ethics Board Approval.
- 5) A document confirming sources and amounts of funding for the project.
- 6) A copy of the Literature Review.

Part C: Description of Data and Information Management Requirements
b) Please provide a detailed description of the data you are requesting, including rationale and justification:
b) Please specify any data analysis, programming, or other information management services you require:
c) Please provide any relevant time scheduling requirements:
If the Researcher requests person specific information please provide the following information: a. An explanation of how person-level information will be used, including a description of any proposed linkages to be made between person-level information contained in the file and any other personal information; b. An explanation of why the research project cannot be reasonably accomplished without access to person-level information in identifiable form.

Part D: Security

a) Please describe how the data will be protected to ensure that unauthorized access or disclosure will not occur. Describe physical, technical and administrative safeguards that will be employed.

I agree to abide by the terms and conditions set out in the document entitled, "Data Access Guidelines" and the "Kings County GPI Project Policy Statement on Privacy and Confidentiality".

Signature of Applicant

Signature of Academic
Supervisor or Principal
Applicant (if Applicant is a student or
research assistant)

Date: _____

Please send this Data Request to:

Glyn Bissix, Ph. D.: Acting Director, School of Recreation Management and Kinesiology,
Acadia University, Wolfville, NS B4P 2R6.

OR

Glyn.bissix@acadiau.ca (only if using your own e-mail address)

Appendix C
Kings County GPI Project

Contractual Agreement for Data Access

Between:

Kings County GPI Project,
(hereafter referred to as “Kings County GPI Project”)

And:

Insert name of Applicant and/ or Institution
(hereafter referred to as “The Applicant”)

3.0 Purpose of the Agreement

The purpose of this agreement is to specify the conditions under which Kings County GPI Project grants data access to the Applicant for the project titled:
(*Insert title of Research Project*).

4.0 Kings County GPI Project Data Access Guidelines and Procedures

The Applicant acknowledges that he/she has read and agrees to comply with the Data Access Guidelines and the Policy Statement on Privacy and Confidentiality.

3.0 Data Provision by Kings County GPI Project

- 3.1 Kings County GPI Project will provide to the Applicant access to the data described in the appended Application Form for Access to Data by (_____).
- 3.2 Kings County GPI Project will provide access to the data to the Applicant in (_____), via the following medium: (_____)
- 3.3 The Applicant will provide confirmation to Kings County GPI Project within two weeks of receiving the data that it meets the specification of the request.
- 3.4 In the case of the data not meeting the specifications of the request, Kings County GPI Project will reconfirm the specifications with the Applicant and re-issue the data.

4.0 Security of Data

- 4.3 The Applicant agrees that all security measures outlined in the Application Form for Access to Data and Information Management Expertise will be implemented prior to receipt of the requested data from Kings County GPI Project.
- 4.4 Any breach of security of the data shall be reported in writing to Kings County GPI Project immediately.

8.0 Return of Materials at Termination

In circumstances where data has been released, at the point of project completion, the Applicant will:

- 5.4 Ensure the return of all data that was provided by Kings County GPI Project. Destroy all working files, backup files, regardless of media, that contains Kings County GPI Project data or linked records generated with the Kings County GPI Project data.
- 5.5 Send a written notice to Kings County GPI Project confirming destruction of the files in accordance with the contractual agreement.
- 5.6 Researchers may request, in writing, that data be archived by Kings County GPI Project for specified purposes. Costs, if any, of archiving data to be determined by Kings County GPI Project.

9.0 Publication of Data

- 6.1 The Applicant retains the right to publish research findings provided that results reported include only summary data and statistical analysis that do not in any way identify individuals that completed the Community Survey.
- 6.2 The Applicant agrees to provide Kings County GPI Project with an advance copy of any publications that report the results of research that uses the Kings County GPI Project data, at least four weeks prior to the publication date.
- 6.3 The Applicant agrees that, where appropriate, all publications including Kings County GPI Project data must contain the following acknowledgement: "The data (*or portions of the data*) used in this report were made available by the Kings County GPI Project". In addition, the following disclaimer should be included, "Although this research is based on data obtained from the Kings County GPI Project the observations and opinions expressed are those of the authors and do not represent those of the Kings County GPI Project".

10.0 Confidentiality

- 7.1 The Applicant agrees to comply with the confidentiality and security provisions outlined in the Data Access Guidelines, the Kings County GPI Project Policy Statement on Privacy and Confidentiality.
- 7.2 The Applicant agrees to comply with the provisions outlined in the “Tri-Council’s Policy Statement on the Ethical Conduct for Research Involving Humans”.
- 7.3 The Applicant acknowledges that any breach of these provisions may result in sanctions on future access to Kings County GPI Project data, and possibly legal action.

8.0 Transfer of Liability

In the event the Applicant as the Primary Investigator leaves their position --for whatever reason -- it is the responsibility of the Applicant to ensure that the liability is transferred to the new Primary Investigator, otherwise the liability remains that of the original Applicant. Kings County GPI Project should be notified in writing, in advance of this transfer of liability and appropriate documentation provided.

The Applicant acknowledges that she/he has read this contract and that she/he fully understands its contents.

Executed this _____ day of _____, 20____.

Signed _____	_____
Insert name of Applicant	Witness

Signed _____	_____
Kings County GPI Project	Witness

If the P.I. is a student or research assistant the signature of the Academic Advisor is required.

Signed _____
Academic Advisor

Appendix D

KINGS COUNTY GPI PROJECT

Pledge of Confidentiality

The Kings County GPI Project acknowledges the importance of maintaining processes to ensure that the Kings County GPI Project database is protected and secure. Maintaining the confidentiality and the protection of privacy of records is the highest priority for Kings County GPI Project management and staff.

Confidentiality extends to everything an employee learns, or of which they become aware, in the exercise of their employment duties and responsibilities.

I solemnly declare that I will not disclose any confidential information that has been entrusted to me for research and statistical purposes from the Kings County GPI Project (Kings County GPI Project).

I acknowledge that any breach of confidentiality or inappropriate use of personal information obtained through the workplace may result in disciplinary action, including dismissal.

I acknowledge that I have read and will abide by the terms and conditions of the "Data Access Guidelines" and the "Policy Statement on Confidentiality and Protection of Privacy".

I make this declaration knowing it is of the same legal force and effect as if made under oath.

Signature

Date

Witness

Appendix 23: Sample newspaper clipping

Note: Other news stories on the community health indicators research program in Kings County and Glace Bay have appeared in the Halifax Chronicle-Herald, the Kentville Advertiser, the Cape Breton Post, and the Pictou County Evening News. For media coverage of the community health indicators research program in Glace Bay and Kings County, see the press clippings at <http://www.gpiatlantic.org/community.shtml#clippings>. The Canadian Population Health Initiative is mentioned by name in the following articles: http://www.gpiatlantic.org/clippings/mc_comgpi_kvadv11-30.shtml and http://www.gpiatlantic.org/clippings/mc_kings_kvadv4-27.shtml.

Appendix 24: Newsletter distributed to Glace Bay homes, July, 2004

Hard copies are available on request by writing to GPI Atlantic at colman@gpiatlantic.org. Copies were distributed to all Glace Bay households.

Appendix 25: Two PowerPoint presentations on employment-health results

- (1) Prepared and presented by Sean Rogers, Ph.D, Dalhousie University
- (2) Presented by Glyn Bissix, Ph.D, Acadia University, incorporating results from paper prepared by Mike Pennock, Research Director, Population Health Research Unit, Dalhousie University

Appendix 26: Two PowerPoint presentations of Kings County and Glace Bay Tobacco results

- (1) Presented by Peter MacIntyre, Ph.D, University College of Cape Breton
- (2) Presented by Glyn Bissix, Ph.D, Acadia University

Appendix 27: Three PowerPoint presentations of Caregiving and Health results – Glace Bay, Kings County, and Comparison

Prepared and presented by Deborah Kiceniuk, Ph.D, Population Health Research Unit, Dalhousie University

Appendix 28: PowerPoint presentation to Atlantic Canada Opportunities Agency on Kings County and Glace Bay community health indicators

Prepared and presented by Ronald Colman, Ph.D, GPI Atlantic

Appendix 29: PowerPoint presentation of Kings County and Glace Bay Peace and Security results

Prepared and presented by Peter MacIntyre, Ph.D, University College of Cape Breton

Appendix 30: PowerPoint presentation on Core Values among Glace Bay and Kings County survey respondents

Prepared and presented by Peter MacIntyre, Ph.D, University College of Cape Breton

Appendix 31: Signed final financial statement

Prepared by Sara Winchell, Trident Accounting and Bookkeeping Services, and signed by Ronald Colman, executive director, GPI Atlantic.

Genuine Progress Index shows low crime rate in Glace Bay

BY GREG MCNEIL
CAPE BRETON POST

GLACE BAY

A study of the quality of life is indicating the former coal mining town is relatively free from crime.

This conclusion comes from the peace and security section of the Glace Bay Genuine Progress Index, released Thursday by University College of Cape Breton psychologist Dr. Peter MacIntyre.

"There is still crime happening in Glace Bay," said MacIntyre. "For the victims every crime would be serious, but the overall rate residents are experiencing here are much more positive than they are experiencing in other areas of Canada."

The GPI is a set of social, economic and environmental measures designed to show how well a community is doing.

The survey began two years ago and showed 3.4 per cent of the respondents reported being a victim of crime in the previous 12 months.

This is a fraction of the national rate of 27 per cent for urban areas and 18 per cent for rural residents, according to Statistic Canada figures for 1999.

MacIntyre worked closely with community members, GPI Atlantic and a team of academics in Cape Breton and Halifax, to produce the results which contrast with the notion that difficult economic circumstances produce a high crime rate.

He cited two possible reasons for these findings – a strong sense of community and a lack of anonymity.

"Everybody knows everybody else, so if you commit a crime, chances are the word will get around."

In three categories of violent crime – assault, sexual assault and robbery – Glace Bay's rates could barely be

measured.

Nationally, about five per cent of the population reported being victims of assault, two per cent reported being victims of sexual assault, and just under one per cent reported being victims of robbery.

The study was further divided into sections to deal with business loss, attitudes toward the criminal justice system and crime victimization experiences of the residents.

About 20 per cent of businesses reported some victimization of crime, such as vandalism and theft.

MacIntyre called that a relatively modest rate of crime, but said losses to the businesses of Glace Bay would be significant due to small profit margins.

To combat these problems Glace Bay residents indicated overwhelmingly they would first like to see police prevent crime before options to punish criminals or justice for victims.

"That helps show us why the courts, legal aid, parole and the police get high ratings from the residents for the job they are doing."

In spite of perceived approval for police, concern was expressed about crimes traditionally thought to be youth crimes.

"They also have an opinion more and better youth programs would alleviate those problems," said MacIntyre.

In terms of responding to calls, police in Glace Bay were given a 90 per cent approval rating as compared to a 70 per cent national average.

Insp. Myles Burke of the Cape Breton Regional Police Service, said the numbers indicate citizens recognize the efforts police have put into crime prevention programs.

He cited the work of community officers, the mandate of Chief Edgar MacLeod and the co-operation of residents with police for the findings.

"We are making every

NEWSWATCH

**Cape Breton Post
Sydney, N.S.**

POSITION

DATE: April 11, 2002 PAGE:

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effort we can to ensure Glace Bay and other areas of the CBRM receive all crime prevention programs and other initiatives."

He said the survey gives credible information they can use to identify areas of concern, such as vandalism and sexual abuse.

"We can target programs to deal with these issues."

Robberies were also of note in recent months related to the prescription drug oxycodone, he said.

Burke called this crime disturbing, but isolated.

"We deal with far many more minor files than major."

One area of crime some studying the GPI admit could be inaccurate involved domestic violence.

"This is not always discussed," said John Odenthal, director of the Community Progress Index in Halifax.

"People don't report this aspect of their life - they keep

it a secret."

He said domestic violence numbers could be higher if the truth was told.

"It is hard to get the real truth. No matter how perfect we try to make the survey, that issue will be hidden."

Everything else is extremely accurate, he added.

GPI's Ron Coleman said 1,700 - one in 10 - Glace Bay residents took part with a response rate of 82 per cent.

Questions were determined by Statistics Canada with a margin of error of three per cent.

Findings of the study concerning health, employment and other measures of quality of life will be released at a later date.

NEWSWATCH

Cape Breton Post
Sydney, N.S.

POSITION

DATE: April 4, 2002 PAGE: 33



GREG MCNEIL - CAPE BRETON POST

Dr. Peter MacIntyre, (left) of the University College of Cape Breton, and Insp. Myles Burke, of the Cape Breton Regional Police, discuss the Genuine Progress Index, Thursday, at St. Anne's Parish Centre, Glace Bay. The survey showed a low crime rate in the community.

“Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it’s the only thing that ever has.”

- Margaret Mead

Glace Bay GPI - Tracking the Genuine Progress of Our Community

From coal mines to collective community action

To participate in and enhance the quality of a community, you first need to know about its customs, and quirks. As in any healthy relationship, those involved need to know the strengths and weaknesses of their partners.

There are any number of ways to measure the progress of a community, but the usual way is to look at its economic conditions – cost of living, household incomes, the unemployment rate, job creation and so on. No doubt, these are very important issues, but genuine progress means something more. Genuine progress also includes having a safe and caring community, with healthy people, a strong voluntary sector, and a sustainable future. The Genuine Progress Index (GPI) attempts to measure things that make life worthwhile.

According to Angus MacIntyre, author of Jobs Are Not the Answer – But Then What Is?, 2004, *“The obsession with economic growth and its confusion with quality of life have led us down a dangerous and self-destructive path. It is doubtful we will leave our children a better legacy until we stop gauging our wellbeing and prosperity by how fast the economy is growing.”*

GPI Atlantic is a non-profit, non-government research organization which tracks the wellbeing of the Atlantic provinces. In 1998, GPI Atlantic was approached by a citizens’ group in Kings County, N.S. to assist in developing ways to measure the wellbeing of that community. Glace Bay was chosen as a second site because people in this area also expressed concern for their future, and marked differences between the two communities made for interesting comparisons. A steering group in each community helped bring the project to life. The hope was to learn more about Glace Bay, its strengths and challenges, and to use that information to provide more focused action to improve community wellbeing in the future.

Researchers distributed a detailed 78-page survey to a random sample of Glace Bay residents in 2001. Over 1,700 completed surveys were returned, a response rate of well over 80 per cent. The research for this project has been community-driven since the beginning, including support from an extensive variety of partners and from the people who took the time to complete the survey.

The survey was designed to show the links among employment, health, volunteering, personal values, time usage, the peacefulness of the community, use of the environment, and many other variables. Data collection was completed, for the most part, in 2001. No other survey in Canada gives as much information at the community level. Over two million pieces of data were collected in Glace Bay alone. One Glace Bay respondent wrote on the survey, “I can’t imagine that all these questions and answers will be read.” But they were.



Collection and analysis of the completed surveys has taken a long time – and that was just the first step. The purpose of this progress report is to bring the ideas and issues raised by residents of Glace Bay back to the entire community. One respondent said, “We have been surveyed to death here in Glace Bay since the fifties. None of these surveys ever did a bit of good for anyone in Glace Bay.” But this survey will not sit idle. It has been administered by the community for

The obsession with economic growth and its confusion with quality of life have led us down a dangerous and self-destructive path. It is doubtful we will leave our children a better legacy until we stop gauging our wellbeing and prosperity by how fast the economy is growing.

- Angus MacIntyre

the community, and it belongs to us – not to government or to anyone else. It’s our way of learning about ourselves and empowering ourselves to act together to improve our wellbeing.

In examining all aspects of life in Glace Bay, the objective of the study is to provide detailed information, so that all residents can work toward developing a healthy and sustainable community. While signalling problems that exist, the survey also showed much hope and strength still alive in the town. All of us who worked on the project hope this newsletter will stimulate future collective action. The results already show that Glace Bay is a community where people are willing to help each other – a community working for renewal.

If anything in this newsletter gives you ideas about what we can do ourselves to create a better and healthier Glace Bay, write to us at: glacebaygpi@hotmail.com.

Main Areas of Concern

The end of the Glace Bay GPI survey contained three, open-ended questions so respondents could expand on any topic or comment on any area that had been overlooked in the earlier questions. Five main areas of concern emerged from the over 420 hand-written responses: employment, health care, water quality, appearance of the community, and youth.

Employment is covered in this progress report, as it is a key engine of the community. About three-quarters of the written responses mentioned the need for job creation. Many felt the residents of Glace Bay are willing to work, but need the opportunity. “We have many smart people here who move on because right now there is no future,” stated one resident. Those who wrote about unemployment expressed their frustration and sadness at the lack of jobs and at families being split up. We welcome your feedback on this issue.

Almost half of the respondents mentioned the need for better health care. The focus on health care was specifically related to the lack of staff. As one respondent stated, “Better healthcare means more doctors, nurses and support services.” Some suggested the health of Glace Bay residents could be improved through education and exercise programs. Do you think the situation has changed?

“If we do not take some kind of pride in the town as adults, how can we expect our children and grandchildren to have pride?”

Water quality was another main concern when the GPI data were collected in 2001. The opening of the new water treatment plant in 2003 has gone a long way toward solving the water quality problem. In 2001, for example, residents reported that clothes would occasionally turn brown in the washing machine.

A quarter of the respondents said an improvement to Glace Bay would come from just cleaning up the community’s overall look. Several responses indicated that fresh paint on old buildings and picking up litter on the streets would boost morale and enhance community pride. Many respondents made the connection between a clean town and its prosperity. “Ensure the town is clean. Dirt and garbage foster gloominess,” stated one respondent. Another said, “If we do not take some kind of pride in the town as adults, how can we expect our children and grandchildren to have pride?” Others suggested tax breaks for those who keep their property clean. What is your reaction to the downtown revitalization project, and what else do you think can be done?

The final topic, key to the success of all the others, concerns young people. Many respondents feel youth need to have more activities, not only to keep them occupied, but to create a sense of responsibility and build a connection with their own town. “Our youth are our greatest assets,” stated one respondent. More youth activities would also lead to greater self-esteem, and a positive result would trickle through all areas of the community. Do you think enough is being done for the youth of Glace Bay, and what else should happen?

All sectors of a community are connected, and when it seems that all of them need to be fixed, it’s a bit daunting. But improvements have occurred even since these responses were collected. Solutions exist within the community, and with continued positive action, patience, and confidence, further improvements are bound to take place. We have lots of caring, intelligent and generous residents in this town, and we can act together to create the kind of Glace Bay we’ll be proud to leave our children.

Employment and Youth

The people who responded to the survey identified the employment of youth as a major worry. The data show the validity of this concern. Among the 15 to 24-year-olds who were looking for a job, we find an official unemployment rate of over 40 per cent, and a combined unemployment / underemployment rate of over 65 per cent. The issues for youth are lack of available work, and being overqualified for the work they find. The youth do not, however, appear to be discouraged; they keep trying to find a job. The percentage of discouraged workers increases with age, even as the overall unemployment rate declines.

From Paper to Practice

Using data reported at a GPI workshop, the well-being of young people emerged as an important theme. Through the action of several concerned people, the YMCA Youth Leadership Project was created. This pilot project is a 30-week program designed to give eight unemployed youth an opportunity to build and practice their leadership abilities, increase their knowledge of youth health issues and promote inclusiveness in other community organizations. It will provide the participants with enhanced employability skills, increased self-confidence and positive interactions with various parts of the community. They will be working on an after-school tutoring service and delivering presentations to schools on injury prevention. The bulk of the project is a 25-week work placement. Host organizations are the Cape Breton District Health Authority, Family Services of Eastern Nova Scotia, and the YMCA of Cape Breton. Taking action on a need identified by the community is the ultimate goal of the GPI project. Hopefully other community members with good ideas like this one can use the results to help Glace Bay make progress.



Employment in Glace Bay

Working at Finding Jobs

One of the key beliefs behind the GPI (Genuine Progress Index) research project is that the way something is measured makes a big difference in the value placed on it and the attention it gets. Employment and unemployment are good examples, and there has been no bigger issue on the minds of Glace Bay residents.

If there are decent jobs, a community is likely to be healthier. A major component of the GPI survey examined the employment situation of the Glace Bay area. The cycle of unemployment that continues to plague the town was evident in the survey.

Let’s examine ways to measure unemployment:

Official Unemployment Rate:

The labour force survey, conducted by Statistics Canada, is reported regularly by the media. For this survey, someone who is without paid work and has actively searched for work in the past four weeks is considered unemployed. Using that official definition, the Glace Bay GPI survey found an overall unemployment rate of nearly 25 per cent in 2001.

Critics of the official measure point to at least three important groups of people left out of the official unemployment statistics:

Discouraged Workers: People who are without paid work, who want a job, but who have stopped searching for work. The GPI survey found another two-to-three per cent of working aged persons were discouraged in this way

Underemployed: Part time workers who want full time work, but can find only part time work. Another three per cent of Glace Bay residents fall into this category.

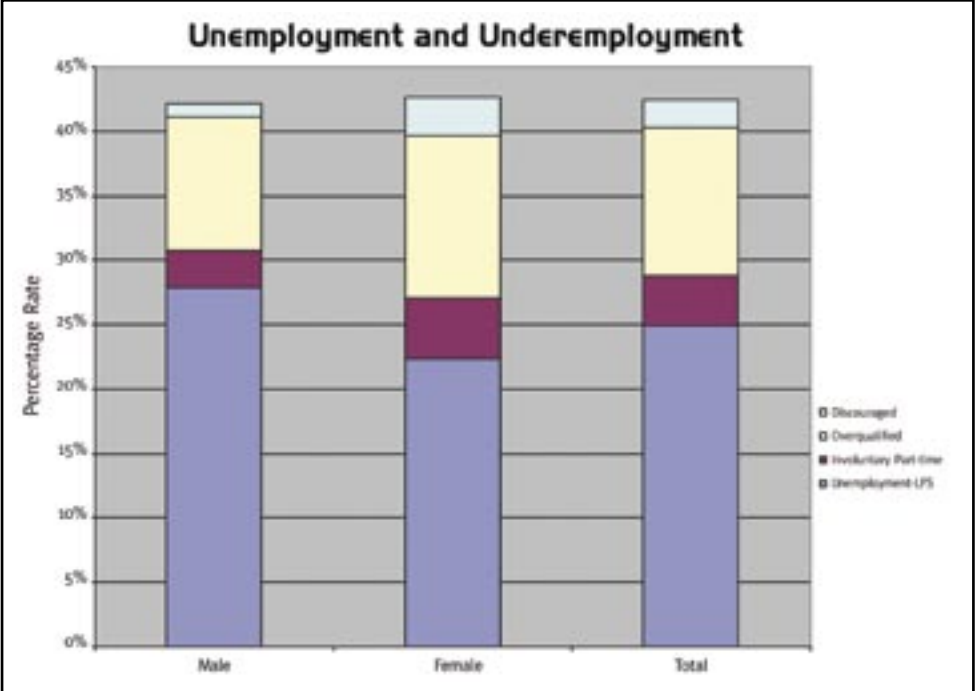
Overqualified: People who have the training, experience or education for higher paying jobs, but who cannot find such work and who end up working at jobs well below their skill levels. These people can also be considered underemployed. In the Glace Bay survey, there were almost 12 per cent of residents in this category.

If we add all of these categories together, the combined unemployment and underemployment rate for both males and females in Glace Bay reaches between 40 and 45 per cent.

The official unemployment rate also does not capture the length of time that people are without paid work. If unemployment tends to run for a long period of time, the impact on the person, the economy, their family, and their health can be severe. Long-term unemployed people also face a lower probability of

re-employment as their skills diminish and their confidence suffers. Employers may also screen out potential employees based on their unemployment history.

In Glace Bay, there is considerable long-term unemployment. Among people who were unemployed, 63 per cent of men and 55 per cent of women said their unemployment lasted for more than six months. That is three times the Nova Scotia average, where less than 20 per cent of the labour force was unemployed for more than six months.



If we turn the issue around and ask about employment, there are two important ways to assess the strength of the economy: the employment rate and the labour force participation rate. The employment rate is the fraction of the working age population – those aged 15 to 64 – with jobs. Higher employment rates indicate a stronger demand for labour and better job opportunities. The labour force participation rate is the fraction of the working age population who are in the labour force. This includes both employed people and those counted as officially unemployed and actively looking for work. Higher participation rates are a sign of a healthy labour market.

The GPI survey shows that, in 2001, Glace Bay had a higher unemployment rate, a lower employment rate, and a lower labour force participation rate than other regions in Nova Scotia.

It should be noted that almost all of the data were collected prior to the Stream call centre coming to Glace Bay. There is no doubt Stream has had a significant impact on the area’s employment rates. However, the call centre seems to have an uncertain future, and Glace Bay may again have to show its resilience in dealing with the burden of high unemployment.

How Safe Do You Feel?

Peace and security are essential components of any community. Whether it’s a business owner free from the fear of vandalism and break-ins, or a resident’s confidence in walking the streets, peace of mind is necessary to build a positive environment.

Twenty-five percent of business owners reported incidents of crime, mainly vandalism. Insurance did not compensate for the loss in over 93 per cent of the cases. Without insurance reimbursing the business, even if the amount lost seems small, vandalism can have a major impact on the health of a business.

The rate of crime victimization in Glace Bay was reported to be relatively low. Only eight per cent of respondents stated they had been a victim of crime in the past five years. The major problems identified by respondents included underage drinking, drug use and trafficking, and vandalism. The data were collected prior to the media reports of serious concern about the abuse of prescription drugs.

Key security indicators are changes in behavior, such as 72 per cent of Glace Bay respondents locking their doors more often than they used to. However, respondents also consider the crime level in their area to be lower than in other areas of Canada, and 94 percent are satisfied with their level of personal safety.

In order of preference, respondents indicated that the role of police should be (1) to prevent crime, (2) to see that victims receive justice, and (3) to punish criminals. Respondents also indicated high levels of neighbourhood closeness. This is important because if neighbours know one another and feel connected to the community, they are more likely to watch for intruders, report suspicious occurrences, and discuss problems.

Despite an overall feeling of security in the community, the survey responses show Glace Bay could benefit from certain changes or improvements. Respondents repeatedly mention the need for youth programs in the area. One respondent said, “I feel anything that helps today’s youth would be an asset.” Most current youth activities are sports-related and can be

expensive. The community needs youth programs that are low-cost and accessible to all. Some of the ideas suggested recently included a skate park, a community pool, a toboggan hill, and restoring basketball nets on local courts. Research shows programs created “by youth for youth” with mentoring, and community development initiatives are successful in reducing truancy, drug use, vandalism, aggression, and arrests in other communities. Through these actions, people develop a sense of responsibility to their community. That sense of responsibility helps heal past hurts and prevent future problems. Your feedback is welcome, and taking action is encouraged.

Prescription Drugs: Creating More Pain than Recovery

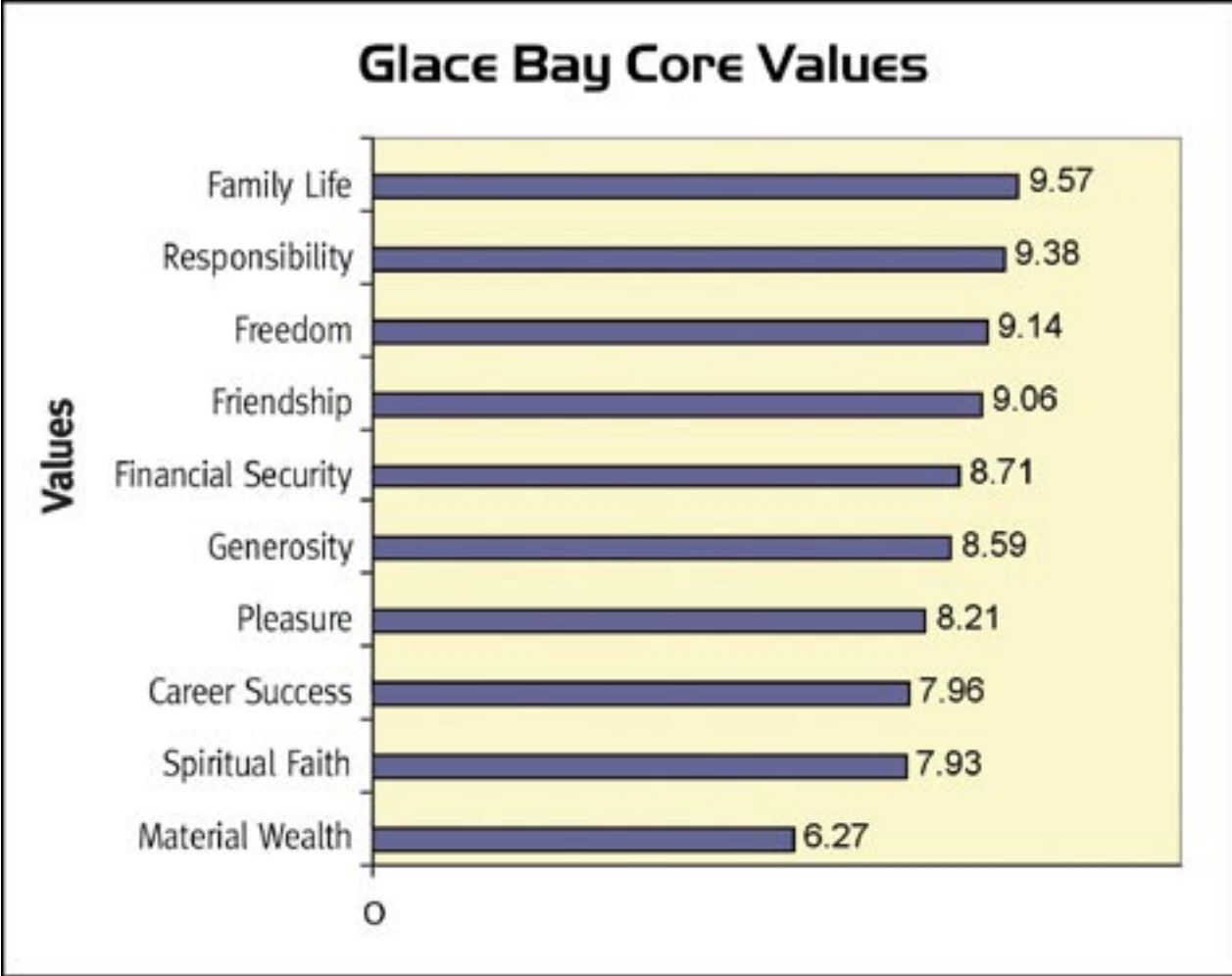
The use and abuse of prescription drugs, and their relationship to an increase in crime rates, have captured headlines in our community during the past year. During a meeting of the Local Committee on Drug Awareness in April, Chief Edgar MacLeod revealed there had been 14 deaths due to Oxycontin in 2003, and six more deaths in the first four months of 2004. The now infamous painkiller, normally prescribed for moderate to severe pain, has become known on the street as “hillbilly heroin”. At the same time, the courts have been dealing with accused persons who say their crimes were a direct result of their addiction to pre-scription drugs.

The GPI Glace Bay survey was administered just before Oxycontin hit the headlines, therefore there were no specific questions regarding its use. However, approximately two per cent of respondents reported the daily use of other prescription drugs such as tranquilizers, codeine, Demerol, morphine and sleeping medication. When we take into account the type of survey, as well as the fact that these are self-reported statistics, it would be reasonable to assume that this percentage is low. A recent study presented to a Nova Scotia Police Commission inquiry in May 2003, found that Cape Bretoners were ingesting nearly half of the roughly one million Oxycontin tablets prescribed annually in the province of Nova Scotia.

At the time of the GPI survey in 2001, residents of Glace Bay felt relatively safe from crime. Only eight per cent of respondents reported having been a victim of crime in the previous five years and, overall, residents perceived crime rates to be lower than in other parts of Canada. However, police connect the drug to a number of violent and desperate acts over the last several months. Cape Breton Regional Police Chief Edgar MacLeod reported that the largest spike in crime over the last eight years occurred in 2003, with 10 murders and four attempted murders in Industrial Cape Breton. Chief MacLeod also referred specifically to the increase in drug-related crime in the Glace Bay area suggesting that, as a result, residents of Glace Bay may be experiencing a decline in community connectedness and a loss of the traditional positive neighbourly attitude. Let us know whether or not you think that is happening.

“In 30 years, no other drug has ever had this kind of impact - not cocaine, not heroin, not anything”
Chief Edgar MacLeod

Various committees comprised of Glace Bay residents, law officials, doctors and employees of addiction services have met to try and deal with this critical problem. Although these committees proposed various options for improving the prescription drug/crime rate situation in Glace Bay, it was suggested that solutions developed and implemented by Glace Bay residents themselves would be more effective and longer lasting than those developed and administered by the judicial system. This is a positive indication of the willingness of Glace Bay residents to band together as a community in times of crises. This could also serve as a message of support to the residents of Glace Bay who are fighting the horrific battle with drug addiction.



Smoking : Taking It Outside

Part of the GPI survey involved asking residents questions about their tobacco use. The data indicate approximately 29 per cent of Glace Bay residents are smokers. This rate is higher than both the provincial average (23 per cent) and national average (21 per cent). It was also found that the rate of smoking in Glace Bay is highest among those who are unemployed (46 per cent), as compared with employed (31 per cent), students (22 per cent), and retired persons (20 per cent).

It is well noted that cigarettes are a powerful addiction. However, smoking does not just affect smokers. Second-hand smoke has long-term, serious consequences for those who are exposed; it has been linked to cancer, heart disease, and respiratory diseases. Researchers have also discovered a link between second-hand smoke and Sudden Infant Death Syndrome. In Glace Bay, 78 per cent of daily smokers have children in the home, and 73 per cent of those continue to smoke inside the home, despite the presence of children. A high number of smokers are smoking inside of a house where there are children who are taking asthma medications (42 per cent).

The survey also found that the use of Ritalin and other medications for Attention Deficit Hyperactivity Disorder (ADHD) is higher in children who come from smoking homes, than in those from non-smoking homes. In Glace Bay, nearly 86 per cent of children who are currently taking such medications live in homes where at least one person smokes inside of the home. Although much more research is needed, this statistic may suggest a link between second-hand smoke and ADHD.

There is something that can be done now. Public Health Services of Cape Breton District Health Authority and Guysborough Antigonish Strait Health Authority have jointly launched a campaign to target this issue. “Smoke Free Around Me” was designed to raise awareness of issues regarding second-hand smoke. Individuals can log onto their website at www.smokefreearoundme.ca and declare their home smoke-free. The site also provides valuable information regarding the dangers of second-hand smoke, and the benefits of having a smoke-free home.

Since the time of the Glace Bay GPI survey, the new smoke-free bylaw has come into effect for CBRM. As of July 7, 2003, all public places became smoke-free. It will be interesting to see what impact this might have on rates of smoking in the area. Your feedback on this issue is welcome.

By the way, if you have been thinking about quitting smoking, you might check out www.sickofsmoke.com, or call the toll free Smokers’ Helpline at 1-877-513-5333.

Volunteering – Helping Yourself While Helping Others

Volunteering is what creates a community. You give something of yourself – time, a listening ear, expertise, or a helping hand – and the well-being and morale of the entire community gets a boost. As a volunteer, you benefit too. When residents were asked if they had volunteered for an organization in the past 12 months, 28 per cent responded yes, which is slightly above the national average of 27 per cent. On average, Glace Bay volunteers spend 204 hours of their time every year volunteering, which is well above the national average of 162 hours. In addition to volunteering for organizations, the survey also shows that 51 per cent of Glace Bay residents perform informal volunteering, such as helping neighbours, friends or others.

Volunteering may also keep you out of your doctor’s office. Volunteerism has been linked to considerable benefits, including better health and greater life satisfaction, improved self-esteem, psychological well-being, and increased longevity. Prior literature has found that those who volunteer tend to be happier, have higher self-esteem and better health, and are less likely to become depressed. The findings from the survey indi-

cate that 84 per cent of volunteers rate themselves in either good or excellent health, compared to only 76 per cent of non-volunteers.

For older individuals, volunteering is an opportunity to strengthen social ties. It can be a solution to the boredom and loss of purpose that some individuals face in retirement. For anyone, volunteering can be a great way to meet new people, make good use of your time, and further develop personal skills. Above all, helping others gives purpose and meaning to people’s lives.

Although Glace Bay residents are doing quite well when it comes to volunteering, more volunteers are always needed. If you would like to volunteer but don’t know where to start, you can contact the Town House Citizens Service League at 849-2449. You’ll find information on tutoring, meals on wheels, and books on wheels; and volunteer teachers are always needed for the nursery school. Unpaid work offers rewards that money can’t buy.

Building a Sustainable Community

Our days of having a primary industry economy are over. We must take advantage of our hospitality and brain power to develop our economy. – Glace Bay respondent

Many residents mentioned the importance of rejuvenating the downtown area, with ideas from employment to community development to the creation of more youth activities. Many residents suggested the construction of a motel or hotel in the town to attract visitors. These comments are significant because they illustrate the need for a central area within a community – a place where people come to gather, to shop, to eat, or to pass through on their way home.

The recent face-lift of the downtown area, completed after the survey data were collected, was an important step. The revamping of Commercial Street, complete with new lampposts, sidewalks, and the creation of mini-parks shows a commitment to renewal. Now it's up to residents to provide the continued support necessary for local business.

Support for local merchants has an impact beyond the business community. Walking to local stores also puts a real pulse and presence of people within the town. Staying in town to shop cuts down on car emissions as a result of driving to other places. Like volunteering, that extra commitment benefits all of Glace Bay.

The survey found that Glace Bay residents placed relatively low value on material wealth. Residents also felt our current lifestyles produce too much waste, and that we buy and consume more than we need. What we buy is directly connected with all levels of our life – family, community, happiness, health, and financial security. Before making a purchase, we ought to consider its purpose, its packaging, and where it is from.

Small gestures such as consuming less and being more community-minded in our purchases can result in huge spin-offs for local business. In turn, the entire community benefits, as the economic boost increases morale, fewer buildings are abandoned – the community is literally alive.

Glace Bay is renowned for its sense of community, and for its strong bond among friends, family and neighbours. Even a simple day of community action where all residents were encouraged to come out and pick up pieces of garbage, would combine a commitment to cleanliness and community action, and would enhance a sense of pride for the town.

Some residents are deeply concerned about future generations. In the words of one respondent:

“Kids today have no home town. They are told as soon as they can read that they will have to leave. This I believe is the root of vandalism – they [the youth] have no pride in the community – it’s not theirs. Their hometown is somewhere far away, they can’t live here.”

Other residents see reason for optimism:

“I think we are on the rebound and with the next five-to-10 years we should be back to being proud to say we are from Glace Bay and will have something to offer visitors. As well, be able to keep our work force in our community rather than having to travel abroad for decent employment.”

What do you think?

The Future Belongs to You

Take Action Now

A great community is like a tasty potluck – everyone brings something different and it all gets mingled together to produce a fabulous meal.

The future use of the information presented here depends on the community of Glace Bay. Remember, the survey was just the first step. Whether your interests lie in health, nutrition, employment, youth programs, community safety, or any other area tapped by the GPI (Genuine Progress Index) survey, the data that were collected might be of interest to you. Check out the website www.glacebaygpi.com. It will grow as we add new analyses and reports.

The survey and these reports reflect the concerns of Glace Bay residents. But the critical element of the entire process is to take the information and construct real change, real community renewal. If you have an idea, or are interested in some of the options provided in this pamphlet, don't hesitate to take action. Tell other people about your idea. The excellent 82 per cent response rate to this survey means there are a lot of people who want to improve Glace Bay, and still have hope in that goal. One realistic, yet optimistic respondent wrote:

“People need to have a positive attitude. I would be lying if I said I was not afraid. I’m afraid living in Glace Bay, there’s very little work, bad water and a high cancer rate. But I believe rather than be discouraged and becoming depressed, one should look around to see what solutions are available to fix the problems. I also believe the town of Glace Bay is filled with wonderful people and has the potential in becoming the town it once was, filled with prosperity.”

If there is something that you would like to see added to the website or included in the next edition of this flyer, please contact us at glacebaygpi@hotmail.com.



Glace Bay GPI Society

To help guide future uses of the Glace Bay Genuine Progress Index survey, a non-profit society was formed. We are convinced that good information about our community can empower us, help us set goals to improve our wellbeing, act together to achieve those goals, and measure our progress in getting there. To that end, the goals of the Glace Bay GPI Research Society are:

To provide the Glace Bay community with information regarding a wide variety of indicators of progress and wellbeing.

To collect, analyze, and distribute results of the GPI Glace Bay survey, so that residents and community groups can identify needs and act to improve their wellbeing.

To build partnerships between community, university, and potential funding partners.

To be an advocate for information systems that would support local-level planning and development. To be an advocate for regular follow-up surveys in order to measure progress on identified priorities within the original survey.

If you are interested in membership in the society, please let us know. Watch for future community meetings. New partners who are committed to seeing genuine progress in Glace Bay are always welcome.

Methodology

Random sample of Glace Bay residents
Sampling designed by Statistics Canada
72 page questionnaire
2 – 5 hours to fill out survey
Ages: 15 years and over
Response rate: 82% (final sample size 1,713)
Accuracy: +/- 3%, 19 times out of 20



Acknowledgements:

Glace Bay GPI Progress Report is a project of the Glace Bay GPI Research Society. This is the first edition.

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and please visit our website at www.glacebaygpi.com

Employment Patterns and Health Outcomes An Overview of Glace Bay

Data Source: Measuring Well-Being in Glace Bay

Glyn Bissix, PhD., Principal Investigator
Liesel Carlsson, BSNH, Research Technician

1

Skeleton

- Report structure
- Glace Bay and Canadian labour force
- Income status:
 - comparative data, health
- Employment Status
 - Income, health
- Employment Optimism
- Split Shift Workers' Health
- Health Workers as Community Models

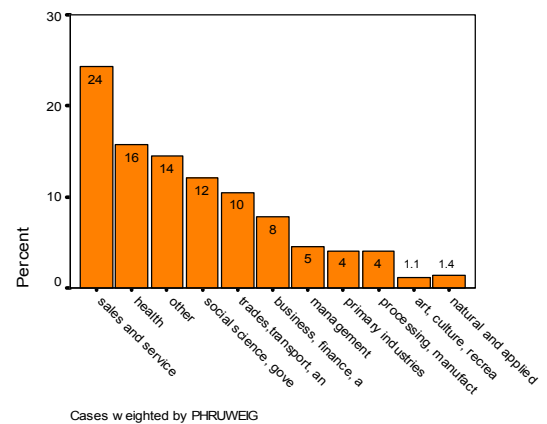
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Report Structure

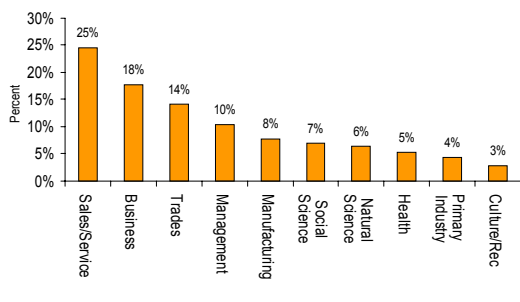
Health Determinants Health Indicators

- | | |
|---|---|
| <ul style="list-style-type: none"> • Income and Social Status • Employment and Working Conditions | <ul style="list-style-type: none"> • Well Being • Health Conditions • Human Function • Health Behaviours • Health System |
|---|---|

3



Canadian Labour Force by Occupation



5

“The social implications of so few working in the recreation field for example, suggests a limited sports and recreation portfolio unless alternative evidence suggests this void is filled by the voluntary sector.”

6

Annual Income

Glace Bay

- Personal earnings (mean) **\$25 000 to \$29 999**
- Household income (mean) **\$30 000 to \$34 999**

Kings county

- Household income (Mean) **\$40 000 to \$44 999**

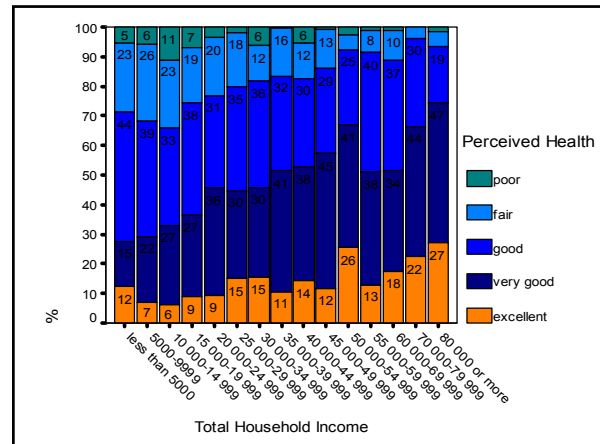
Canada

- Household income (1995!) **\$48 552**

NS

- Household income (1995!) **\$41 466**

7



“Though community health is a multifaceted issue, income is obviously influential in health or alternatively perhaps, good health to a large extent determines higher income.”

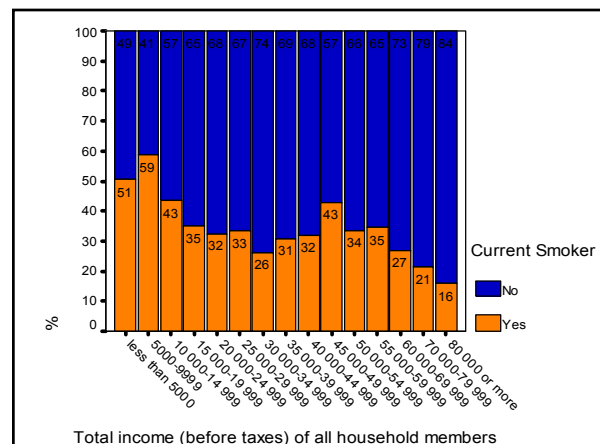
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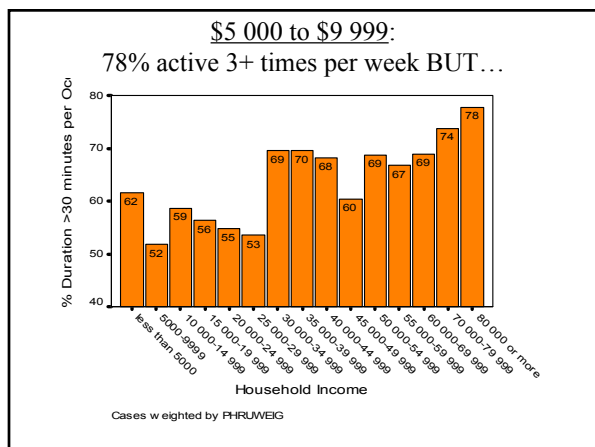
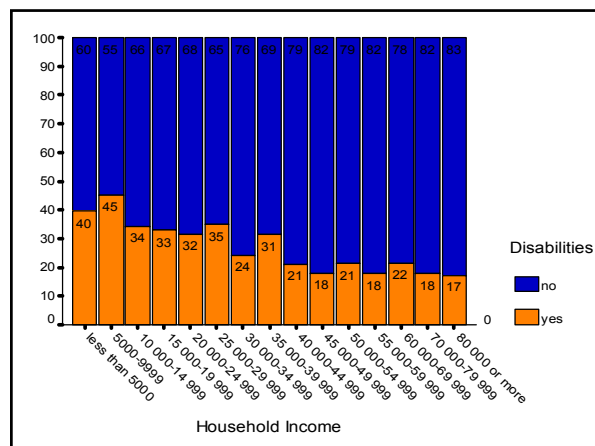
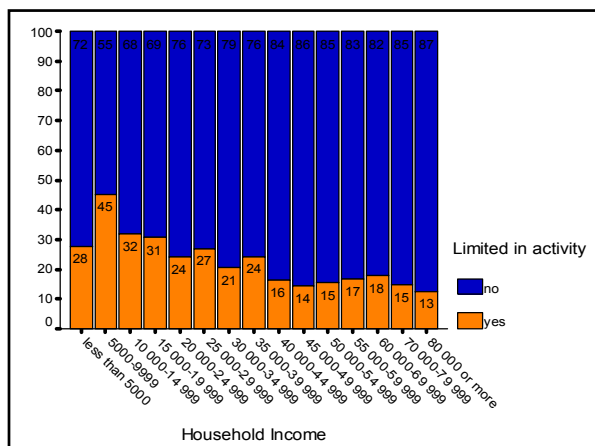
Household Income \$5000 to \$9999

- 59% smoking rate
- Highest proportion of physically limited and disabled people
- Least likely to exercise for more than 30 minutes (52%)
- N=725 people or 5.2% fall under this category

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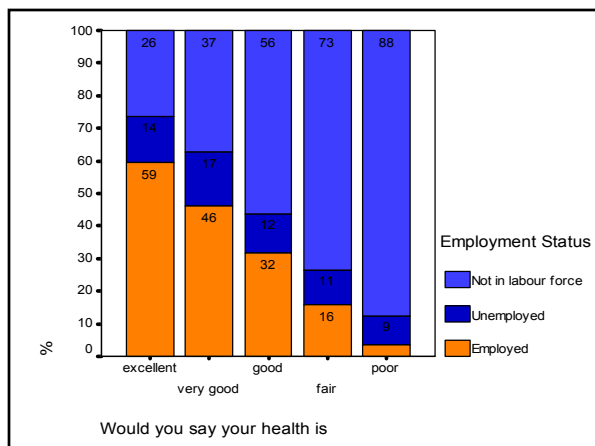
Total income (before taxes) of all household members, all sources in the last 12 months?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 5000	187	1.3	1.5	1.5
	5000-9999	725	5.1	5.7	7.2
	10 000-14 999	1406	10.0	11.0	18.2
	15 000-19 999	1193	8.4	9.4	27.6
	20 000-24 999	1387	9.8	10.9	38.5
	25 000-29 999	1123	8.0	8.8	47.3
	30 000-34 999	1209	8.6	9.5	56.8
	35 000-39 999	884	6.3	6.9	63.7
	40 000-44 999	977	6.9	7.7	71.4
	45 000-49 999	743	5.3	5.8	77.2
	50 000-54 999	631	4.5	4.9	82.2
	55 000-59 999	487	3.4	3.8	86.0
	60 000-69 999	621	4.4	4.9	90.8
	70 000-79 999	531	3.8	4.2	95.0
	80 000 or more	635	4.5	5.0	100.0
Total		12739	90.1	100.0	
Missing	System	1393	9.9		
Total		14131	100.0		





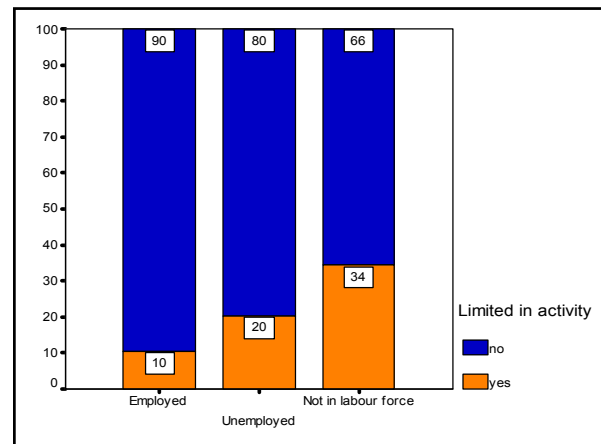
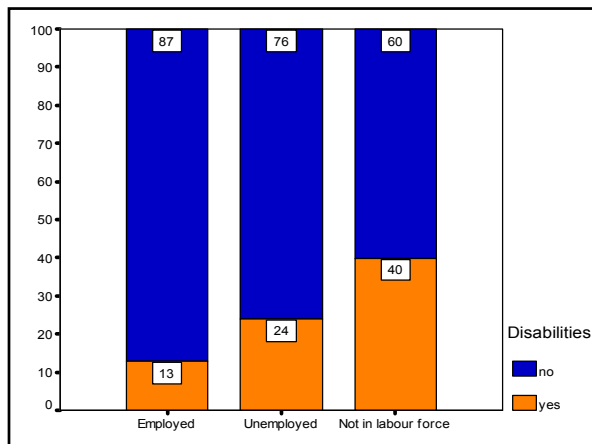
Health not related to *personal* income

- health workers and employers must focus on the *household* unit's health and income, not the individual's.
- In Glace Bay, 50% outside the work force
 - with a disheartening health profile, perhaps due to a lesser household income.
 - The household income of those not in the labour force was \$25 000 to \$29 999, one full bracket below the mean



Chronic Stress Related Conditions Depending on Employment Status

	High Blood Pressure	Migraine Headache	Stomach and Intestinal Ulcers	Medication Use (Previous 48 Hours)	
				Mean	Std. Dev
Employed	11.7%	5.4%	5.6%	1.03	1.48
Unemployed	11.6%	5.9%	8.7%	1.16	1.63
Not in Labour Force	33.8%	7.4%	11.5%	2.53	2.77
(Whole Community)	22.8%	6.5%	8.9%	1.80	2.35



Employment Status and use of the Health System

- The employed had talked to a doctor an average of 3.0 times
- the unemployed 3.5 times
- not in the labour force 4.4 times ^[1]

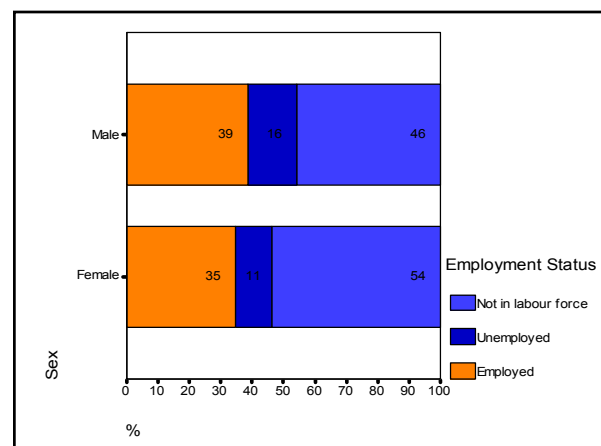
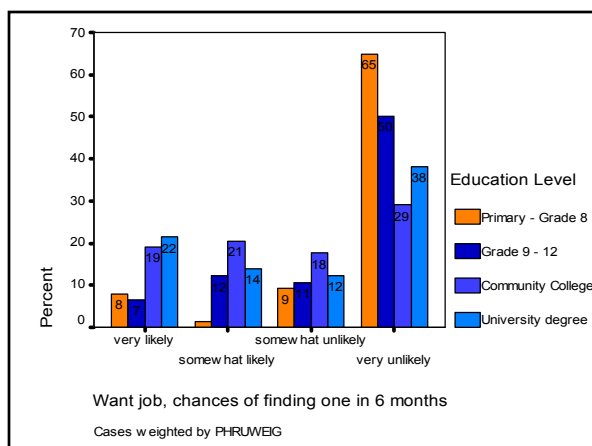
[1] One Way Analysis of Variance Between Groups, Significance = 0.00

21

Prospects of Employment

- **46%** would like to have a job but feel it *very unlikely* in next 6 months
- Males more optimistic about finding a job
 - 12% compared to 9% feel it *very likely* that they will find work
 - 45% compared to 47% feel it *very unlikely* that they will find work.
- High school graduates justifiably are more optimistic about finding a job

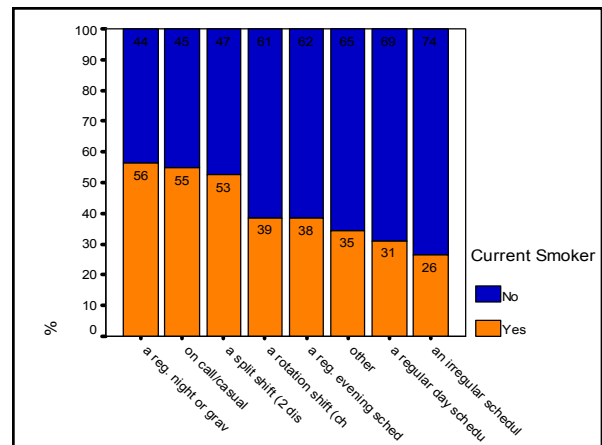
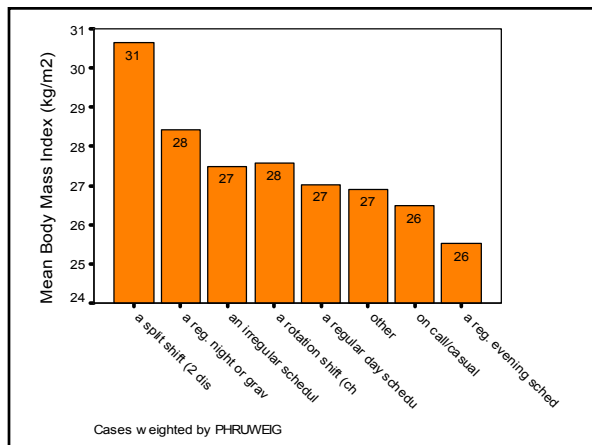
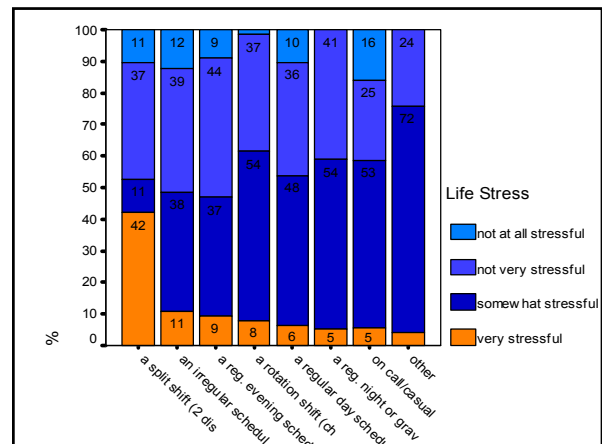
22



Split Shift Workers

- 1.1% of the work force in Glace Bay
- poorer perceived health & higher stress levels
- BMI in the obese range (31)
- higher rates of high blood pressure and migraine headaches, disability activity limitations.
- 53% smoke and they are the least often active three or more days a week compared to all other work schedule types.

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Health Occupations

- **36.2%** of *split shift workers* work in **Health Occupations!**
- **1/3** of the health workers in Glace Bay are smokers
- **5%** nationally vs. **16%** in Glace Bay work in Health Occupations

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"If the professionals that are advancing and promoting health are poor role models, it is likely to be more difficult to change the smoking culture in Glace Bay.

An important question to explore further is to what extent is the health sector responsible for promoting poor health in its own workforce; especially as they employ a disproportionate number of split shift, and night and casual workers."

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Glace Bay Community GPI Survey

Preliminary Results on Employment/Unemployment

Sean Rogers
Dalhousie University
March 31st 2004

Outline

- Unemployment Rates –the official rate
- Incidence and Duration of Unemployment
- Underemployment
 - Involuntary Part-time
 - Overqualified
- The Discouraged Worker I
- The Discouraged Worker II

2

Unemployment-The Official Rate

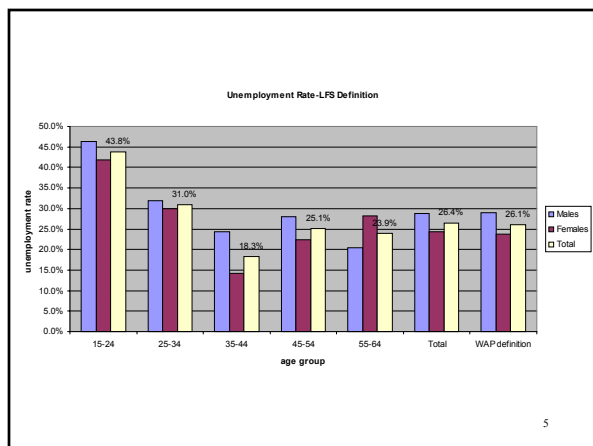
- What is the unemployment rate?
- Labour Force Survey Definition-the Official Rate
 - Someone who is without paid work and has actively searched for work in the past four weeks.

3

Unemployment-The Official Rate

- A limited but useful starting point for the analysis.
- It allows comparison with unemployment rates available for NS and elsewhere.
 - Examine the statistics by age, gender and educational attainment
 - Focus on the working age population (WAP) 15-64
- Unless otherwise noted all figures refer to the community of Glace Bay.

4

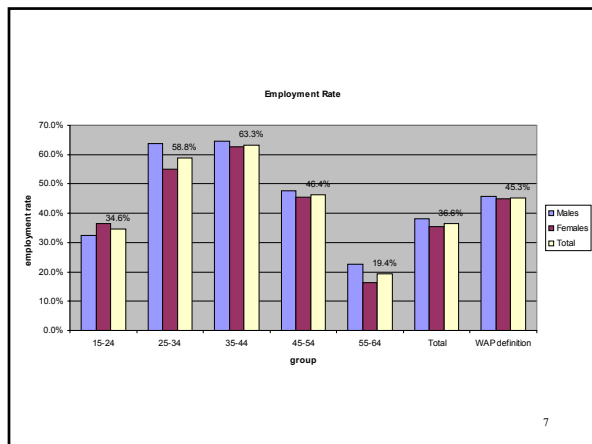


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Employment Rates

- The official unemployment can be augmented with figures on the employment rate.
- The Employment Rate is the fraction of the WAP with jobs.
- Higher employment rates are indicative of a stronger demand for labour and better job opportunities.

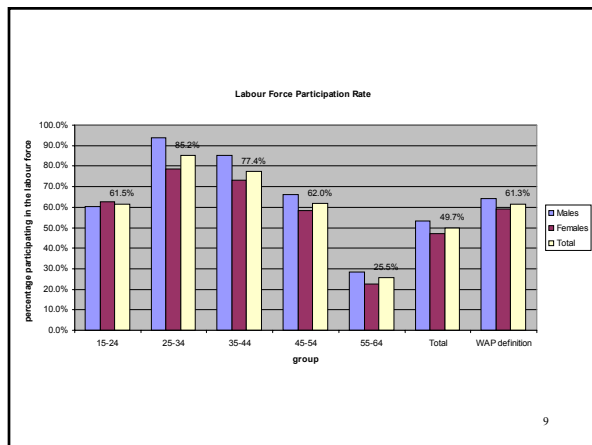
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Labour Force Participation Rates

- The Labour Force Participation Rate is defined as the fraction of the WAP in the labour force.
- Higher participation rates are indicative of a healthy labour market.

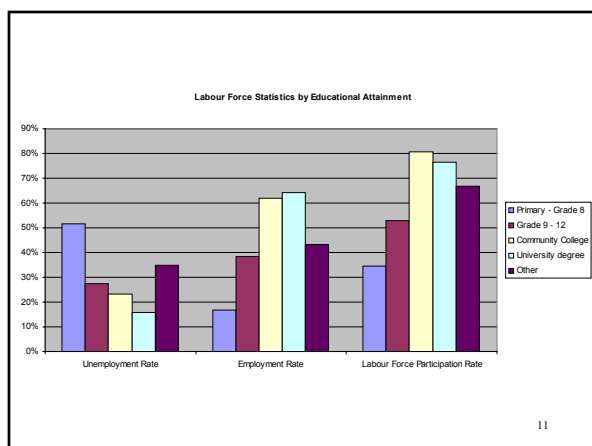
8



Education and the Labour Market

- Educational attainment has a very strong influence on these three variables.
- Individuals with more education feature
 - Lower unemployment rates
 - Higher labour force participation rates
 - Higher employment rates
- Note: the “other” category is problematic.

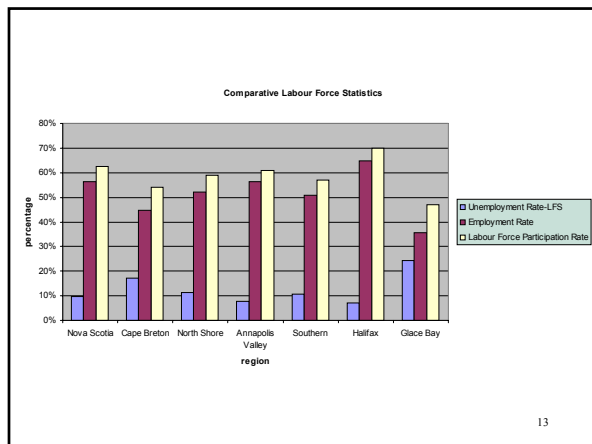
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Comparisons

- How does Glace Bay compare with other regions in Nova Scotia?
- The survey results indicates that Glace Bay features
 - a higher unemployment rate
 - a lower employment rate
 - a lower labour force participation rate

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Unemployment-Flow Approach

- The unemployment rate can also be measured as the product of the incidence of unemployment and the average duration of an unemployment spell.
- A high unemployment rate is consistent with two possibilities.
 - A high incidence and a low average duration
 - A low incidence and a high average duration
- We will retain the official measure framework.

14

Incidence of Unemployment

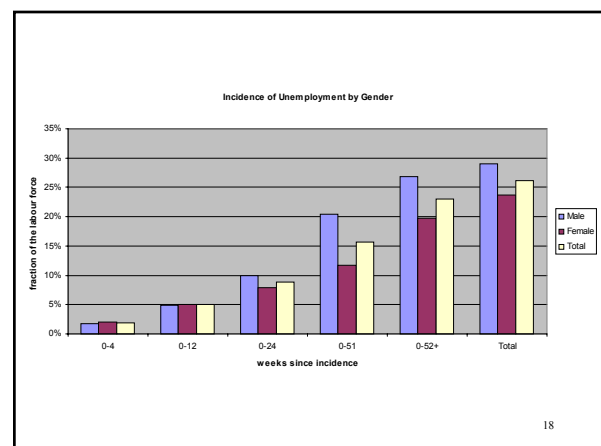
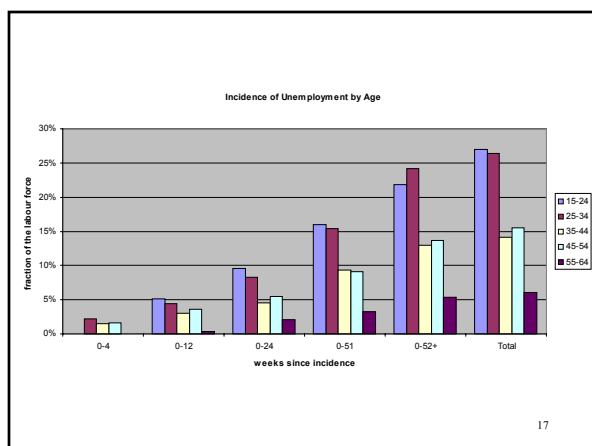
- The incidence of unemployment refers to the proportion of individuals in the labour force that become unemployed in a given period of time.
- We can examine the sources of unemployment in this manner across different groups and assess risks.

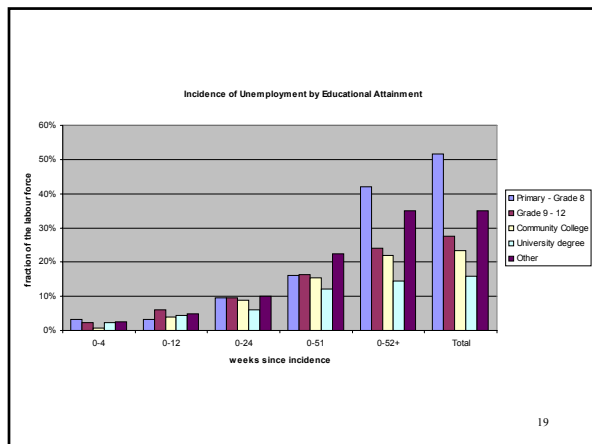
15

Incidence of Unemployment

- What do the data show?
 - Workers aged 15-34 experienced a higher incidence of unemployment than older workers.
 - Male workers faced a higher incidence of unemployment than females over the long-run.
 - Higher levels of educational attainment are associated with a lower incidence of unemployment.

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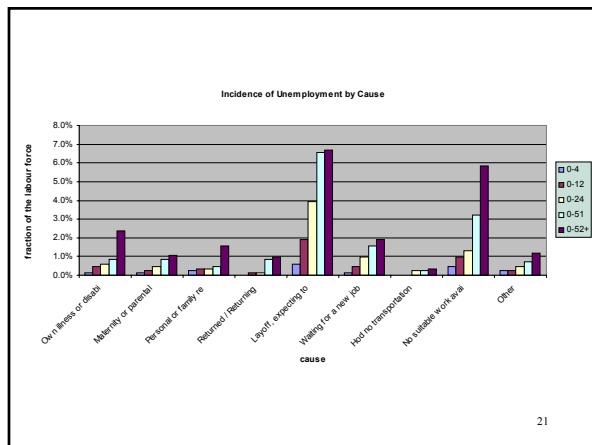




Incidence of Unemployment

- What is the incidence of unemployment by contributing factor?
 - layoffs
 - cyclical
 - lack of suitable work
 - cyclical, structural
 - illness/disability
 - waiting for a new job
 - labour market friction

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Duration of Unemployment

- The average duration of an unemployment spell has important implications for the behaviour of the unemployment rate.
- Long-term unemployed face a lower probability of re-employment as skills atrophy and confidence suffers.
 - Employers may also screen out based on duration.

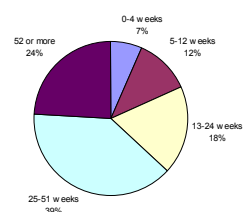
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Duration of Unemployment

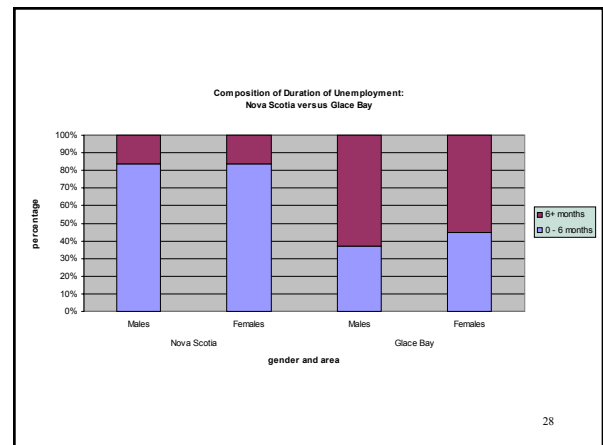
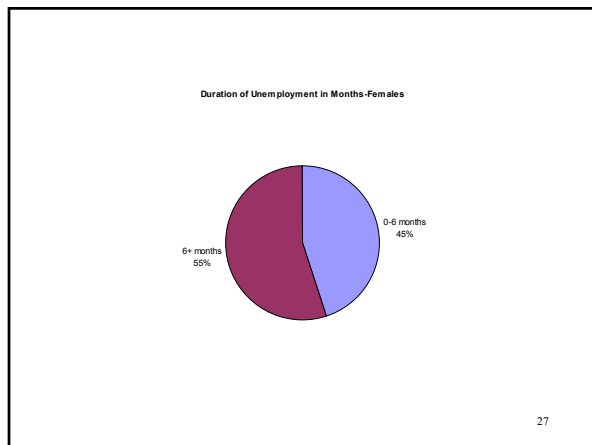
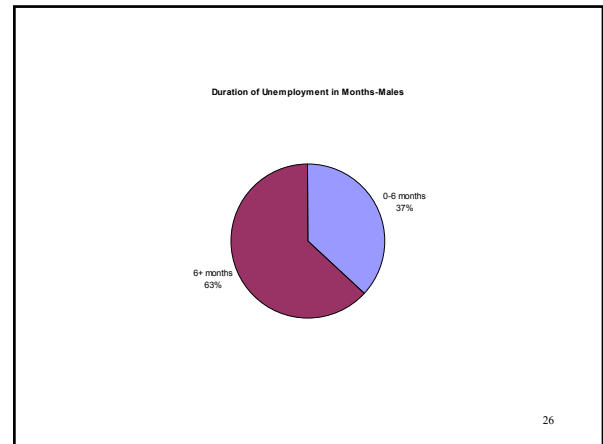
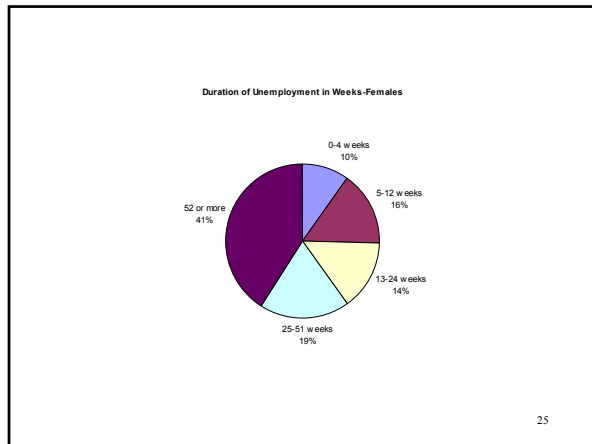
- The survey results indicate the presence of considerable long-term unemployment in Glace Bay.
- 63% of males were unemployed for more than six months, 55% of females.
- For Nova Scotia, less than 20% of the labour force was unemployed for more than six months.

23

Duration of Unemployment in Weeks-Males



24



The Official Rate—Issues

- The problems with the official unemployment rate are well known.
 - It does not account for the presence of underemployment of workers.
 - Involuntary part-time workers
 - Overqualified workers
 - It ignores the presence of discouraged workers.
 - Individuals who have given up the search for work

29

Underemployment

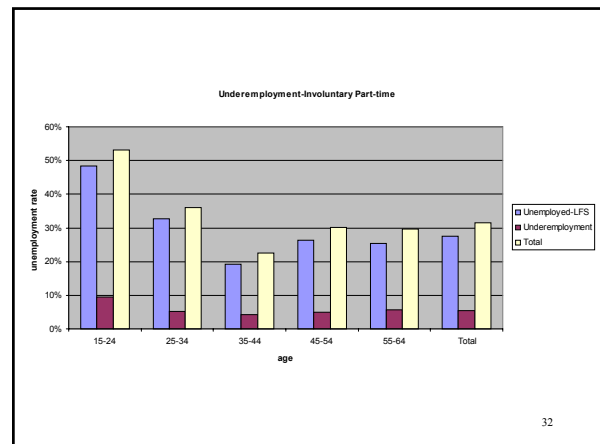
- We identify two groups of underemployed workers.
 - Involuntary part-time workers are those part-time workers who would could not find full-time work.
 - Overqualified workers are those who feel that their education/skill set exceeds that required by their job.

30

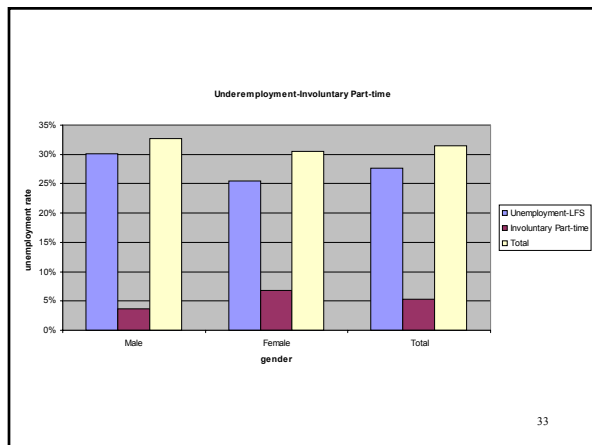
Underemployment: Part-time

- The percentage of the workforce reporting involuntary part-time work is evenly spread across age groups.
 - Workers aged 15-24 are an exception.
- Involuntary part-time is more predominant in the female workforce.
- It is also evenly spread across educational attainment.

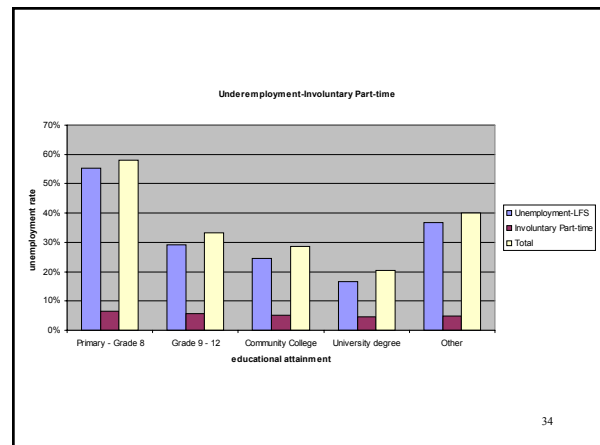
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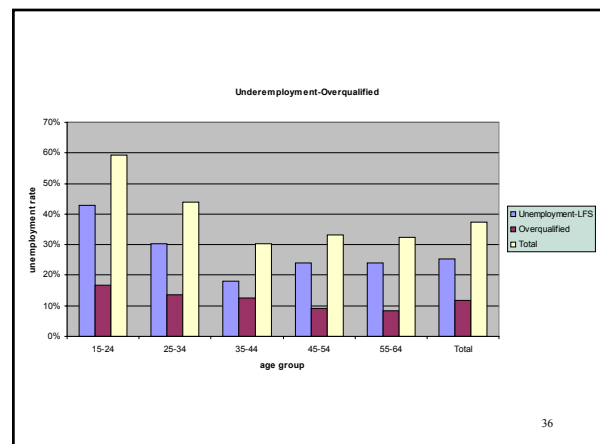


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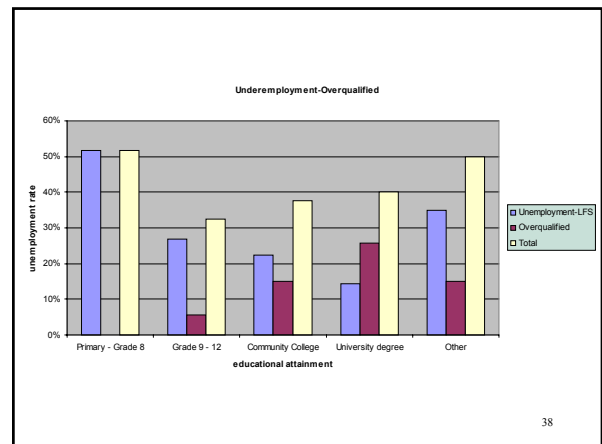
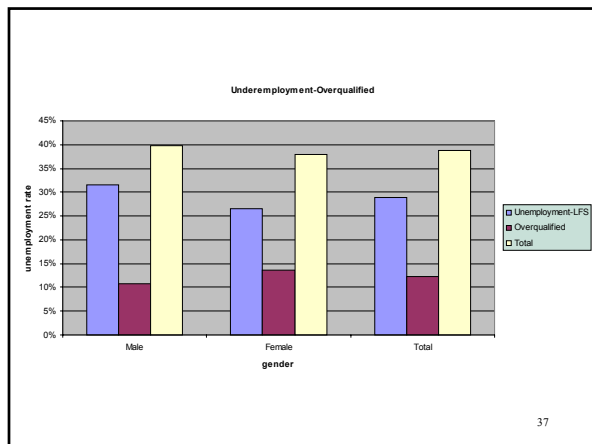
Underemployment-Overqualified

- The occurrence of underemployment due to overqualification is evenly spread across age groups.
 - Although the young experience it to a slightly larger degree.
- A slightly larger fraction of the female workforce reports being overqualified than the male workforce.
- Feeling overqualified rises with the level of educational attainment.

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Discouraged Workers I

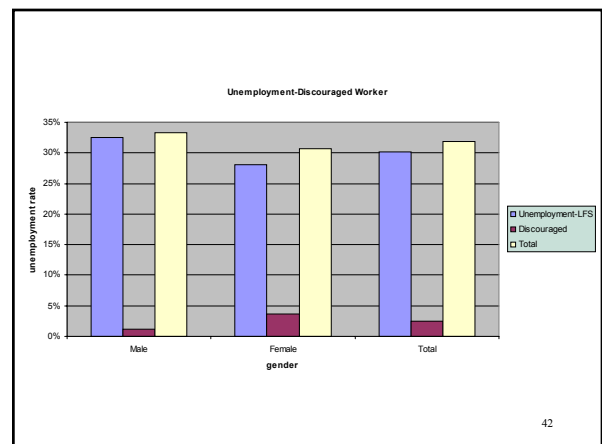
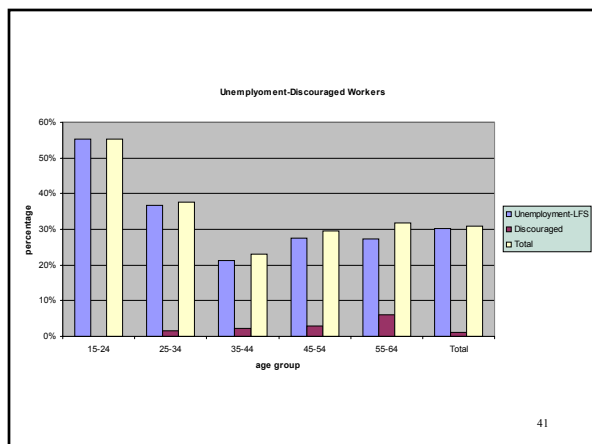
- Discouraged workers are those who gave up the search for work and left the labour force.
- The official rate considers these workers to be outside the labour force.
- Under better labour market conditions, they might otherwise be in the labour force.

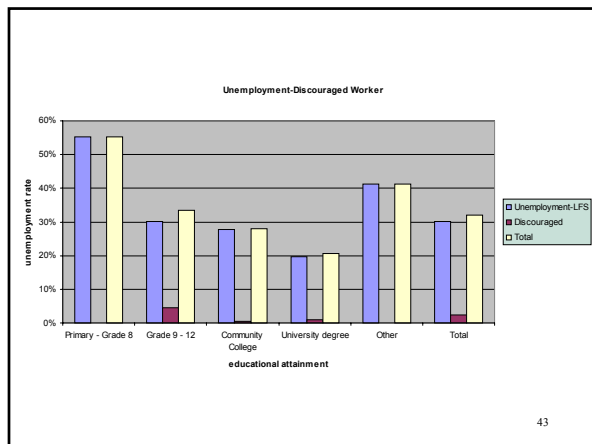
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Discouraged Workers I

- Who has abandoned the search for work?
- Discouraged workers are predominantly older females and have between 9-12 years of formal schooling.

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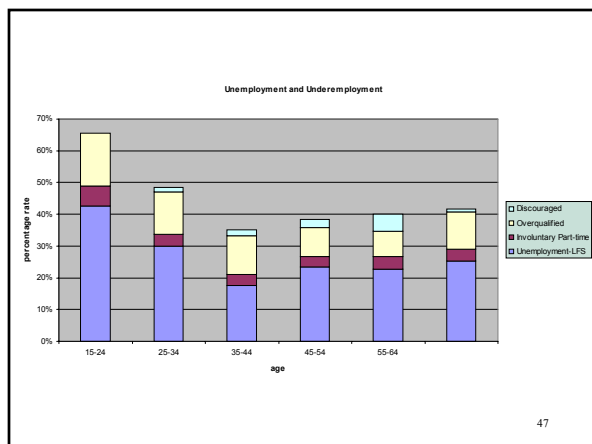
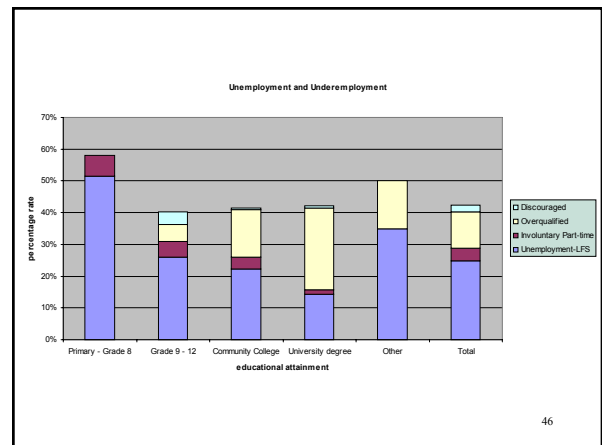
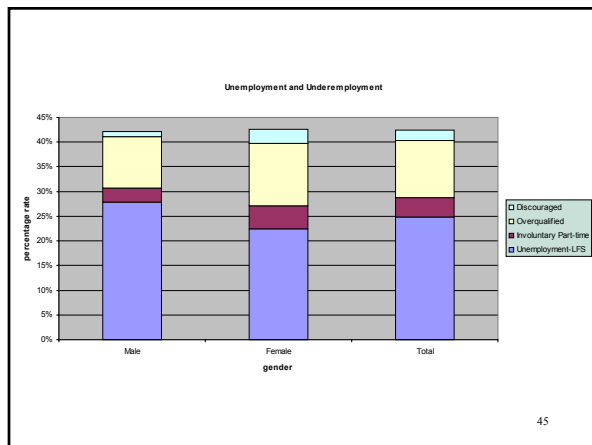




Unemployment and Underemployment

- What does a more encompassing measure of the unemployment rate look like?

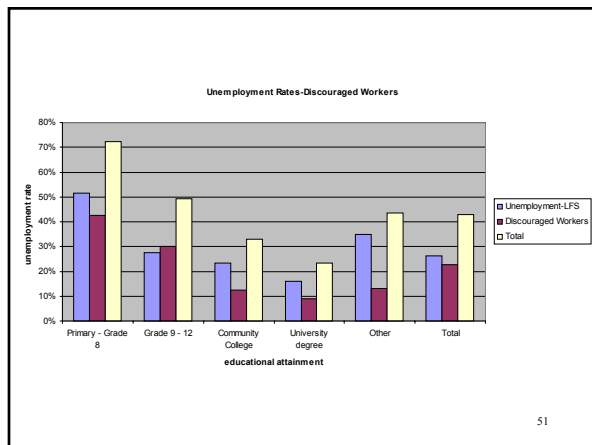
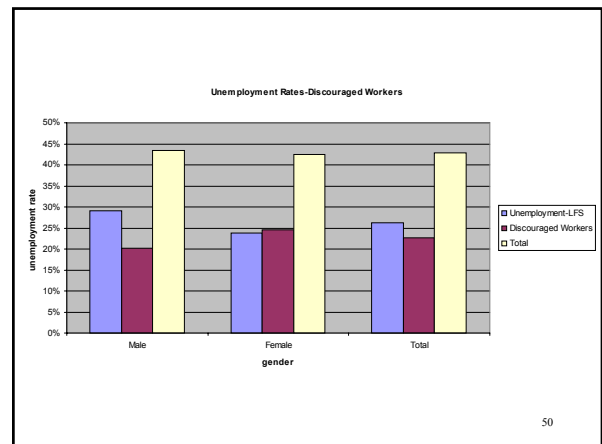
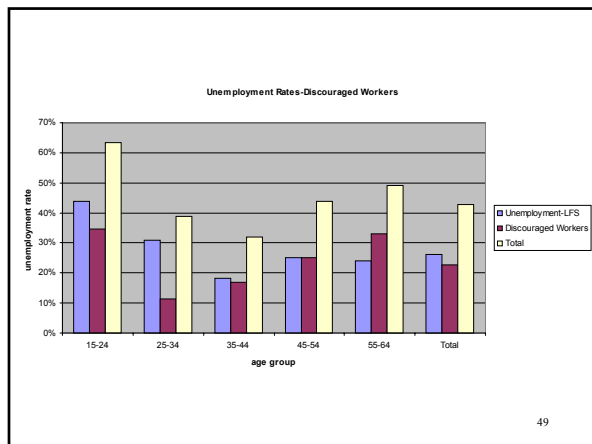
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Discouraged Workers II

- The previous definition of a discouraged worker referred only to the abandonment of the search process.
- Consider an alternative definition that incorporates other factors that may discourage the search for work.
- In this case, an individual was classified as a discouraged worker if they said they were not in the labour force but wanted a paying job.

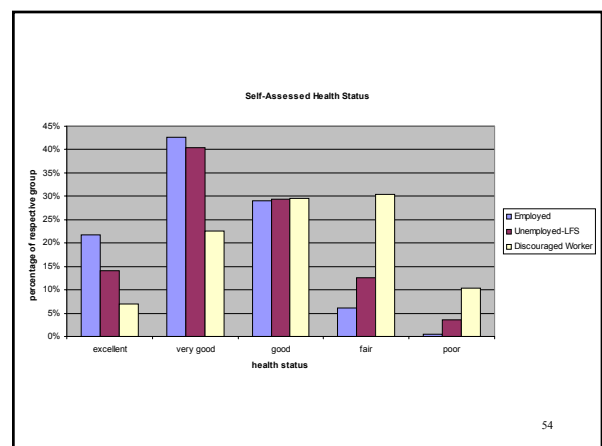
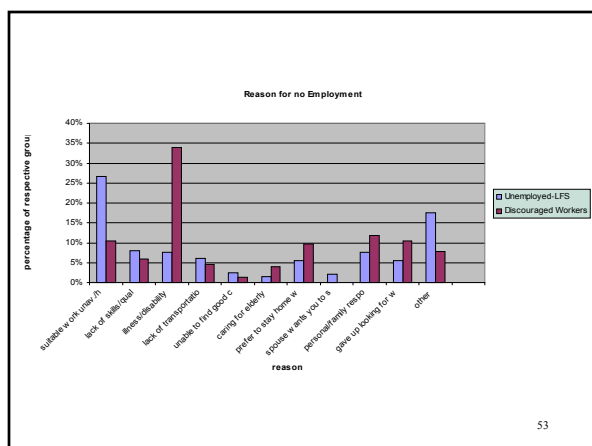
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Unemployed versus Discouraged Workers

- Are discouraged workers different from other unemployed workers in terms of their reasons why they have no employment?
- Discouraged workers are more likely than unemployed workers to report ill health/disability as a reason.
 - Personal and Family responsibilities are also a factor.
- Unemployed workers are more likely to report a lack of suitable work available.

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GPIAtlantic

Genuine Progress Index for Atlantic Canada
Indice de progrès véritable - Atlantique

Preliminary Results of GPI Atlantic
King's County Community Survey:
April 8, 2003
Perceived Health Status and Tobacco Use
in King's County

Glyn Bissix: Professor
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The GPI-Acadia Group
&
Centre for Lifestyle Studies
Acadia University

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- George Kephart: Professor and Director of the Population Health Research Unit, Dalhousie University
- Andrew Harvey, Director, Time Use Research Program, Department of Economics, St. Mary's University
- Peter MacIntyre: Associate Professor, Department of Psychology, University College of Cape Breton
- Liesel Carlsson: Candidate - BScHons, Research Technician: School of Nutrition, Acadia University.

Health and Community Questionnaire

The following questions will help us learn about the health of Kings County residents and of our families and our community.

- *We'll learn about our values, our health care needs, the level of community service, the strength of our voluntary sector, and how we care for those in need.*
- *What we learn can help us improve our well-being and the quality of life in Kings County.*

Topics

- Personal Information
- Household Food Consumption
- Employment/Underemployment
- Peace and Security
- Health and Community (Volunteerism)
- Ecological Footprint

The GPI-Acadia Group

Distribution List Name: GPI-Acadia

Members:

Andrew Biro	CRC-Political Science	Water & Health Policy
Danny Silver	Computer Science	Database Mngmnt
Darcy Benoit	Computer Science	Database Mngmnt
Edith Callaghan	Business Administration	Sustainability
Tony Thomson	Sociology	Peace & Security
Maurice Tugwell	Economics	Sustainability
Peter Horvath	Psychology	Female Depression
Linda Lusby	Environmental Science	Sustainability
Gary Ness	Director-SRMK	Youth Physical Fitness
Jonathon Fowles	Kinesiology	Fitness Appraisal
Robert Pitter	Kinesiology	Sociology / GIS
Rene Murphy	Kinesiology	Fitness Appraisal
Darren Krusselbrink	Kinesiology	Psychology
Glyn Bissix	Recreation Management	Sustainability
John Colton	Recreation Management	First Nations
Paul Heintzman	Recreation Management	Spirituality
Brenda Robertson	Recreation Management	Deviance
Susan Markham-Starr	Recreation Management	History
Tom Ellis	Dean- Research & Grad Studies	
Elaine Scholfield	Manager-Research & Grad Stud	
Mary MacLeod	Manager: Library	Data Liberation
Steve MacNeil	Manager: Library	Network Management

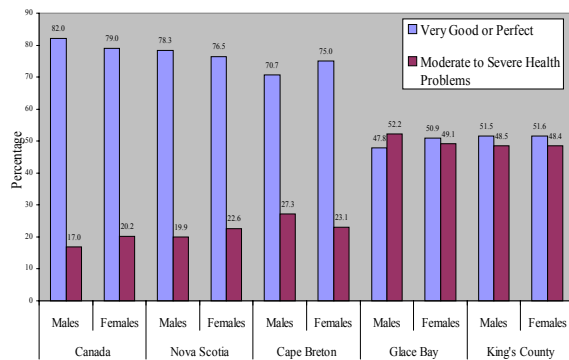
The Survey Characteristics

- **Conducted 2001-2002**
- **Research Supported by**
 - *National Crime Prevention Centre (\$225,000)*
 - *Canadian Population Health Initiative (\$327,000)*
 - others
- **Sample 1 in 30 of 15yrs and over.**
- **1,907 usable responses in Kings – (70% response rate); 1,700 in Glace Bay (82% response rate)**
- **Extensive survey – 78 pages**
- **2-3 hours completion time**
- **Most Kings County data are available for analysis.**
- **Glace Bay and Kings County have the best Health and Community Data available in Canada**
- **Need Community Input and Additional Financial Resources for Data Analysis**

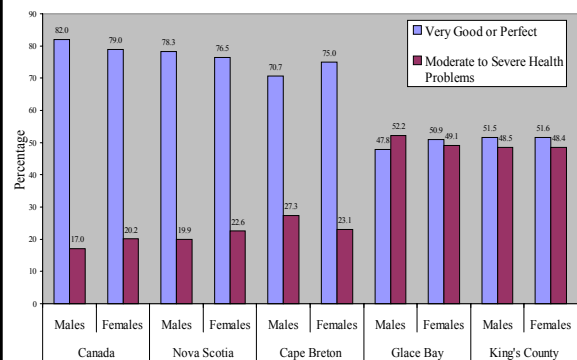
Analyses are Preliminary

- Kings County data (cohorts) have not yet been adjusted to 2001 census
- No tests of confidence level have yet been calculated – sample size gives strong assurance
- No tests of significance between means (averages) of Glace Bay and Kings County have been calculated yet.

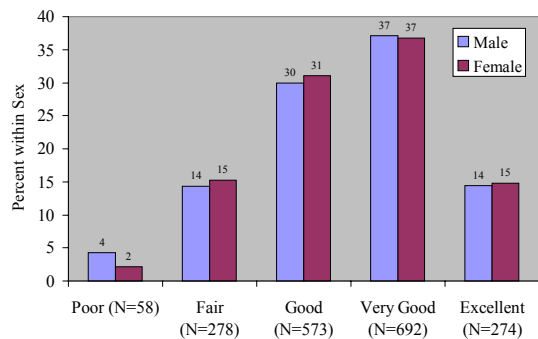
Health Status: Regional Comparisons Glace Bay & Kings County



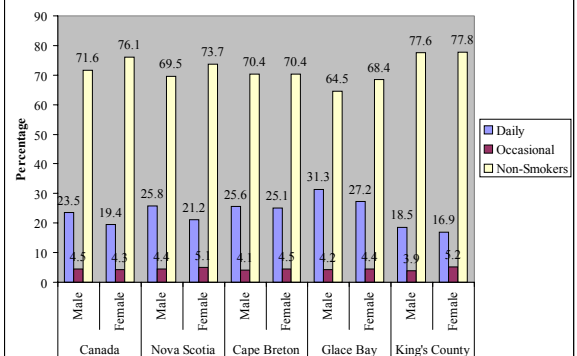
Health Status: Regional Comparisons

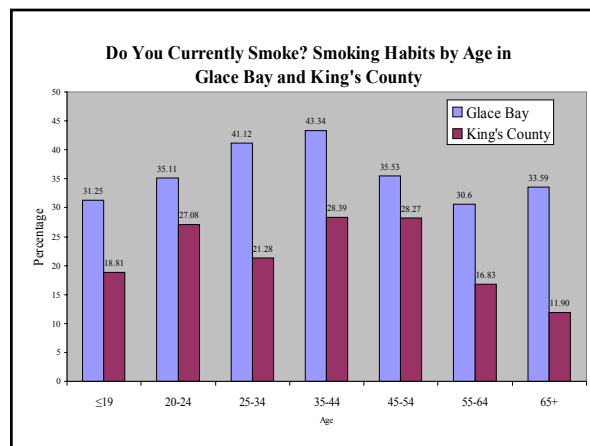
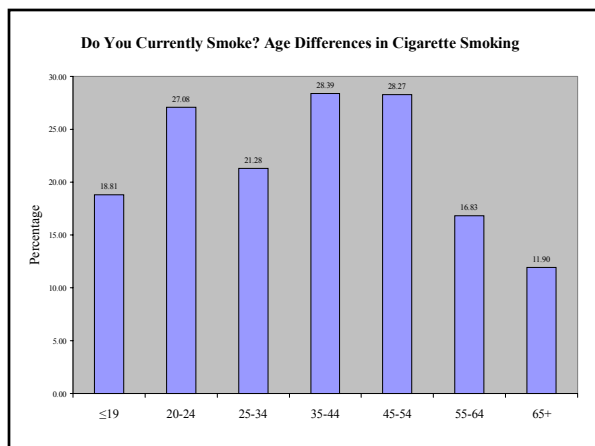
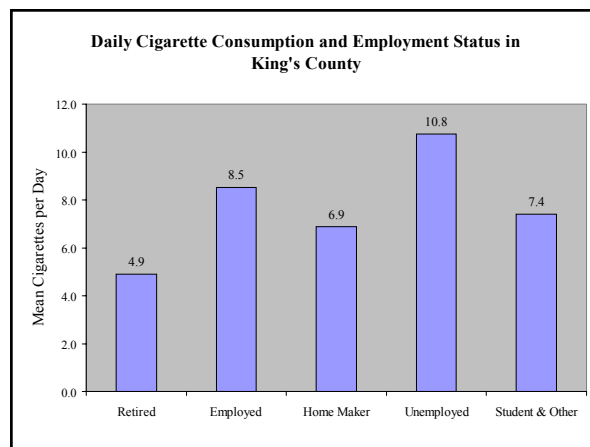
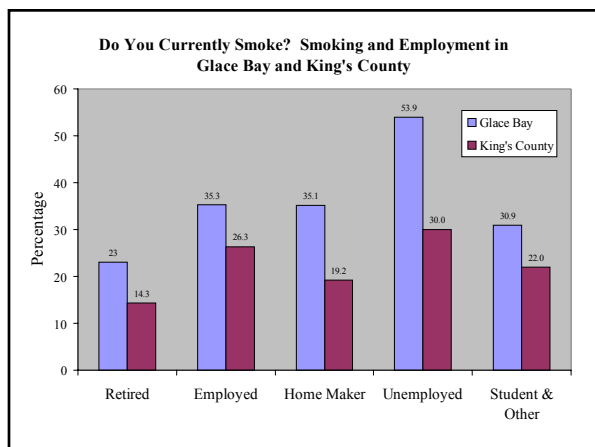
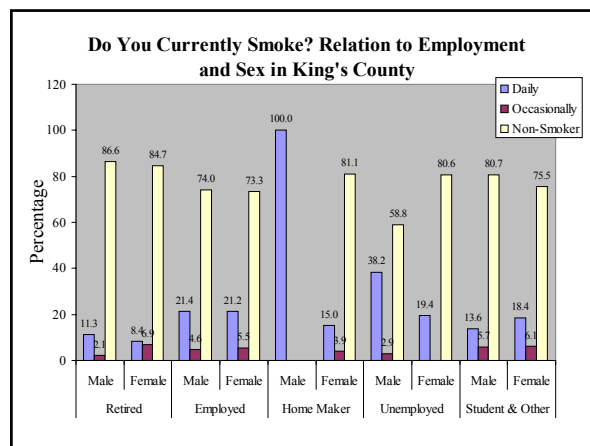
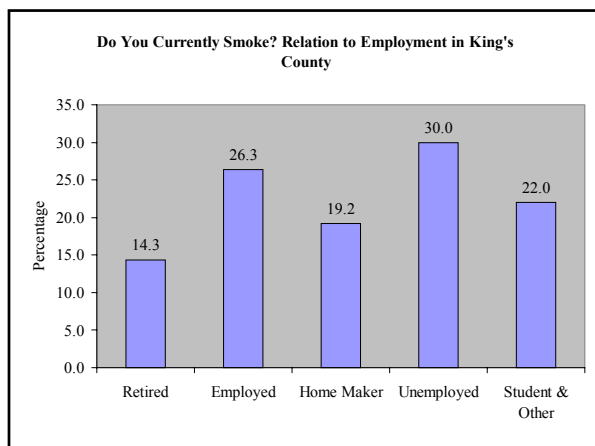


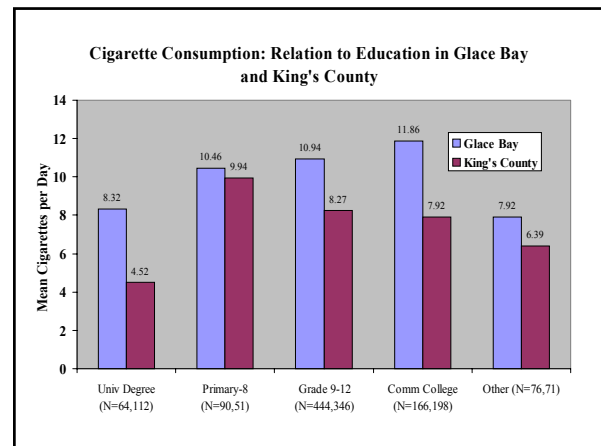
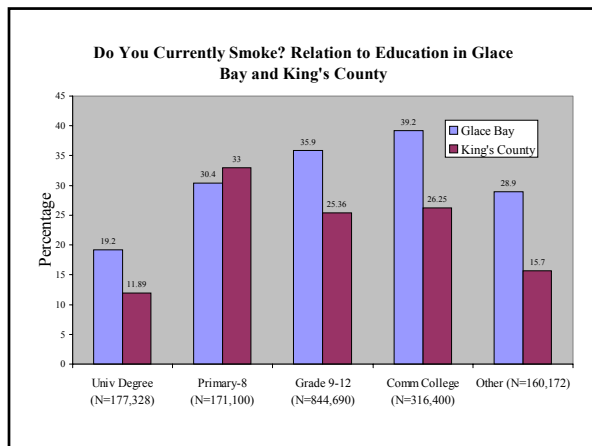
Sex differences in Health Status King's County



Present Smoking Habits: Regional Comparisons







Example Future Analyses

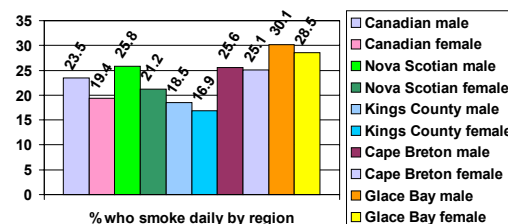
- caregiving and health outcomes
- time use and health outcomes
- perceived mental health and lifestyles
- perception of peace, security and health
- smoking and lifestyles
- physical activity and health status
- nutrition and health outcomes
-

Examining tobacco use and health in Glance Bay and Kings County, Nova Scotia

Results from GPI Atlantic
Marcie D. Smith & Dr. Peter MacIntyre
University College of Cape Breton

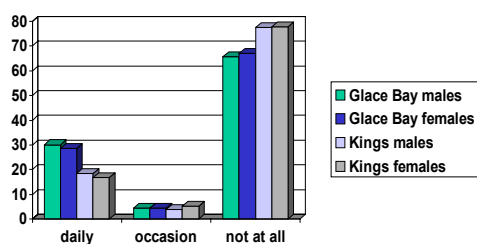


National/Regional Comparisons:

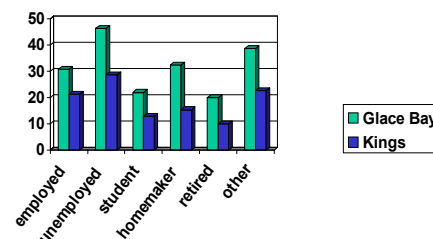


*Glance Bay's % of daily smoking is higher than the national average, while Kings County is below.

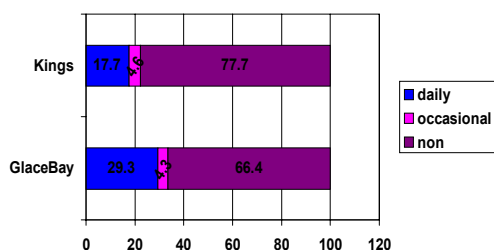
Smoking habit in relation to sex



The employment status of those smoking daily

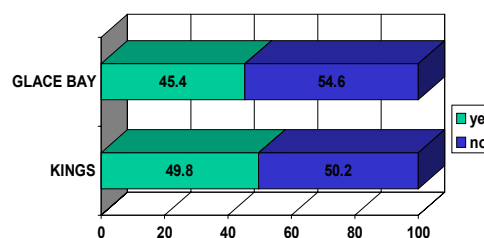


At the present time do you smoke?

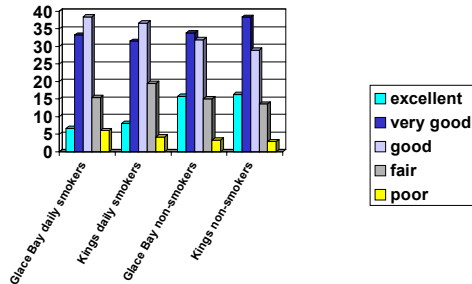


* Numbers represent %

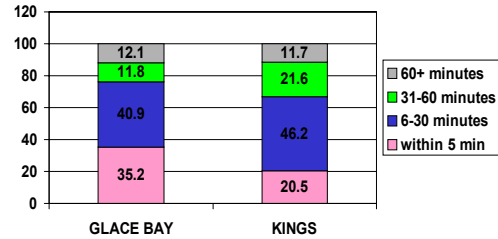
Have you ever smoked cigarettes at all?



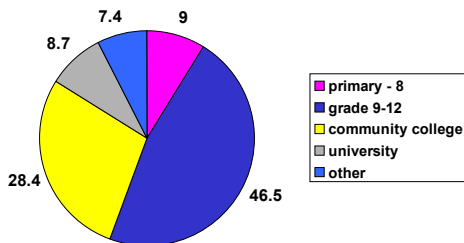
Self-reported health of smokers and non-smokers:



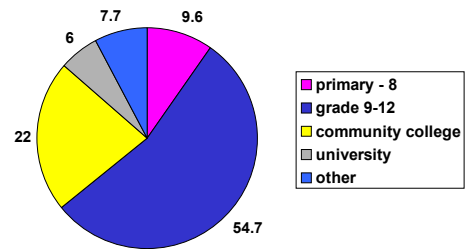
Nicotine dependency: How soon after you first wake up do you smoke your 1st cigarette?



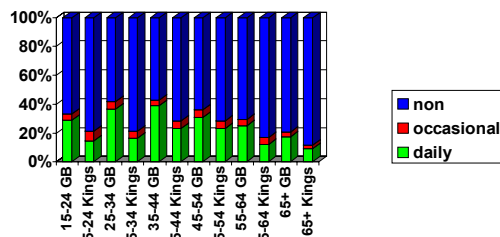
Education level and daily smoking: Kings County



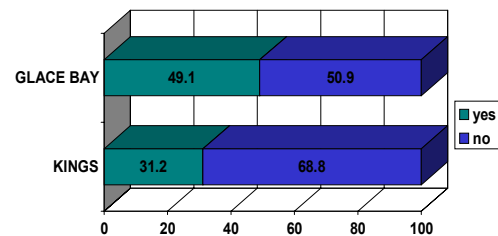
Education level and daily smoking: Glace Bay



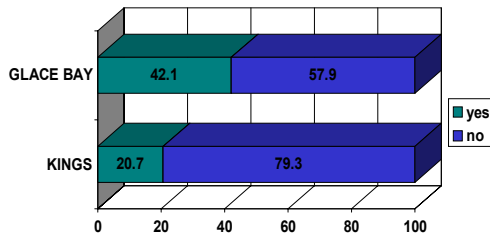
Smoking patterns by age group in Glace Bay and Kings County:



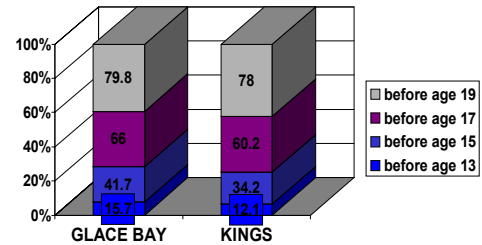
Does anyone in your household smoke regularly?



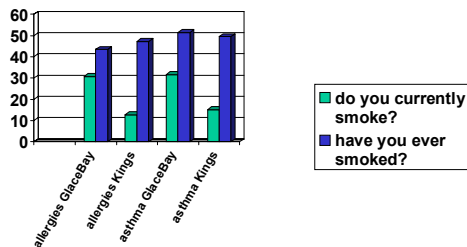
Does anyone in your household smoke inside of the home?



Percentage of those who began smoking before a certain age:

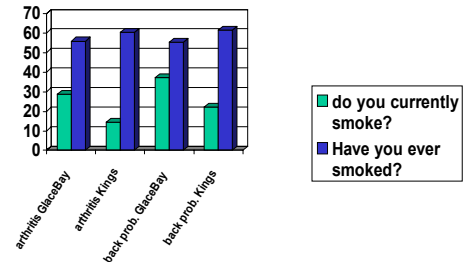


Chronic Conditions: Quit Rates

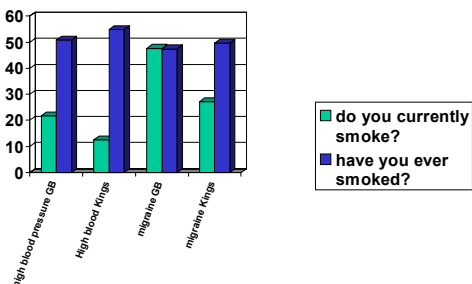


* The difference between the purple and blue bars are the people who quit smoking

Chronic Conditions: Quit Rates

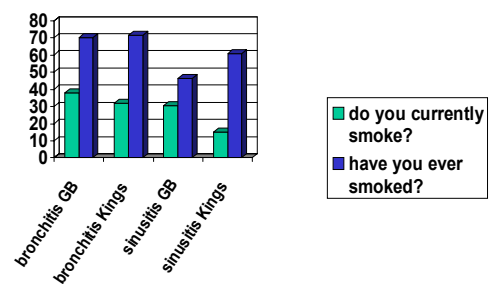


Chronic Conditions: Quit Rates

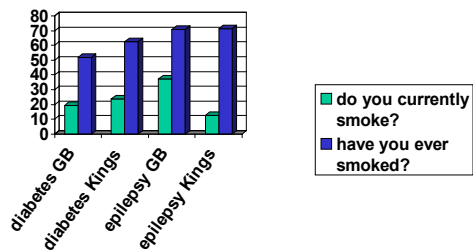


* It is interesting to note only a 0.2% quit rate in migraine sufferers in Glace Bay

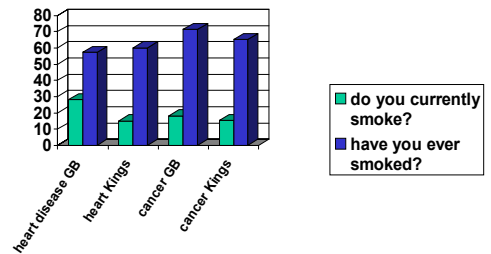
Chronic Conditions: Quit Rates



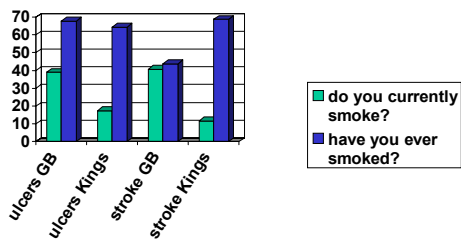
Chronic Conditions: Quit Rates



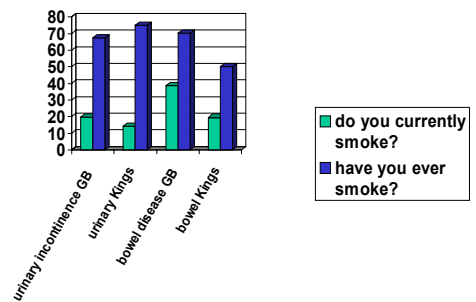
Chronic Conditions: Quit Rates



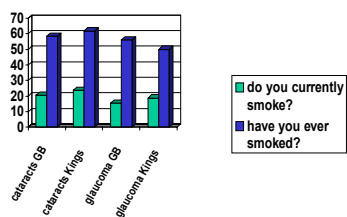
Chronic Conditions: Quit Rates



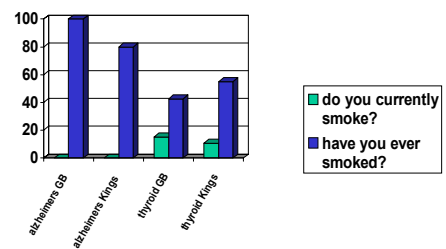
Chronic Conditions: Quit Rates



Chronic Conditions: Quit Rates



Chronic Conditions: Quit Rates



Conclusions



- Schnoll et al (2002) indicated 30-40% smokers continue to smoke after diagnoses of a serious condition. Persons are less likely to quit if unaware of extreme dangers of smoking, and uneducated about the seriousness of their disease. Other medical variables may play a role such as the stage of the disease and how far into treatment the individual is.
- Factors that influence readiness to quit after diagnoses:
 - if a family member smokes at home the person will be less likely to quit
 - Level of nicotine dependence
 - Awareness of the benefits of quitting
 - Level of emotional distress
 - Fatalistic outlook, "why bother..."
 - Cost of cigarettes in relation to other health costs

Further research:

- A lot of research has been done to examine the variables that influence healthy people (no chronic conditions) to quit smoking. However, there is very little research done on why people with chronic diseases quit or do not quit smoking. In the future more research in this area would be beneficial especially in developing smoking cessation programs for people with chronic disease.
- Kings County has higher quit rates when living with chronic illness than those in Glace Bay. This lifestyle difference needs further research, with benefits including using Kings County as a model for a smoking reduction program in Glace Bay.

Caregiving and Caregivers in Glace Bay

Deborah Kiceniuk, PhD
Andrew Harvey, PhD
Adrian MacKenzie, BSc

Unpaid Caregiving

Unpaid work households do by and
for themselves, including domestic
chores, childcare, and shopping

Objectives

- 1. To examine the relationship between caregiving and health behaviours and practices in relation to demographic variables
- 2. To examine similarities and differences in health behaviours and practices between caregivers in two Nova Scotian communities in relation to demographic variables

Hypotheses – *what we expected!*

- Caregivers are more likely to be female, married, middle-aged, unemployed, less education, lower income
- Caregivers poorer emotional health status, and similar physical health status
- Caregivers and non-caregivers will have similar health utilization and health behaviour patterns

Variables – *What we looked at!*

- Demographics
 - » gender, marital status, education, age, income, and occupational status
- ♦ Health Status
 - » perceived physical and emotional health
 - » objective measures – limited activity and medication use

Variables – *cont'd*

- Health Care Utilization
 - » frequency of visits to physicians, other health care providers, mental health professionals, OP/Emerg.
- Health Behaviours
 - » frequency of pap smears & mammograms,
 - » smoking, exercise within various time frames

Variables – *cont'd*

- Social Support
 - » frequency of contacting relatives or neighbours
 - » frequency in attending religious events
 - » ability to partake volunteer activities

Glace Bay - *respondents*

87% response rate 1694 respondents	Slightly >60% Aged 45>	40% Household inc. \$35,000>
Slightly >50% Grade 12	29.5% University or Community C.	60% Married or Living CL

Glace Bay - *Caregivers*

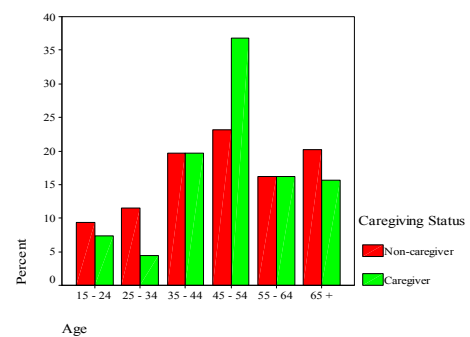
12.6% of sample 206 respondents	67.5% female (C) 55.8% female (N)	69% - =>45 (C) 58.5% - =>45 (N)
69.5% - M/CL (C) 58.8% - M/CL (N)	Similar Income & education levels	

Caregiver characteristics

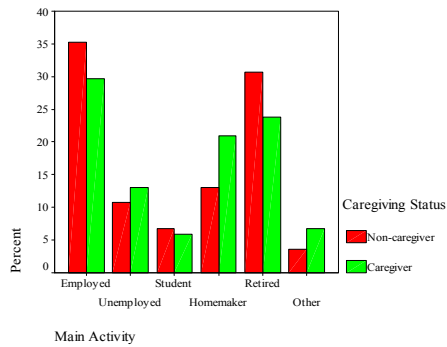
Caregivers	Non-Caregivers
→ 12.6% of sample (206)	
→ 67.5% female (C)	→ 55.8% female
→ 69% - =>45 (C)	→ 58.5% - =>45 (N)
→ 69.5% - M/CL (C)	→ 58.8% - M/CL (N)
→ Similar income & education levels	

Demographics

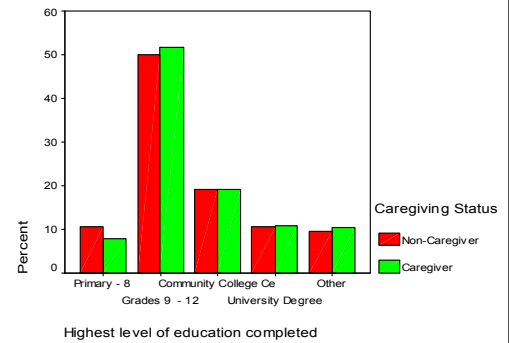
Age



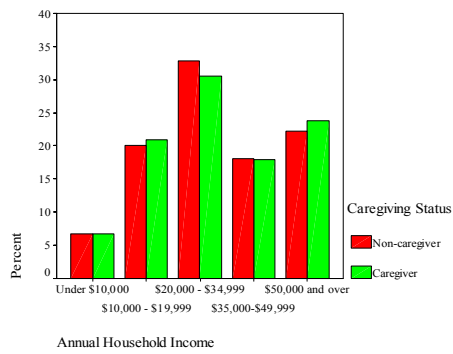
Main Activity



Education Level

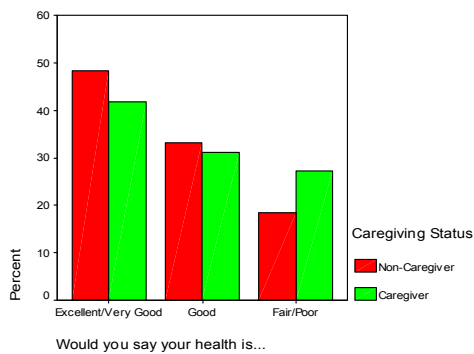


Household Income

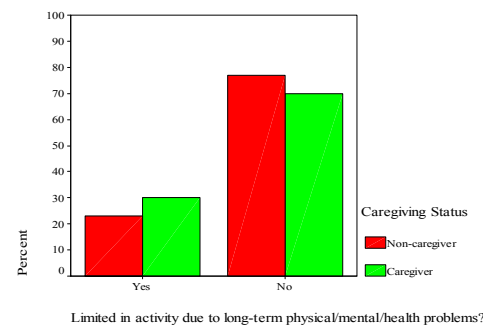


Health Status

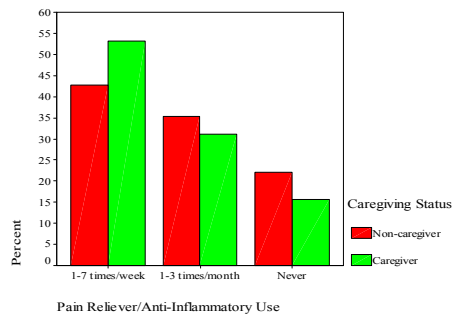
Perceived Health Status



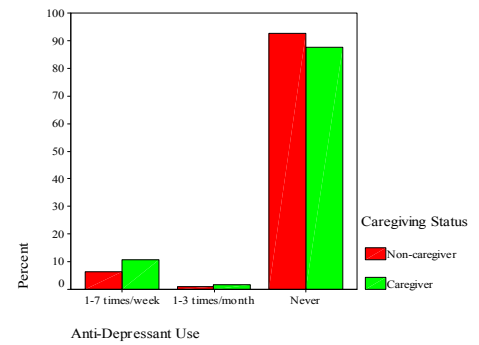
Limited Activity Levels



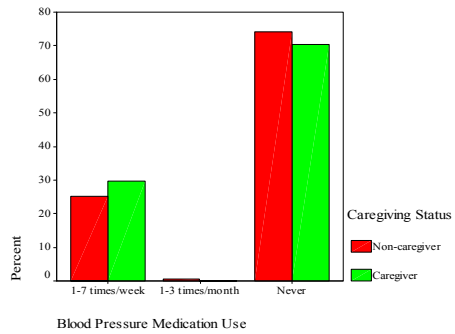
Pain reliever/anti-inflammatory



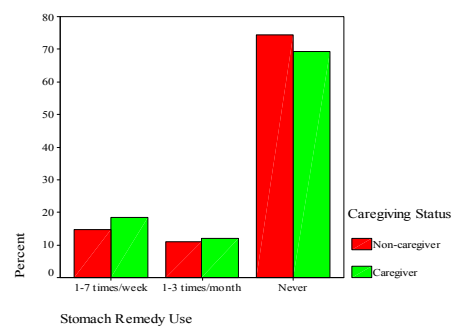
Anti-depressants



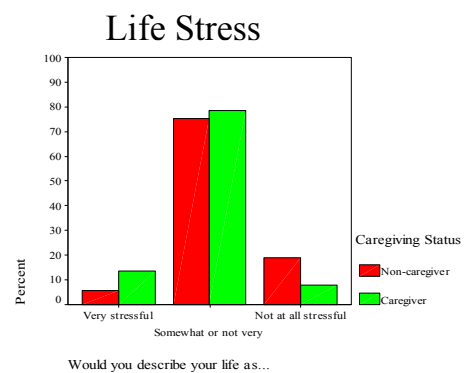
Blood Pressure Medication



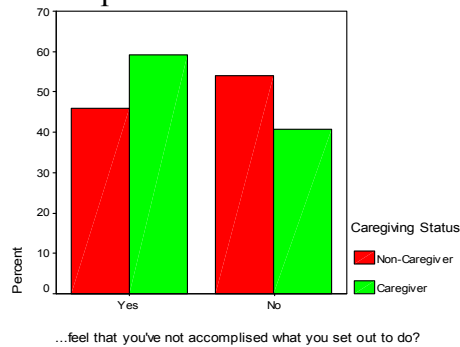
Stomach Remedies



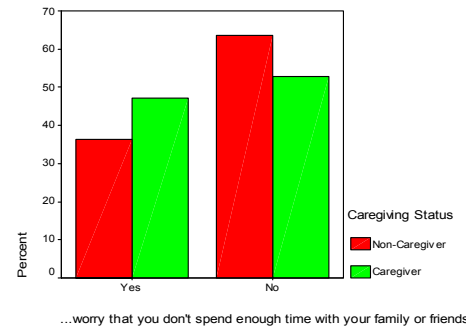
Emotional Health and Stress



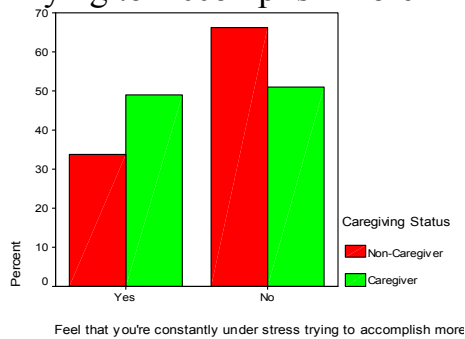
Not Accomplished What You Want



Enough Time with Family/Friends

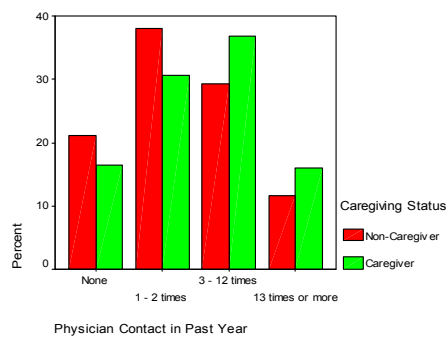


Trying to Accomplish More

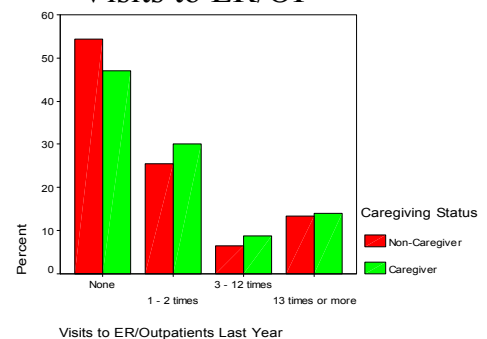


Health Care Utilization

Physician Contacts

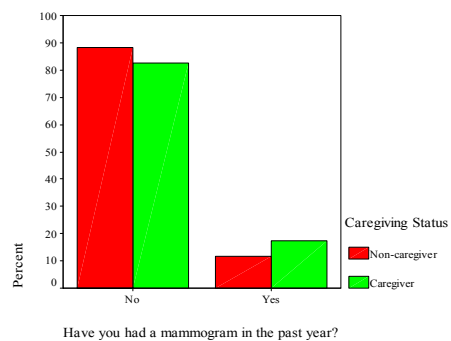


Visits to ER/OP

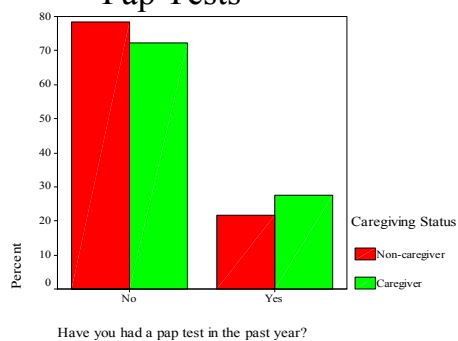


Health Practices and Behaviours

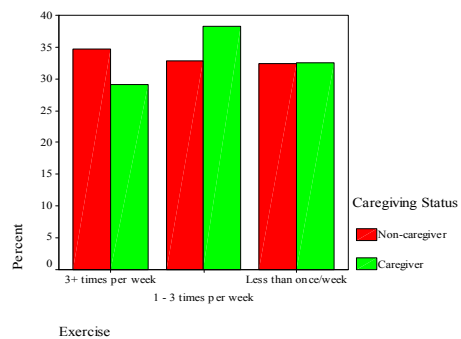
Mammograms



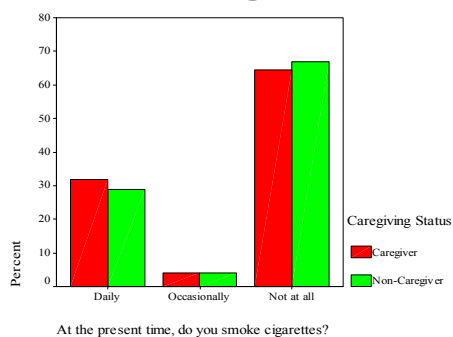
Pap Tests



Exercise Patterns

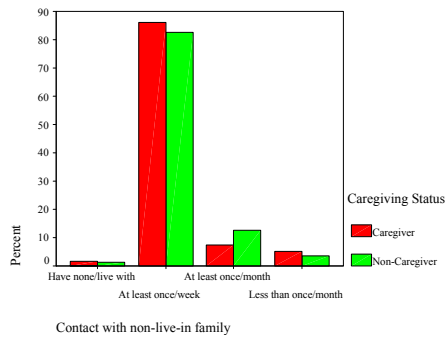


Smoking

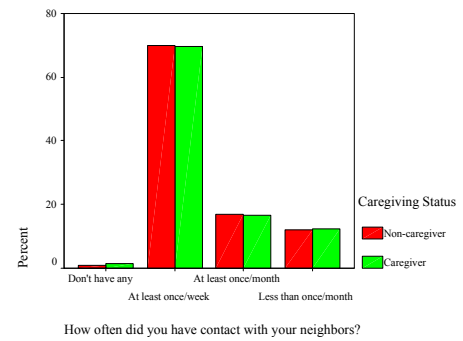


Social Support

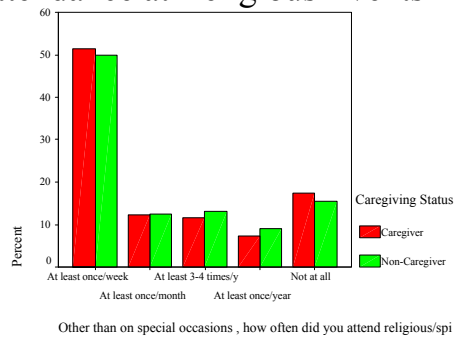
Contact with Family



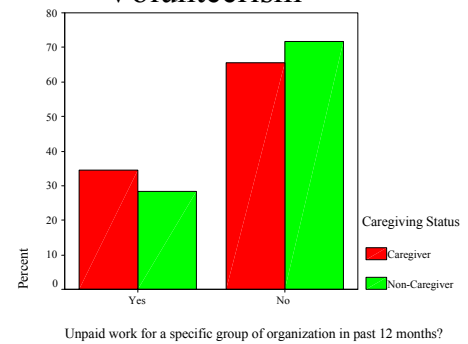
Contact with Neighbours



Attendance at Religious Events



Volunteerism



Kings County

- Caregivers and Unpaid Caregiving

Deborah Kiceniuk, PhD

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Andrew Harvey, PhD

Unpaid Caregiving

Unpaid work households do by and for themselves, including domestic chores, childcare, and shopping

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Variables – *What we looked at!*

- Demographics
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Variables – *cont'd*

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 - » frequency in attending religious events
 - » ability to partake volunteer activities

Hypotheses – *what we expected!*

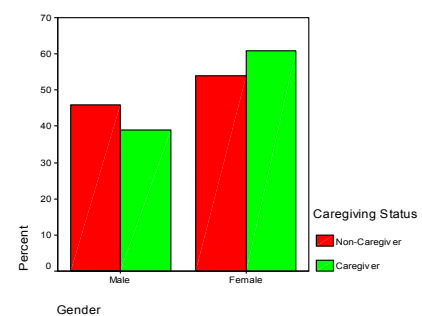
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- Caregivers and non-caregivers will have similar health utilization and health behaviour patterns

Kings County - *respondents*

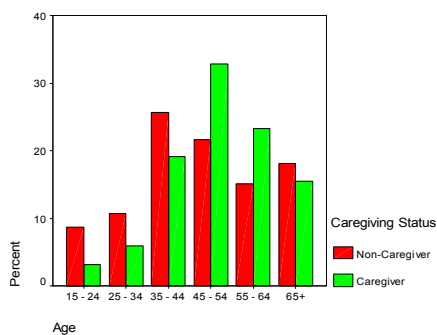
70% response rate 1869 respondents	57% Aged 45+	65% Household inc. \$35,000+
55% Female	40% University/ Community College	73% Married or Living CL

Demographics

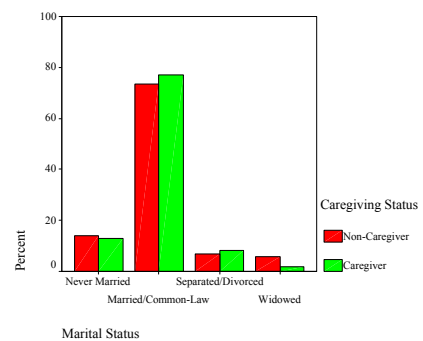
Gender

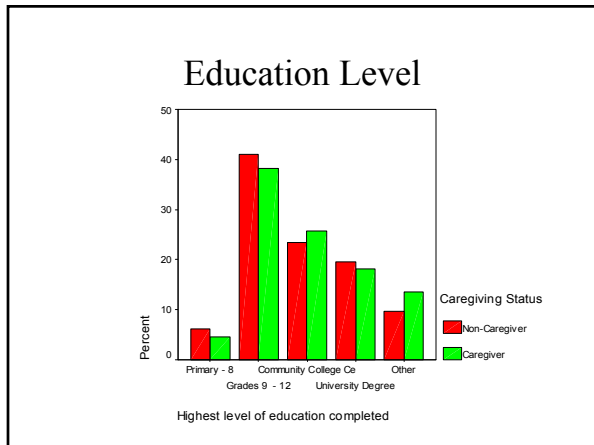
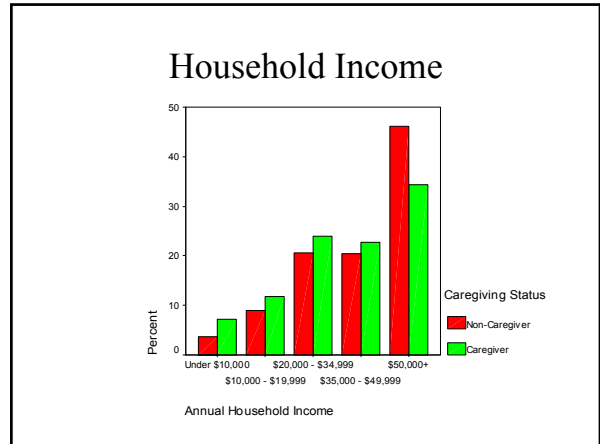
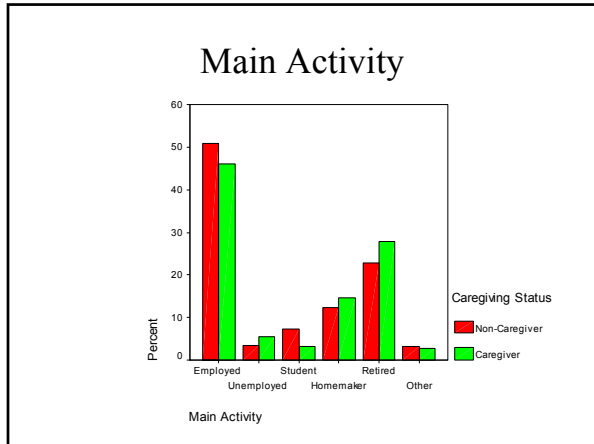


Age

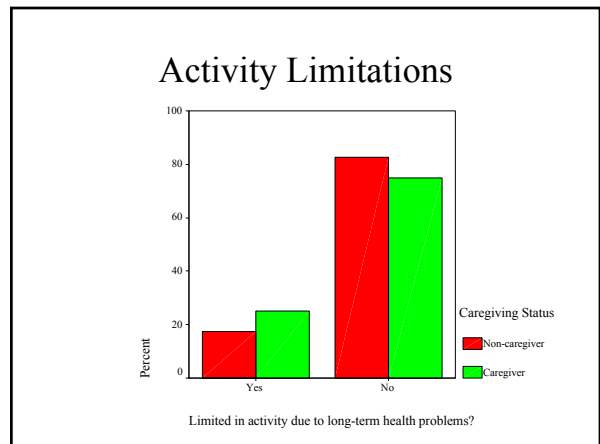
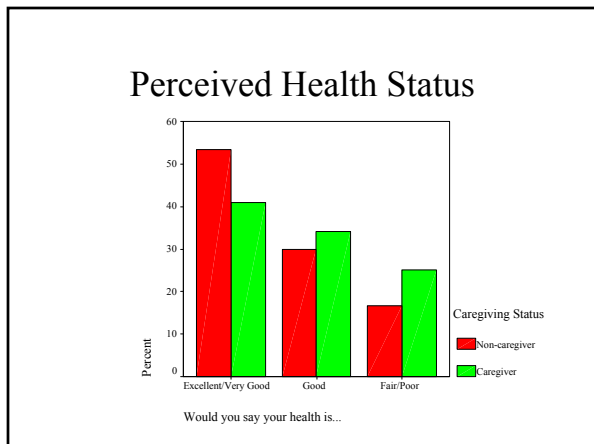


Marital Status

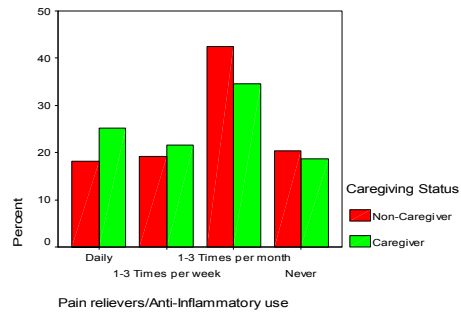




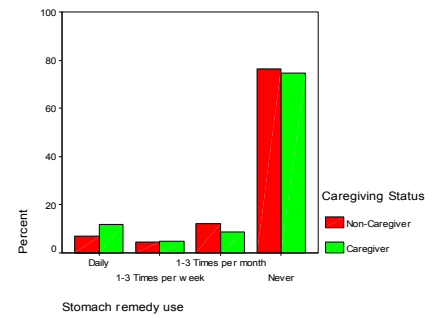
Emotional and Physical Health



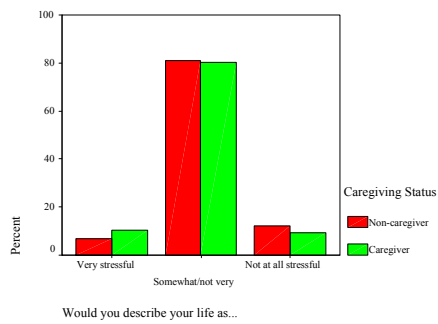
Pain Relievers/Anti-inflammatory



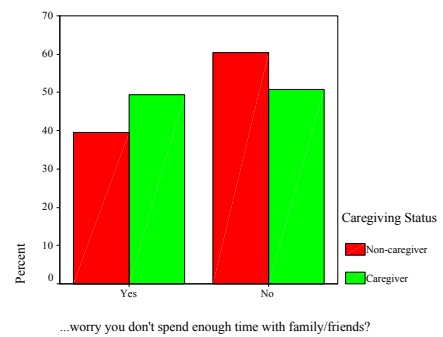
Stomach Remedies



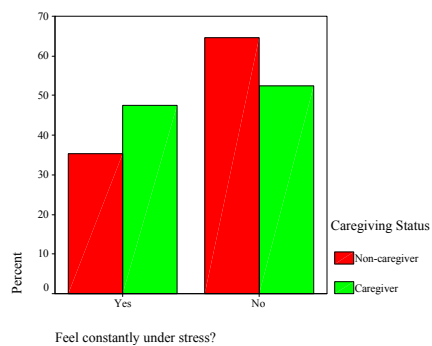
Stress Levels



Time with Friends/Family

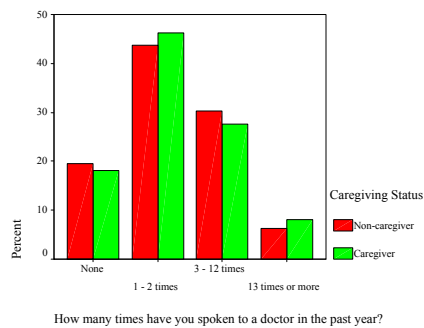


Trying to Accomplish More



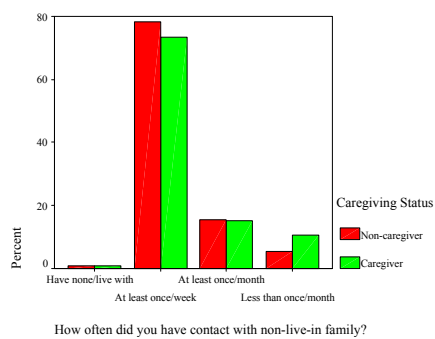
Health Care Utilization

Physician Contact

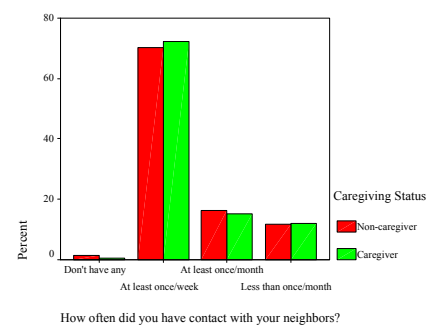


Social Support

Contact with Family



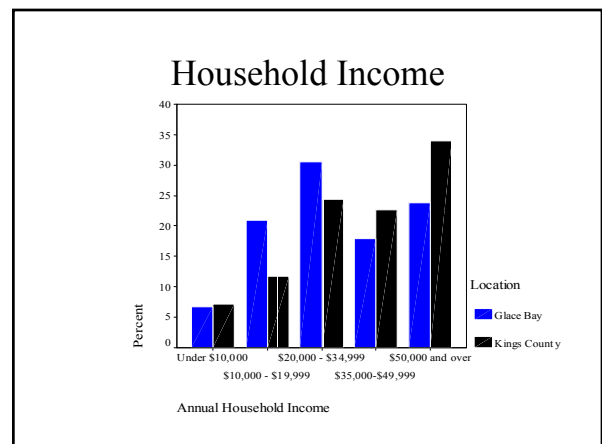
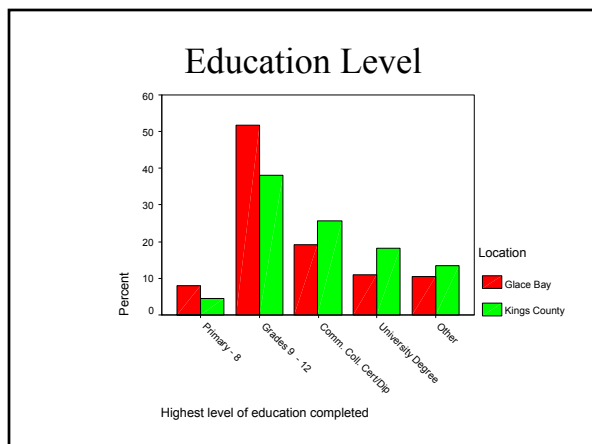
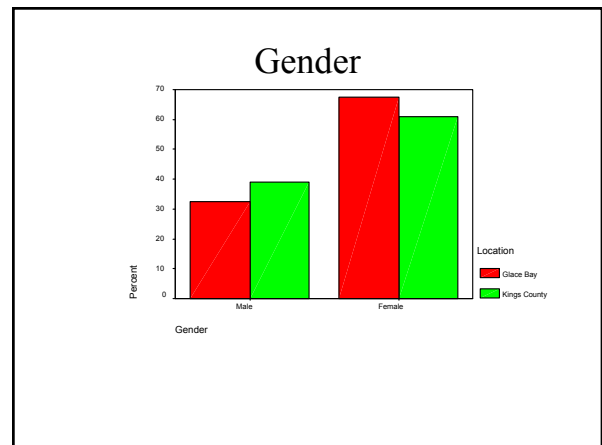
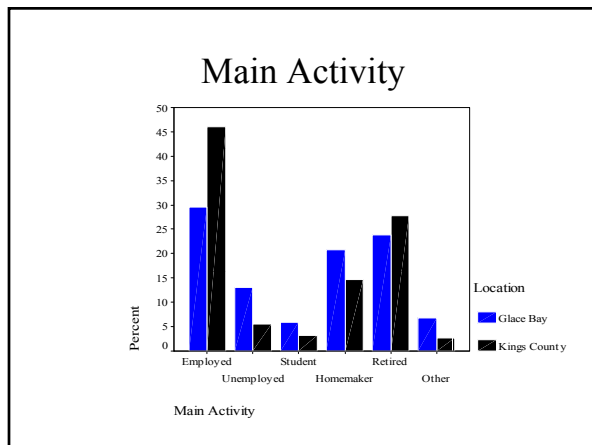
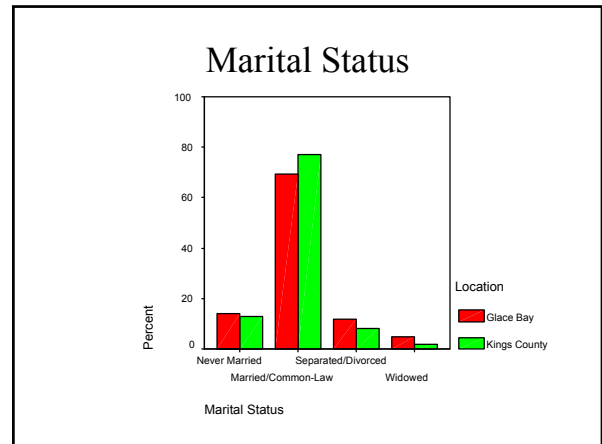
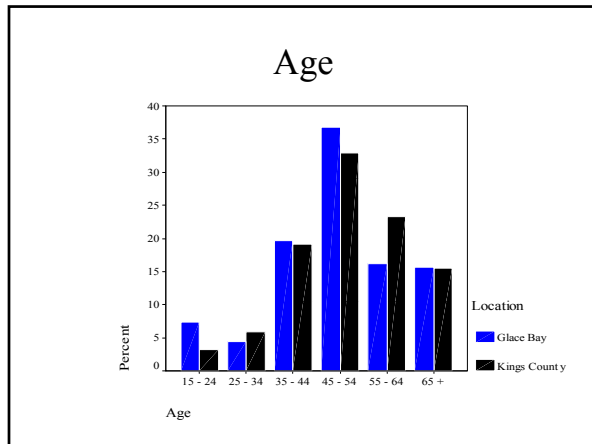
Contact with Neighbors



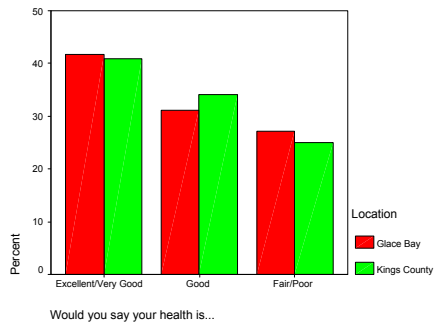
Kings County and Glace Bay - Caregivers

Hypothesis 2 – What we expected

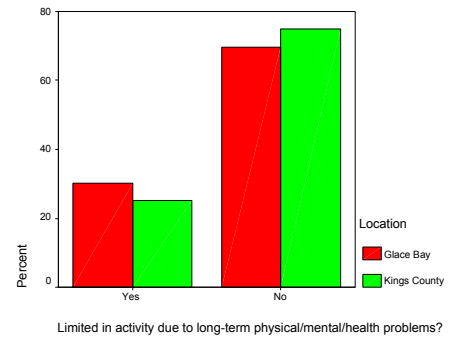
- ♦ The population of Kings County will be younger than that of Glace Bay
- ♦ Based on age:
 - » Glace Bay caregivers will use health care services more frequently than Kings County
 - » caregivers in Glace Bay will have lower income levels than those of Kings County



Perceived Health Status



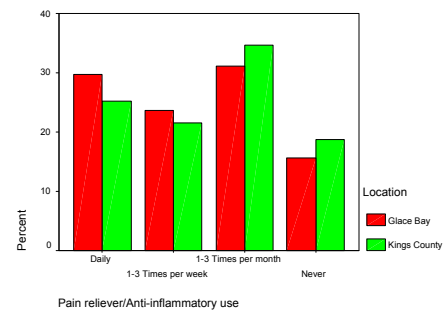
Activity Limitations



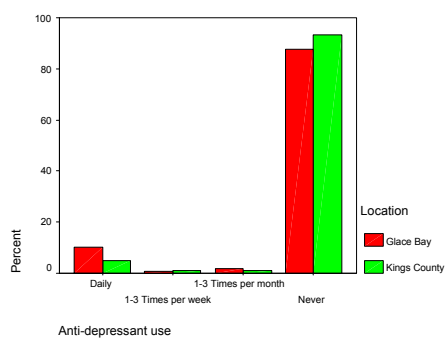
Chronic Diseases

- Caregivers
- Twice as many CG migraine headaches, and intestinal disorders
- Three times as many CG bowel disorders

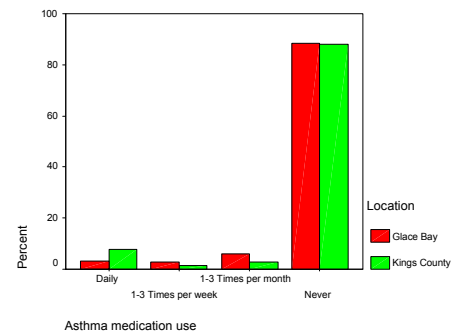
Pain Relievers/Anti-inflammatory

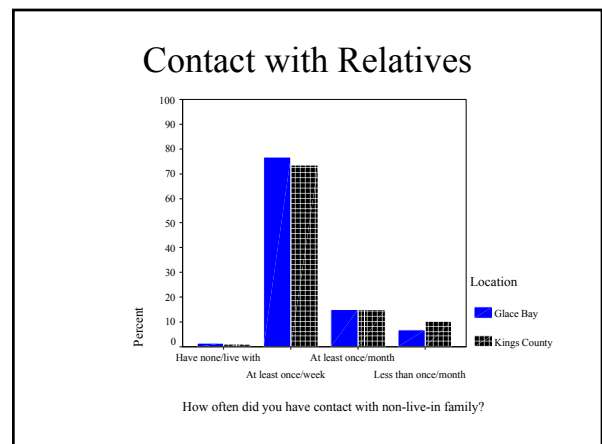
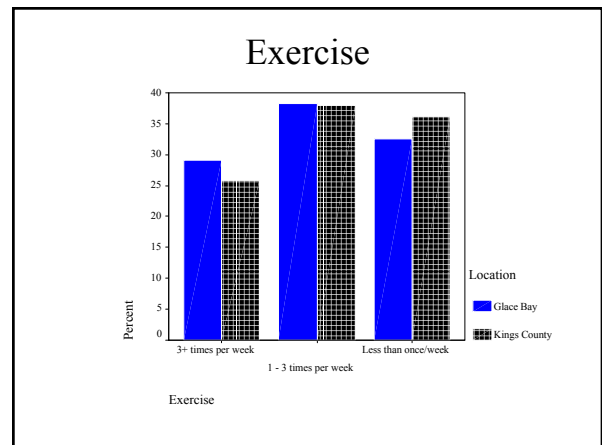
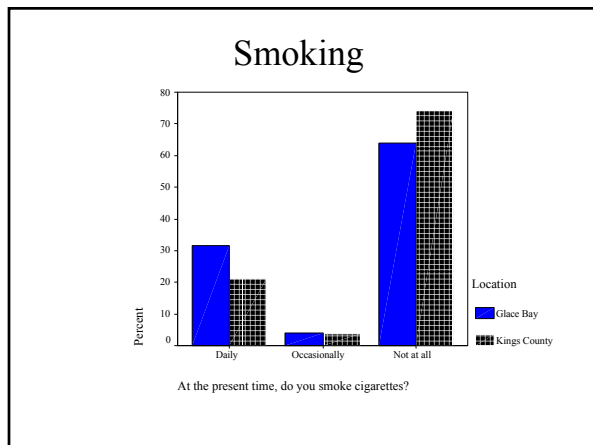
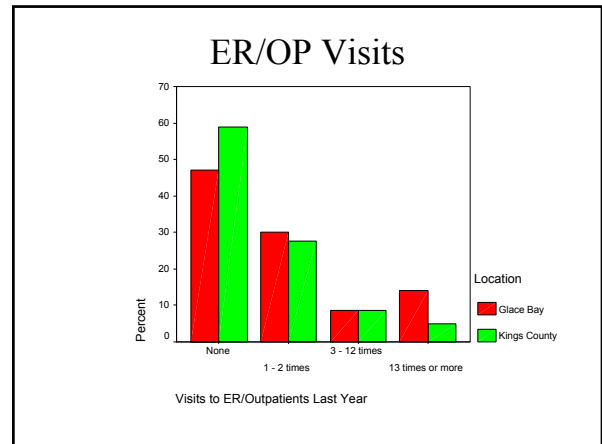
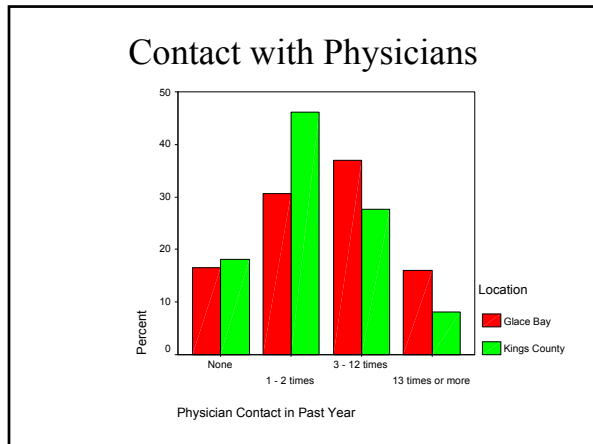


Anti-depressants



Asthma Medications





Suggestions for Future Research

- Resource availability
- Factors associated with care-receiver's illness
- Length of time in caregiver role
- Caregiver's health status pre- and post-caregiving role

Caregiving and Caregivers in Glace Bay

Caregivers in Glace Bay
and Kings County

Hypothesis 2 – What we expected

♦ The population of Kings County will be younger than that of Glace Bay

♦ Based on age:

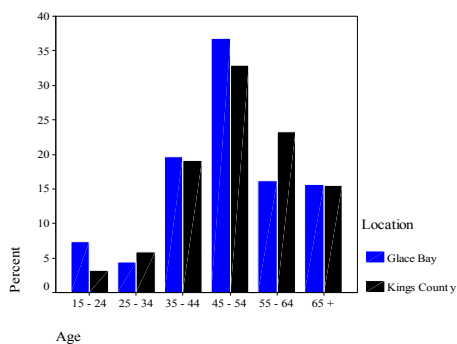
- » Glace Bay caregivers will use health care services more frequently than Kings County
- » caregivers in Glace Bay will have lower income levels than those of Kings County

Respondents

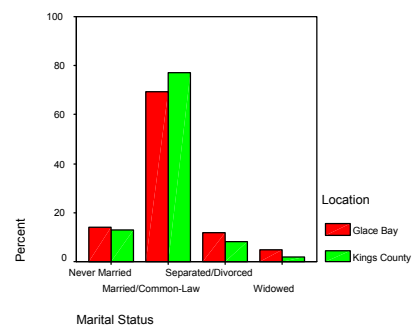
- Total respondents 1874
- Total caregivers 221 (11.8%)

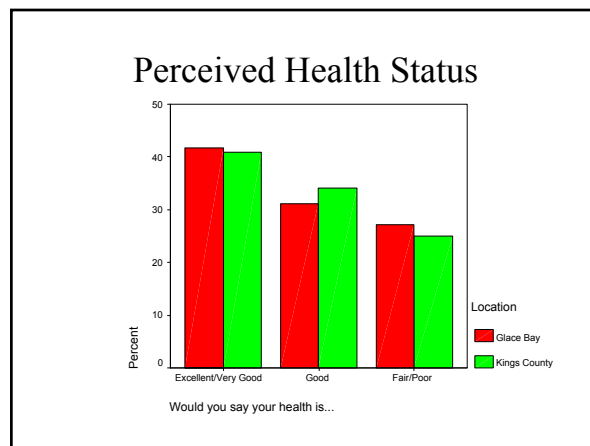
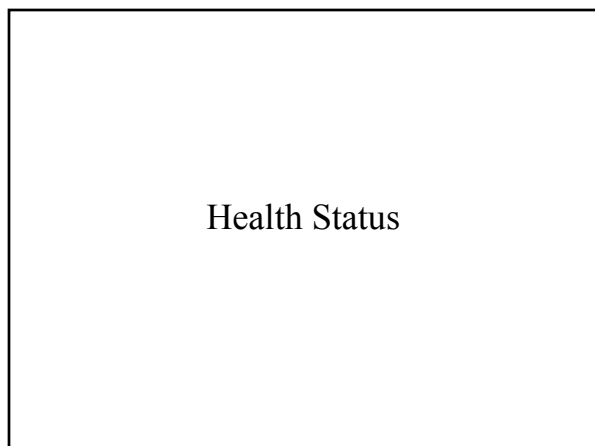
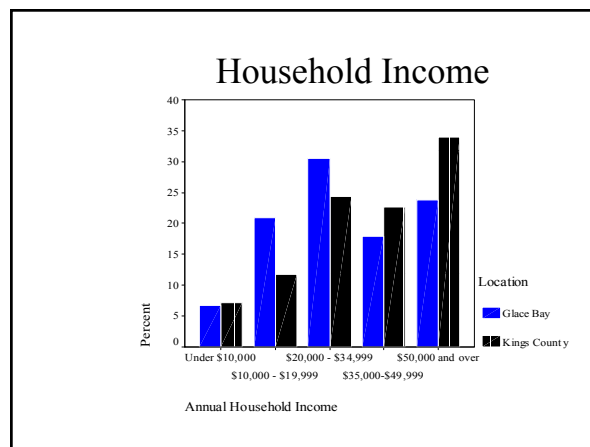
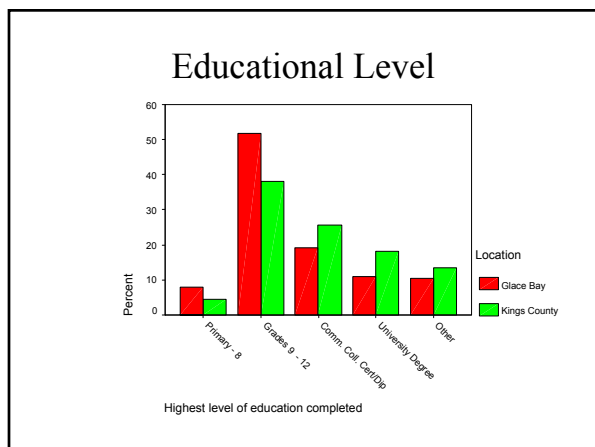
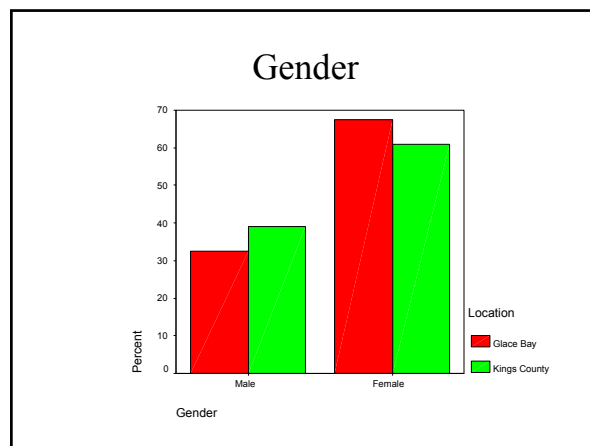
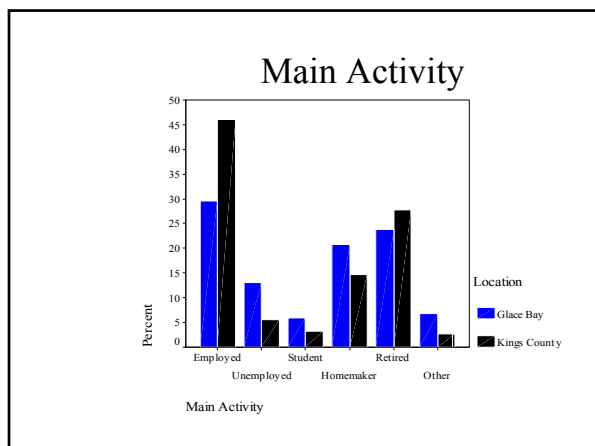
Demographics

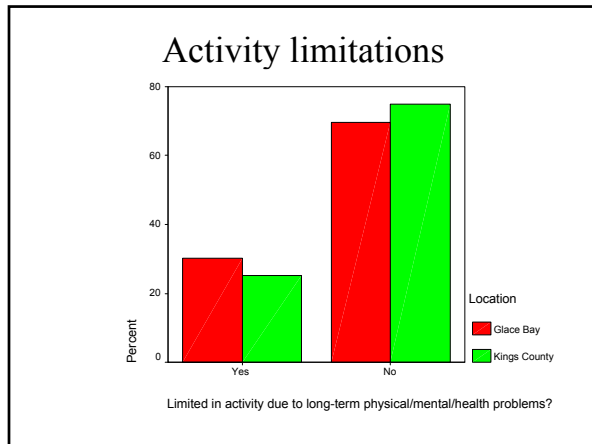
Age



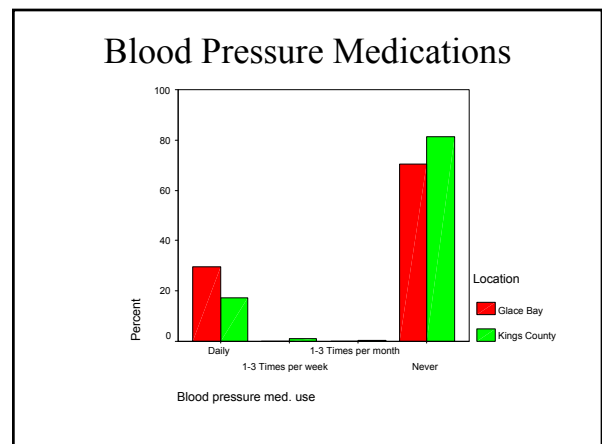
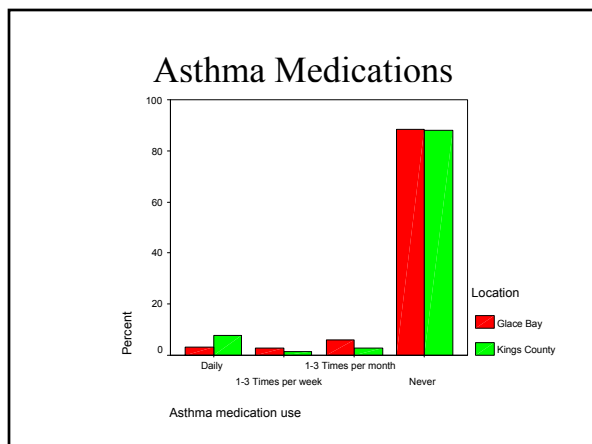
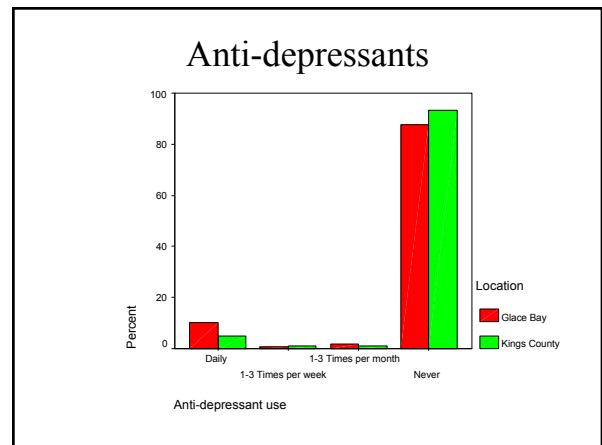
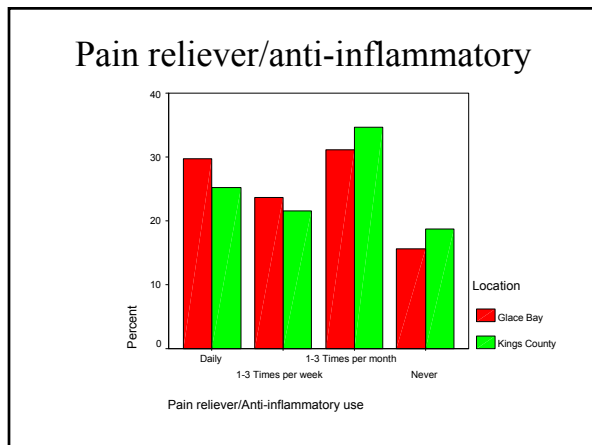
Marital Status

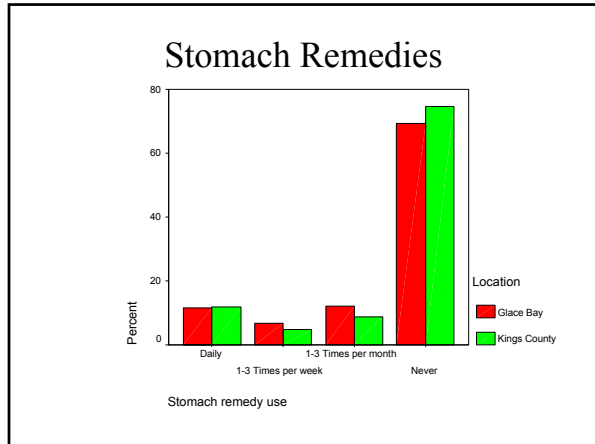




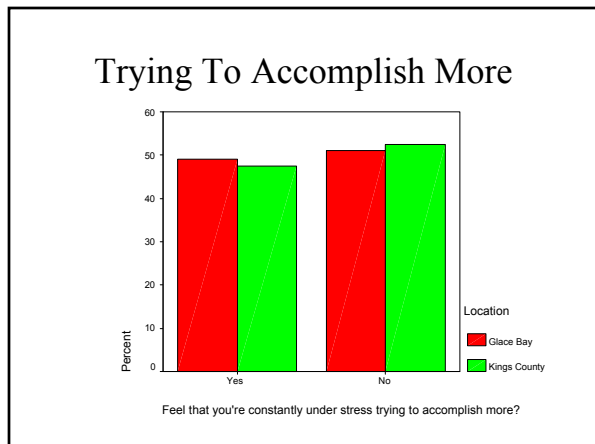
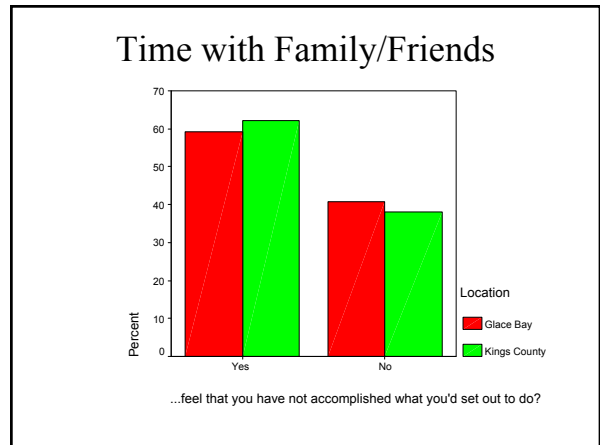
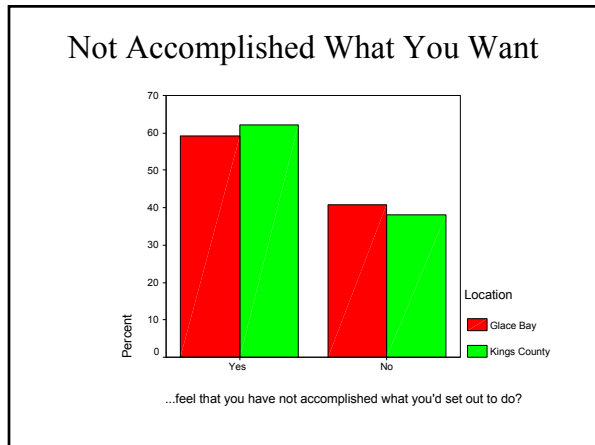


- ### Chronic Diseases
- Caregivers
 - Twice as many CG migraine headaches, and intestinal disorders
 - Three times as many CG bowel disorders



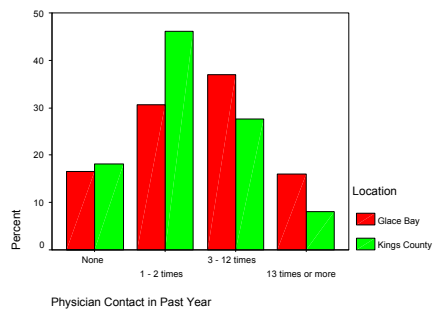


Emotional Health and Stress

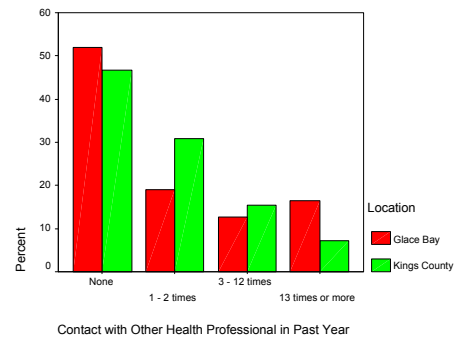


Health Care Utilization

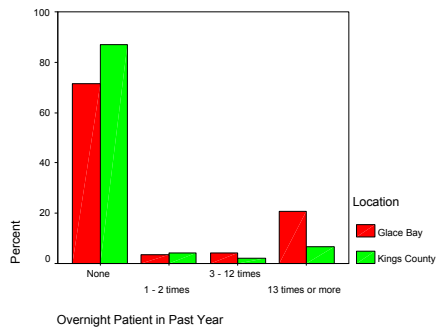
Contact with Physician



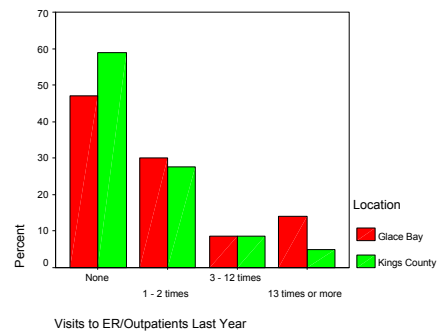
Other Health Care Professionals



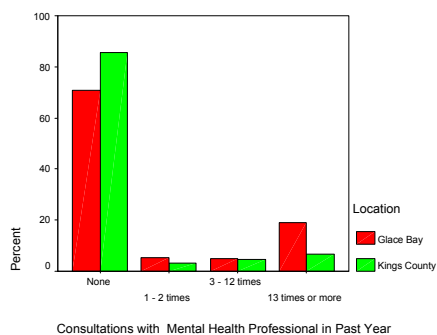
Overnight Stays



ER/OP Visits

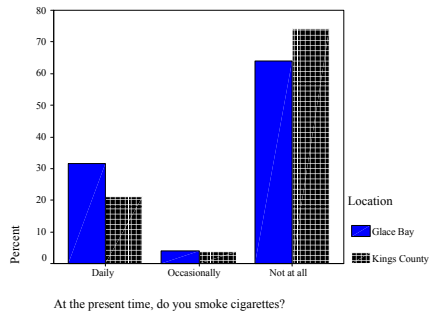


Consult Mental Health Professional

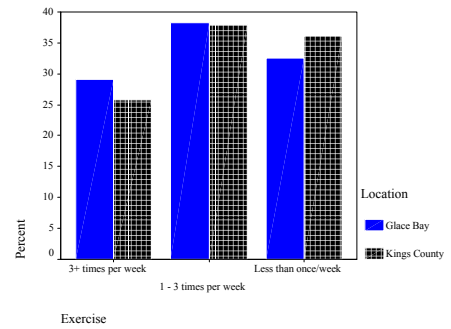


Health Practices and Behaviours

Smoking

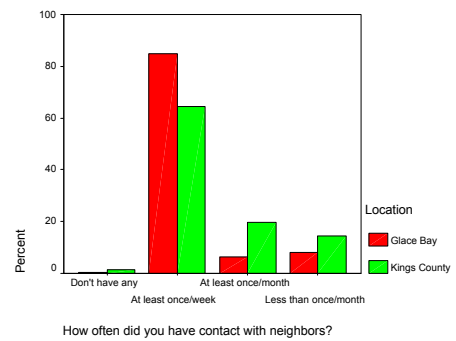


Exercise

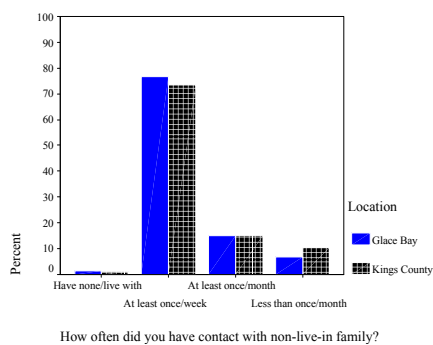


Social Support

Contact with Neighbours



Contact with Relatives



Suggestions for Future Research

- Resource availability
- Factors associated with care-receiver's illness
- Length of time in caregiver role
- Caregiver's health status pre- and post-caregiving role

GPIAtlantic

Genuine Progress Index for Atlantic Canada
Indice de progrès véritable - Atlantique

Measuring Community Wellbeing & Development

Prepared for Atlantic Canada Opportunities Agency
5 January 2004

What kind of community are we leaving our children?

Translating measurement into experience and
language of ordinary Nova Scotians

- Nova Scotia's premier quality of life
- More possessions, longer lives
- But, some disturbing signs

Uncertain Answers: Better off in a Poorer Natural World?

- Natural resource depletion, species loss
- Less fish, condition of forests, soils
- Global warming
- Stress, obesity, asthma, environmental illness
- Insecurity, inequality, child poverty
- Decline of volunteerism

"The more the economy grows, the better off we are" - Sending the wrong message?

- Crime, sickness, pollution, resource depletion make economy grow
- GDP can grow even as poverty and inequality increase.
- More work hours make economy grow; free time has no value.
- GDP ignores work that contributes directly to community health (volunteers, work in home).

We Need Better Indicators of Progress & Wellbeing - In GPI:

- Health, livelihood security, free time, unpaid work, natural resource, & education have value
- Sickness, crime, disasters, pollution are costs
- Reductions in crime, poverty, greenhouse gas, ecological footprint are progress
- Growing equity signals progress

Community GPI

*Initiative came from community groups.
Many community partnerships include:*

- NS Citizens for Community Development Society; community health boards, regional public health authorities, Cape Breton Wellness Centre, Atlantic Centre of Excellence for Women's Health
- CB regional police, Glace Bay Citizens Service League, Rotary Clubs, Kings and Cape Breton Community Economic Development Agencies

Community-Government- University Partnerships:

- Federal: Canadian Population Health Initiative, National Crime Prevention Centre, ACOA, Health Canada, HRDC, Canadian Rural Partnership, Rural Secretariat, Statistics Canada
- Dalhousie Univ. Population Health Research Unit; St. Mary's University Time Use Research Program; University College of Cape Breton, Acadia U.

Goals and Objectives:

Community: vision, learn, mobilize, act

- Vision - community indicator selection
- "Learning about ourselves"
- Mobilize communities - common goals
- Turn new-found knowledge into action

Research Goals:

- Identifying strengths and weaknesses of 2 very different communities
- Community learning about itself, insights, understanding relationships among variables - eg volunteerism, time use and health
- Turning knowledge into action; keeping track - measuring genuine progress

Process as Result

- Indicator selection, creating survey
- E.g. Farmers exchanging information
- Report releases in Sheffield Mills, Jeddore - farmers, fishermen present
- New ideas: e.g. restorative justice
- Results bring disparate groups together

The Means:

- 3,600 surveys - random, 15+, confidential
- CI 95% +/- 3%; 2 cross-tabulations
- Detailed: 2 hrs; Glace Bay: 82% response
- Survey includes health, care-giving, time use, voluntary work, security, income employment, environmental issues
- Data entry & cleaning, access guidelines

What's in the Glace Bay and Kings County GPI Surveys?

1) Demographics & Employment

- Age, sex, household, marital, education, income
- Employment, unemployment, out of work
- Job characteristics - types of jobs (p-t, f-t, etc), benefits, work from home, occupation
- Work schedule, hours, shifts, job security, underemployment, job sharing - work reduction

2) Health and Community

- Core values, caregiving, volunteer work, community service
- Stress, mental health, social supports, children's health
- Weight, smoking, physical activity, screening (Pap, mammogram, blood pressure)
- Pain, disability, disease, medications, health care use

3) Peace and Security

- Victimization and costs of crime
- Neighbourhood safety, fear, self-protection
- Opinions about police, courts, prisons
- Identify community problems - drinking? bullying? domestic violence? drugs? Etc.

4) Time Use Diary

- Work: Household work, paid work, voluntary work, caregiving, education
- How we spend free time - TV, reading, socializing, spiritual practice, sport, exercise
- Travel, personal activities, child care
- Window on quality of life

5) Environment

- Energy use
- Transportation patterns
- Water quality
- Recycling and waste
- Food consumption - food diary and nutrition

Community Action

- Community access to results - special software packages, news stories, etc.
- Meet to discuss results and identify policy priorities / actions
- Community prioritizes indicators for annual benchmarks of progress
- Community training – adaptations
- Community ownership – creation of Kings and Glace Bay GPI Societies

Emphasis on practical action - e.g.:

- Teenage smoking; overweight; exercise - e.g. promote school-based programs
- Screening rates - mammography, pap smears -- notify health officials of needs
- Identify counselling needs - employment, domestic violence, mental health
- Education - nutrition, recycling, energy use

New directions for the future:

- New solutions: e.g. work-life balance
- Model for other communities - template for adaptation - community / province
- Balance community-based research with methodological rigour, Statistics Canada oversight, advice, review
- Improve methods, indicators, survey tools, data sources - never a final product

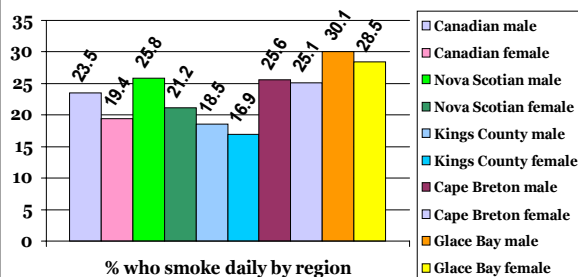


Examining tobacco use and health in Glace Bay and Kings County, Nova Scotia:

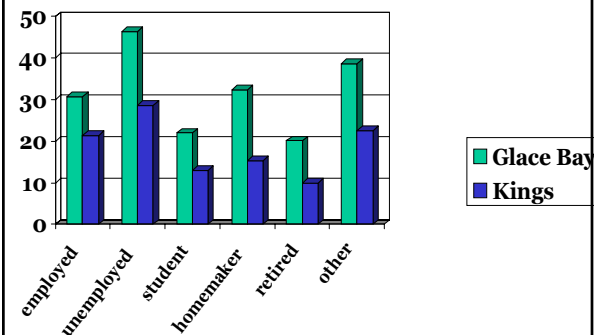
Similar results in survey for obesity, physical activity, nutrition, screening, etc.

Nat'l/Prov. Comparisons:

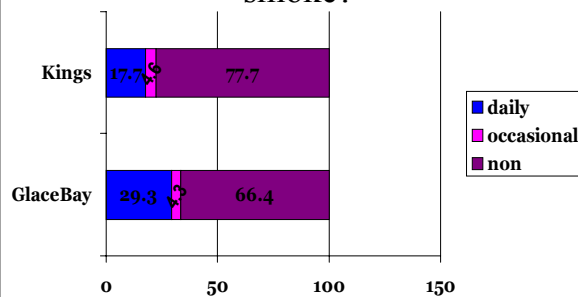
Glace Bay daily smoking above average, Kings below



Employment status of those smoking daily

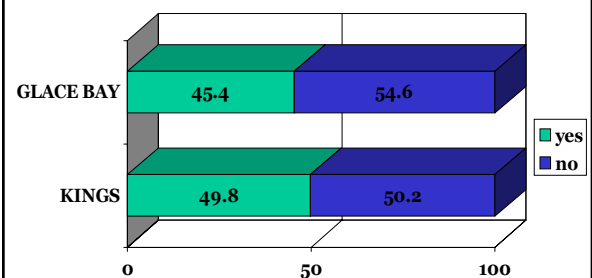


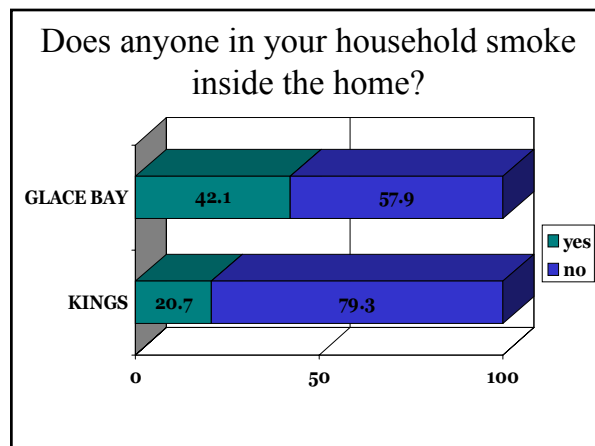
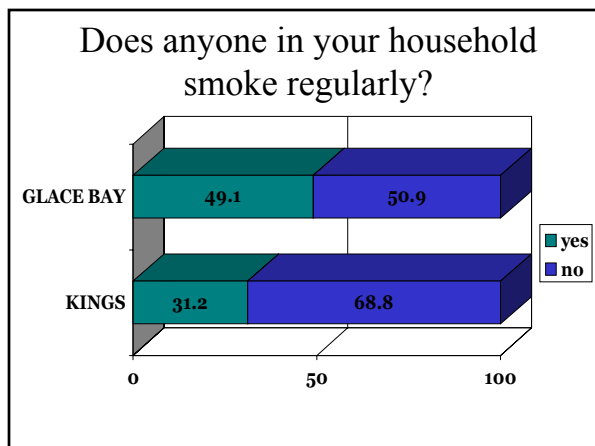
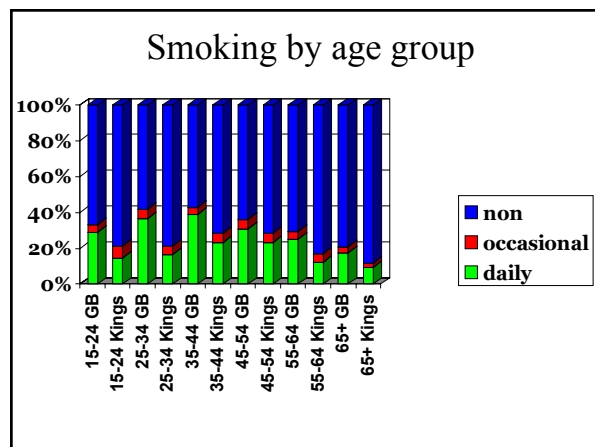
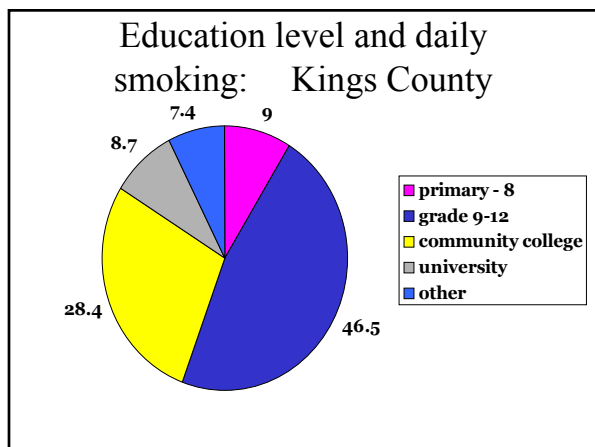
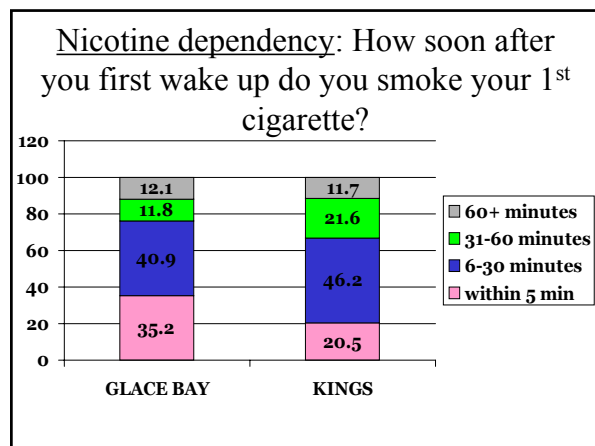
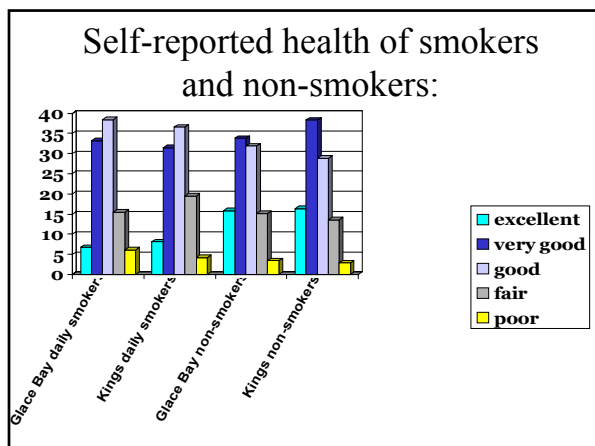
At the present time do you smoke?

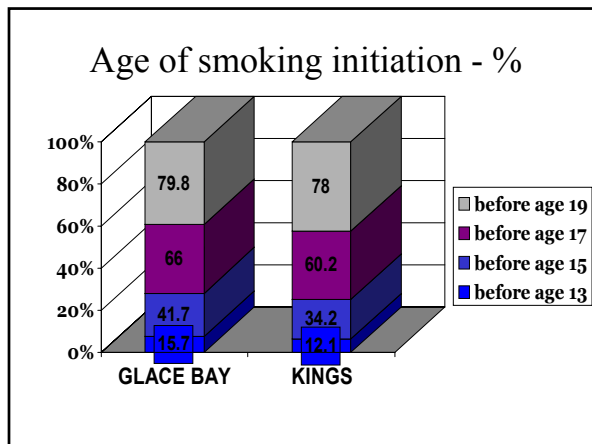


* Numbers represent %

Have you ever smoked cigarettes at all? = Good News







Smoking & chronic conditions 1st time local correlations with:

- Cancer, heart disease, stroke, diabetes
- Asthma, bronchitis, sinusitis, allergies....

Learning sessions – medical evidence.

E.g.:

Schnoll et al (2002) indicate 30-40% smokers continue to smoke after diagnosis of a serious condition. Persons are less likely to quit if unaware of extreme dangers of smoking, and uneducated about the seriousness of their disease.

Quitting – evidence shows:



Factors that influence readiness to quit after diagnosis:

- if a family member smokes at home the person will be less likely to quit
- Level of nicotine dependence
- Awareness of the benefits of quitting
- Level of emotional distress
- Fatalistic outlook, “why bother...”
- Cost of cigarettes + other health costs

Applied research needs-E.g:

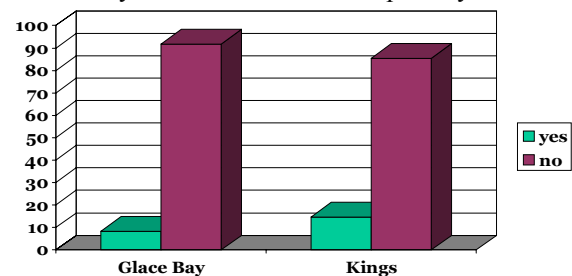
- Much research exists on what influences healthy to quit smoking. Very little research on why people with chronic diseases quit or do not quit smoking. = Needed to develop smoking cessation programs for people with chronic diseases.
- Kings County has higher quit rates than Glace Bay. This lifestyle difference needs further research, with potential to use successful Kings County experiences as models for smoking reduction programs in Glace Bay.



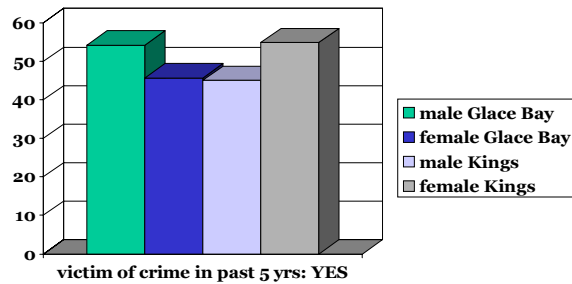
Peace and Security Issues *in* Glace Bay & Kings County

Kings = 78% more likely be victims of crime
(14.6%) than Glace Bay (8.2%)

“Were you a victim of crime in past 5 yrs?”-



Sex differences: 55% crime victims in Kings = female cf 46% Glace Bay



Crime worries in each area:

GLACE BAY

Top 3 concerns:

- Underage drinking
- Drug use/trafficking
- Vandalism

KINGS COUNTY

Top 3 concerns:

- Drinking and driving
- Drug use/trafficking
- Underage drinking

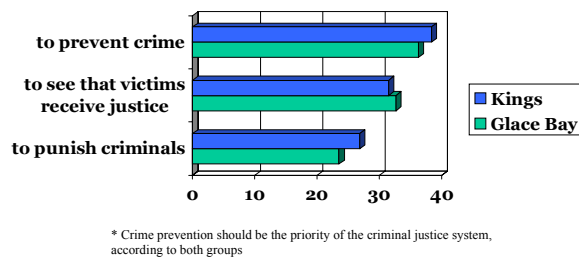
Bottom concerns:

- Child abuse
- Fighting among groups

Bottom concern:

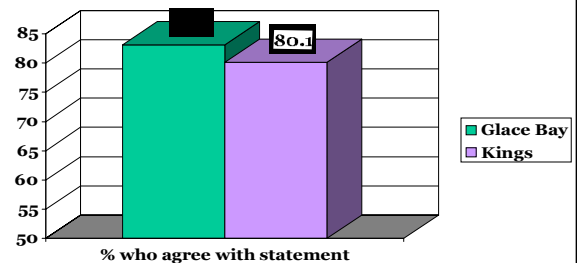
- Violence against spouses

The most important role of the criminal justice system is:



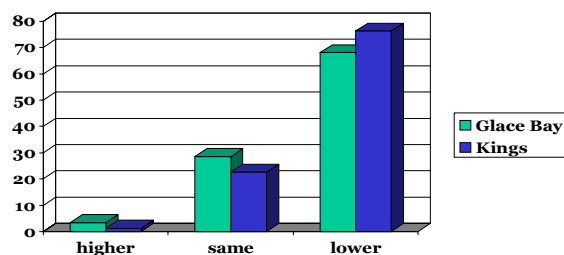
More and better youth programs would help reduce crime

• Respondents in both regions feel strongly about this issue

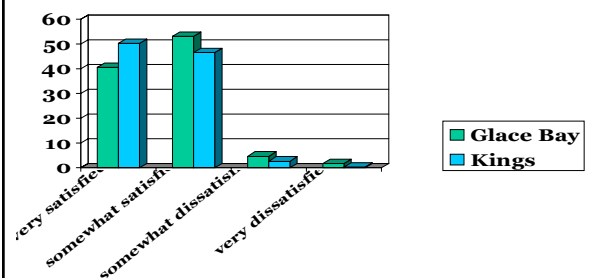


What level of crime do you think your neighbourhood has compared to the rest of Canada?

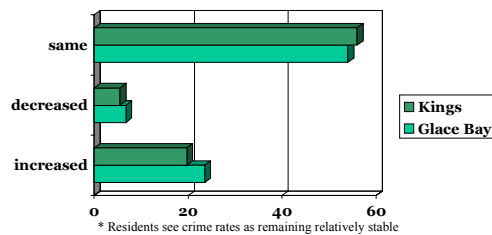
* Both regions feel that crime in their area is less than in rest of Canada



Satisfaction with personal safety from crime:



In the past 5 years has the level of crime in your neighbourhood increased, decreased, or stayed the same?



Is fear of crime controlling you?

KEY SECURITY INDICATORS:

- Changes in behaviours
- Fear when walking alone at night
- Fear when home alone



1) Changes in Behaviours

GLACE BAY	KINGS	"YES" to behaviour
10.7%	9.5%	Carry something to defend self or alert others
42.8%	46.7%	Lock car doors when alone in car
47.5%	50.5%	Check back seat of car for intruders
33.7%	33.7%	Plan route with safety in mind
7.5%	4.9%	Stay home at night
16.0%	18.9%	Changed routines, activities, avoided places
20.3%	20.9%	Installed locks, security bars
15.8%	21.4%	Installed alarms, motion detectors
4.1%	3.6%	Installed a car alarm
2.5%	4.2%	Self-defence course

1) Changes in behaviours continued...

GLACE BAY	KINGS	"YES" to behaviour
3.9%	1.8%	Changed phone number
10.4%	11.2%	Obtained a dog
0.8%	0.8%	Obtained a gun
0.7%	1.3%	Moved

• In both Glace Bay and Kings County there has been little change in behaviours due to crime
• percentages are out of 100.

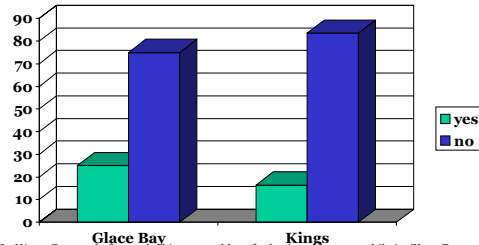
2) How safe do you feel alone walking after dark in your area?

	Very safe	Reasonably safe	Somewhat safe	Very unsafe	Don't walk alone after dark
Glace Bay	24.3%	41.1%	13.3%	2.7%	18.6%
Kings	27.9%	45.3%	10.5%	1.4%	15.0%

3) How safe do you feel when alone in your home at night?

	Very worried	Somewhat worried	Not at all worried	Never home alone in evenings
Glace Bay	1.8%	25.7%	61.2%	11.2%
Kings	0.7%	21.3%	69.8%	8.2%

Was your business victimized by crime in the past 12 months?



*In Kings County theft was the biggest problem for business owners, while in Glace Bay vandalism caused the biggest loss.

Business Losses:



- Was the crime to your business reported to the police?

	yes	no
Kings	66.7%	33.3%
Glace Bay	69.6%	30.4%

- Was your loss compensated by insurance?

	yes	no
Kings	6.7%	93.3%
Glace Bay	6.1%	93.9%

- Was any of your stock, money, property recovered?

	yes	no
Kings	6.6%	93.4%
Glace Bay	6.5%	93.5%

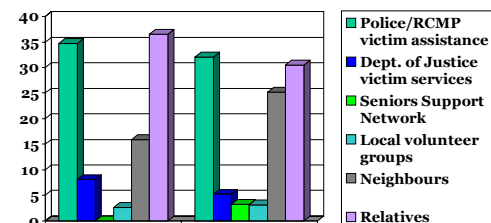
Business Loss

In the past 12 months did you take any security measures to protect your business from crime?

	yes	no
Kings	23.9%	76.1%
Glace Bay	31.0%	69.0%

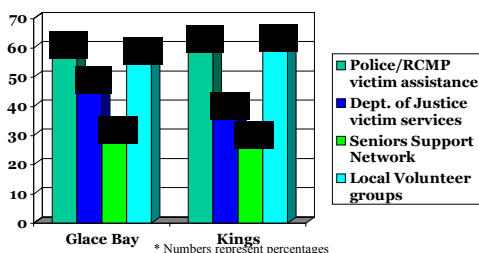
- The most popular security measures in both regions were to install electronic surveillance equipment, locks, bars, and shutters, over other methods such as guard dogs and security staff. In both regions approximately 74% of those spending money on security measures, spent under \$2000 to protect their businesses.
- Business owners in both Kings County (99.5%) and Glace Bay (97.7%) felt that they did not have to close their businesses earlier due to crime and fear of crime. They also disagreed that fear of crime in their neighbourhood had reduced economic activity (Kings = 96.6%, Glace Bay = 90.1%).

If you were a victim of crime in the past year did you receive help from the following services?



*In both Glace Bay and Kings County, victims received the most help from police, RCMP, neighbours, and relatives.

Knowledge of services existing in community:



* Numbers represent percentages

Ideas on the path to solutions for Kings County and Glace Bay:

- Assess risks and assets
- Develop programs that combat risk factors and social problems, i.e. unemployment and drug use
- Strengthen community networks and develop partnerships
- Citizens need to be made aware of community programs and support networks through promotion and advertising
- Involve the business community in crime prevention initiatives.
- Block watch
- Police-community councils
- Foot patrols and community police stations
- Concerned citizens groups
- Community beautification projects: cleaning, painting
- More and better youth programs: created by youth for youth
- Employment and recreation initiatives are essential

Conclusions

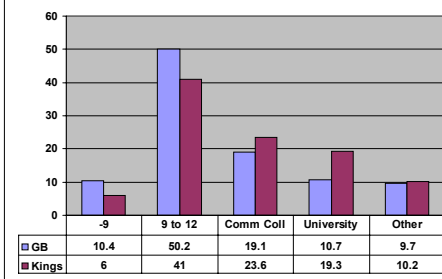


- Solutions developed by the communities of Glace Bay and Kings County will be stronger and longer lasting than the more punitive solutions of the criminal justice system. These ideas and solutions will increase the capacity of the community to handle new problems.
- By strengthening connections to the community obligations are created that act as both a deterrent and rehabilitative measure.
- Citizen's desire for harsher sentences may be reduced when they see the value and success of community initiatives.
- Restorative justice, increased recreation, and new community programs might be tried as solutions for Peace and Security issues.



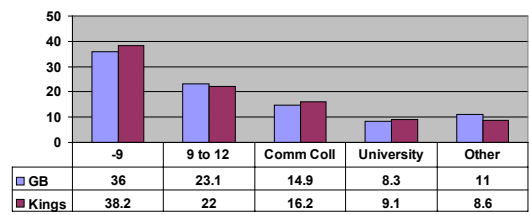
Education

Level of Education



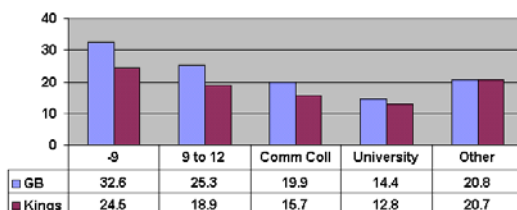
There was a larger proportion of Glace Bay residents at the lower end of the educational continuum.

Persons With Poor or Fair Health as a % of Education Groups



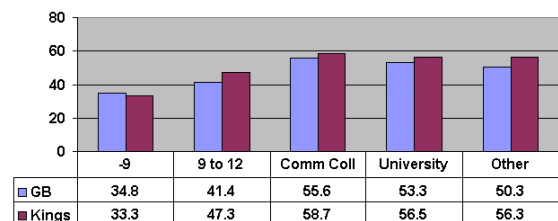
Educational level was strongly related to health status in both Glace Bay and Kings County.

Persons With Activity Limitations as a % of Education Groups



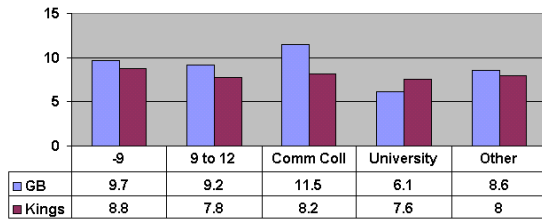
The presence of activity limitations was strongly related to educational level in both Glace Bay and Kings County.

Persons With Moderate and High Stress as a % of Education Groups

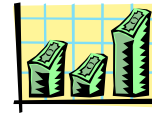


Self-reported stress showed a positive relationship with education in both Glace-Bay and Kings County, with higher levels among higher educational groups.

Persons With Lower Life-Satisfaction as a % of Education Groups

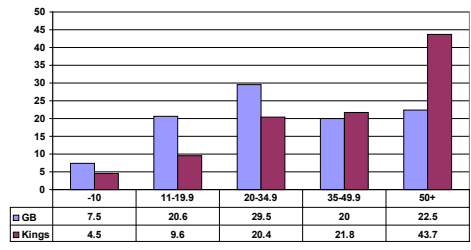


Levels of life-satisfaction were not significantly related to educational levels in either Glace Bay or Kings County.



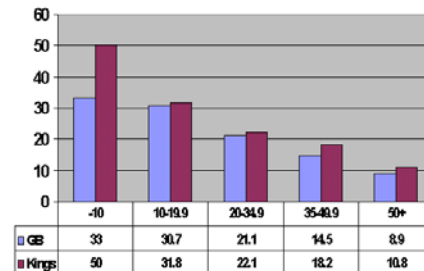
Income

Household Income



There was a higher proportion of Glace Bay respondents at the lower end of the income spectrum and a substantially larger proportion of Kings County respondents in the 50,000 and over category.

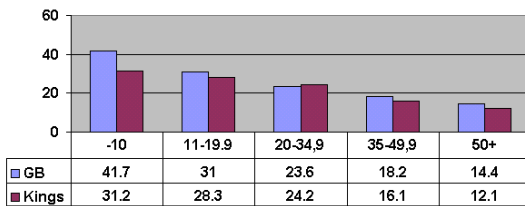
Persons Reporting Poor or Fair Health Status as a % of Income Group



Health status was strongly related to household income in both Glace Bay and Kings County.

The substantially higher rate of poor/fair health among Kings respondents in lowest income group requires further investigation.

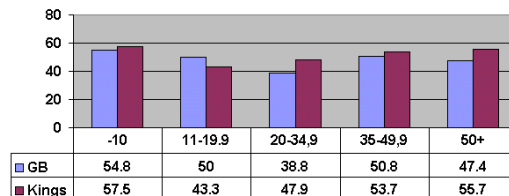
Persons With Activity Limitations as a % of Income Group



Activity limitations also showed a strong income gradient in both Glace Bay and Kings County.

The higher rates of activity limitations in Glace-Bay was most noticeable in the lowest income group.

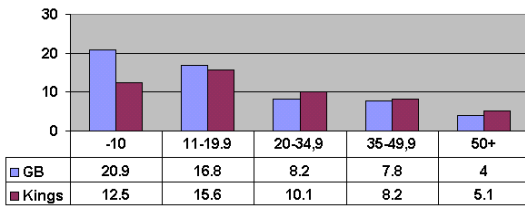
Persons With Moderate and High Stress as a % of Income Group



There was not a linear relationship between stress and income in either Glace Bay or Kings County.

Highest rates of stress were reported at the lowest and highest ends of the income continuum. Lowest rates were in the middle-income groups.

Persons With Lower Life Satisfaction as a % of Income Group



Life-satisfaction showed a strong relationship with income in both Glace Bay and Kings County although the relationship was less linear in Kings, due to a lower rate of dissatisfaction in the lowest income category.



Unemployment

Unemployed persons in Glace Bay and Kings County - all respondents

All Respondents	Glace Bay	Kings
Employed	42.7	60.9
Unemployed	13.5	4.3
Student	8.2	8.1
Homemaker	14.1	12.9
Retired	16.8	10.1
Other	4.7	3.6

Unemployed persons in Glace Bay and Kings County - males

Males	Glace Bay	Kings
Employed	43.2	71.1
Unemployed	18.5	4.7
Student	8.2	8.0
Homemaker	.2	.15
Retired	24.5	11.4
Other	5.4	4.6

Unemployed persons in Glace Bay and Kings County - females

Females	Glace Bay	Kings
Employed	42.3	53.1
Unemployed	9.6	4.0
Student	8.2	8.1
Homemaker	24.9	22.8
Retired	10.8	9.1
Other	4.2	2.9

The Glace Bay sample had a substantially higher proportion of unemployed persons among both males and females although the discrepancy was strongest among males.

Reason for unemployment

Reason for unemployment	Glace Bay	Kings
Illness/Disability	11.8	13.1
Maternity/paternity leave	5.2	5.4
Personal/family responsibilities	6.6	3.1
Returning to school	5.2	5.4
Layoff, expecting to return to work	29.8	20.9
Waiting for new job to start	8.5	10.8
No transportation	1.4	2.3
No suitable work available	26.1	20.2
Other	5.2	18.6

Glace Bay respondents were more likely to be unemployed due to layoffs and a lack of suitable work than Kings County respondents.

There was little difference between the areas with respect to health problems as a cause of unemployment.



Unemployment & Health Status

Optimism about finding employment, unemployment duration and stress about future lay-offs

	Glance Bay	Kings
% of Unemployed Who Consider it Very Likely of Finding a Job In Next Six Months	17.4	30.6
Percent of Working Age Population Who Have Been Unemployed for 52 weeks or longer	27.9	19.2
Percent of Employed Respondents reporting Stress About Threat of Lay-off	17.3	12.2

Unemployed respondents in Glance Bay were less optimistic about finding employment during the next six months, had experienced unemployment for longer durations and reported higher levels of stress about future lay-offs.

Job characteristics: Job Permanence

- Job Permanence was not significantly related to health status, activity limitations, disabilities, stress or decision-control, after controlling for age, gender and location
- It was, however, significantly related to life-satisfaction. Respondents who indicated that their jobs were not permanent were more likely to report lower life-satisfaction (13% vs 6%).

Job characteristics: Shift work

- Shift-work was not significantly related to health status, disabilities, stress or decision-control, after controlling for age, gender and location
- It was, however, significantly related to activity limitations and life satisfaction
- Shift-workers were more likely to report lower levels of life-satisfaction (10% vs 5%) and were more likely to report a functional limitation (25% vs 9%).

Job characteristics: Job security

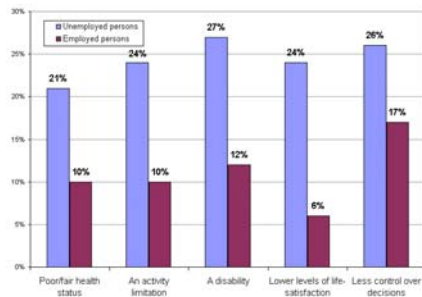
- Job security arose as a primary factor in its relationship with health
- After controlling for age, gender and location, persons who reported stress concerning the possibility of future layoffs were significantly more likely to report:
 - Poor/fair health status
 - Activity Limitations
 - Disabilities
 - Moderate/high stress
 - Lower levels of life-satisfaction
 - Less control over decisions affecting their lives

Unemployment and health status

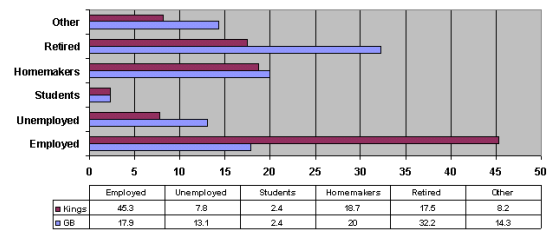
- After controlling for age, gender and location (Glance Bay vs Kings), unemployed persons are significantly more likely than employed persons to report:

Poor/fair health status
An activity limitation
A disability
Lower levels of life-satisfaction
Less control over decisions

Unemployment and health status



Percentage of Working Age Persons With Poor/Fair Health Who Are In Each Activity Group



Working age respondents in Glace Bay, who rate their health as poor or fair, were more likely to be retired or in the "other" category than their counterparts in Kings County. They are correspondingly less likely to be employed.



Health Status Comparisons

Self-reported health

- There were no significant differences in self-reported health status between the Glace Bay and Kings County residents, after controlling for age and gender differences
- Despite this similarity, Glace Bay respondents were more likely to have activity limitations, disabilities, high blood pressure and diabetes
- Kings County respondents were more likely to report higher stress levels while Glace Bay residents were more likely to report that they had little or no control over important decisions that affected their lives

Indicator	Kings County	Glace Bay	Difference
Health status poor or fair	18.6	20.2	Not Significant
With Activity Limitation	17.9	23.4	Significant after controlling for age and gender
With a Disability	19.9	27.3	Significant after controlling for age and gender
High Blood Pressure	14.2	22.8	Significant after controlling for age and gender
Diabetes	5.5	7.5	Significant after controlling for age and gender

Indicator	Kings County	Glace Bay	Difference
Heart Disease	5.7	6.4	Not Significant
Reporting Life Is very or Somewhat Stressful	52.0	45.5	Significant after controlling for age and gender
Reporting Somewhat or very Dissatisfied With Life	8.06	9.25	Not Significant
Reporting No or Little Control Over Decisions Affecting Life	17.97	13.88	Significant after controlling for age and gender



Caregiving and Caregivers in Glace Bay

Unpaid Caregiving

Unpaid work households do by
and for themselves, including
domestic chores, childcare, and
shopping

Objectives

1. To examine the relationship between caregiving and health behaviours and practices in relation to demographic variables
2. To examine similarities and differences in health behaviours and practices between caregivers in two Nova Scotian communities in relation to demographic variables

Hypotheses – *what we expected!*

- Caregivers are more likely to be female, married, middle-aged, unemployed, less education, lower income
- Caregivers poorer emotional health status, and similar physical health status
- Caregivers and non-caregivers will have similar health utilization and health behaviour patterns

Variables – *What we looked at!*

- Demographics
 - » gender, marital status, education, age, income, and occupational status
- ♦ Health Status
 - » perceived physical and emotional health
 - » objective measures – limited activity and medication use

Variables – *cont'd*

- Health Care Utilization
 - » frequency of visits to physicians, other health care providers, mental health professionals, OP/Emerg.
- Health Behaviours
 - » frequency of pap smears & mammograms,
 - » smoking, exercise within various time frames

Variables – *cont'd*

- Social Support
 - » frequency of contacting relatives or neighbours
 - » frequency in attending religious events
 - » ability to partake volunteer activities

Glace Bay - *respondents*

87% response rate 1694 respondents	Slightly >60% Aged 45>	40% Household inc. \$35,000>
Slightly >50% Grade 12	29.5% University or Community C.	60% Married or Living CL

Glace Bay - *Caregivers*

12.6% of sample 206 respondents	67.5% female (C) 55.8% female (N)	69% - =>45 (C) 58.5% - =>45 (N)
69.5% - M/CL (C) 58.8% - M/CL (N)	Similar Income & education levels	

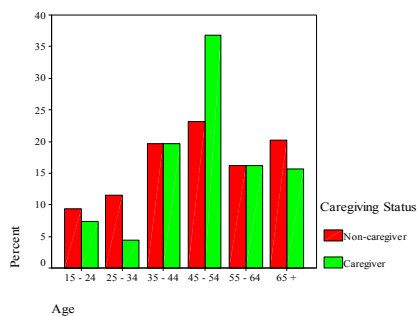
Caregiver characteristics

Caregivers Non-Caregivers
→ 12.6% of sample (206)

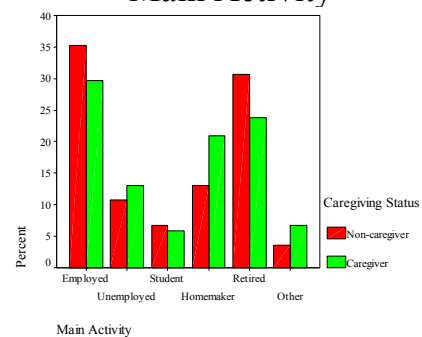
→ 67.5% female (C) → 55.8% female
→ 69% - =>45 (C) → 58.5% - =>45 (N)
→ 69.5% - M/CL (C) → 58.8% - M/CL (N)

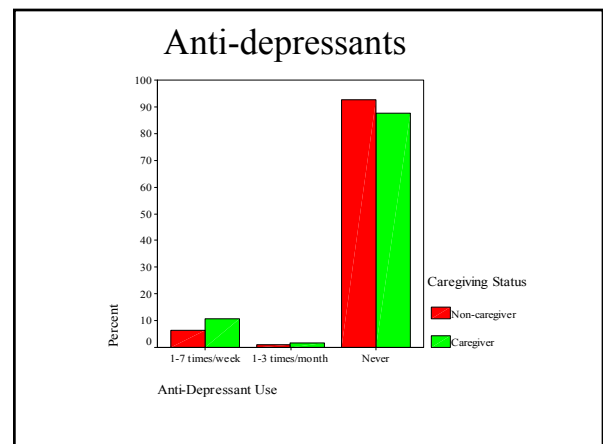
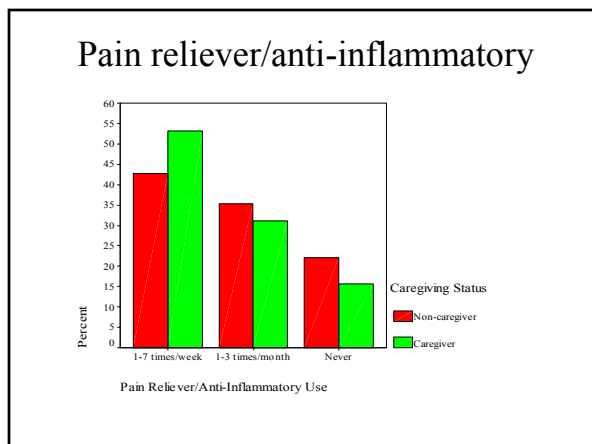
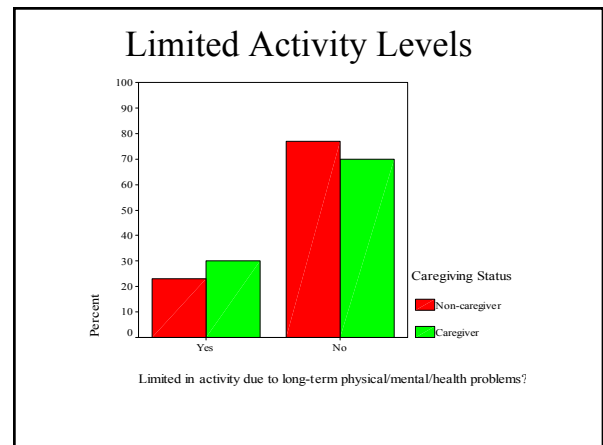
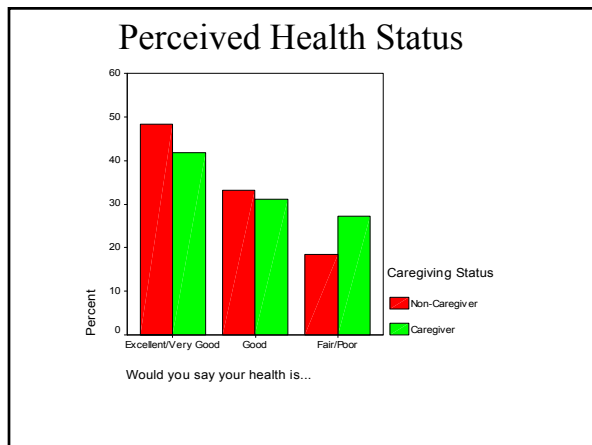
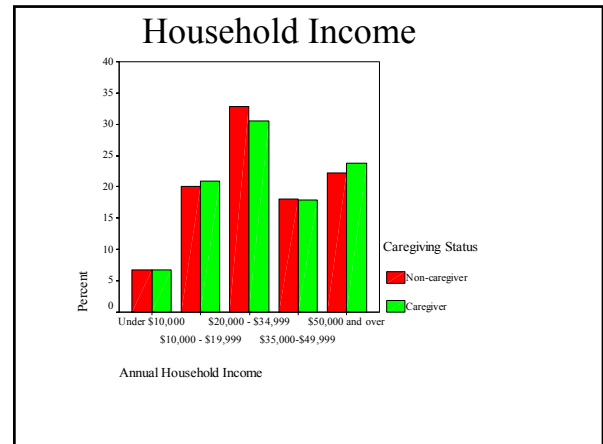
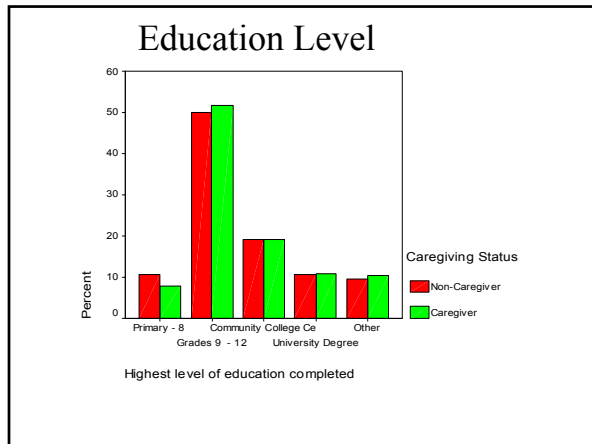
→ Similar income &
education levels

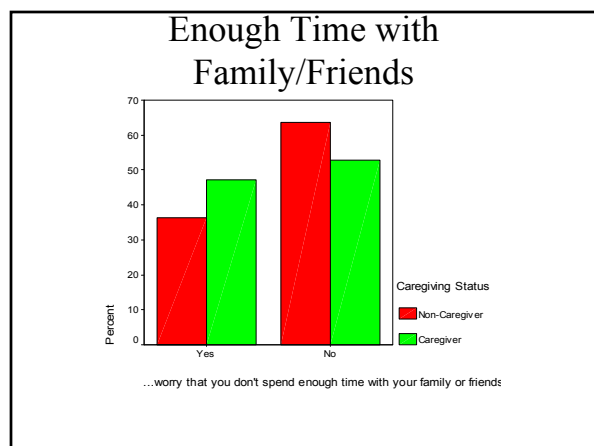
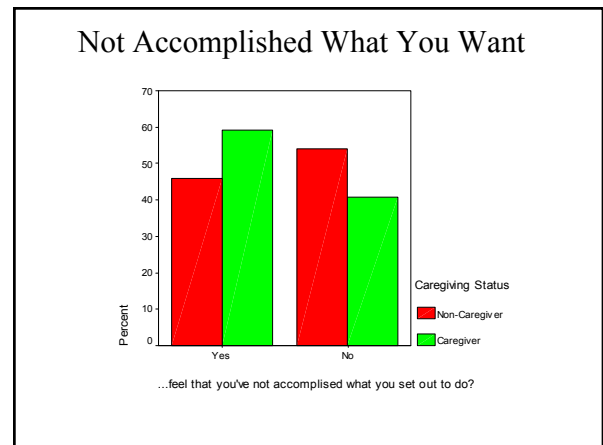
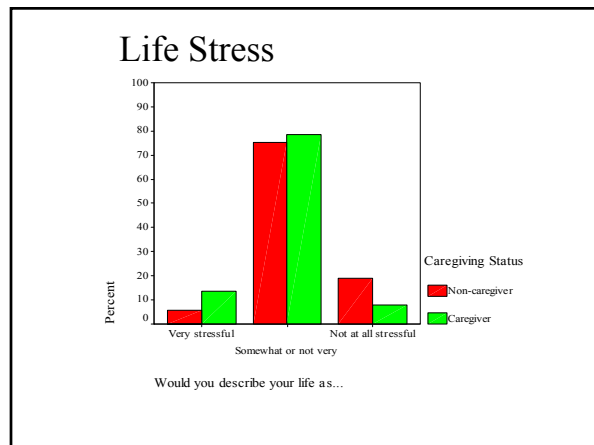
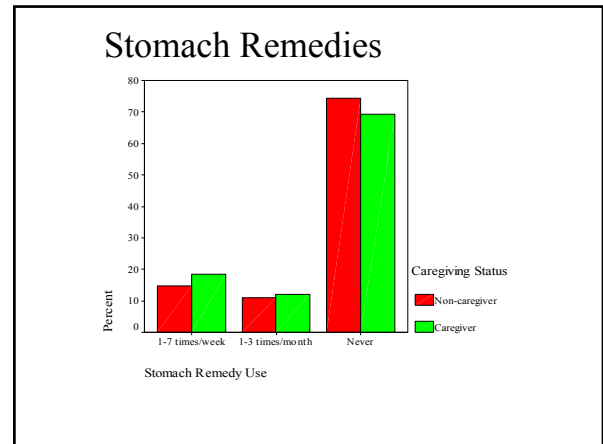
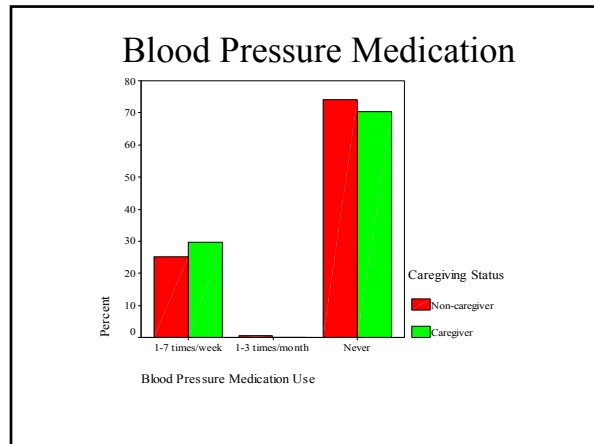
Age

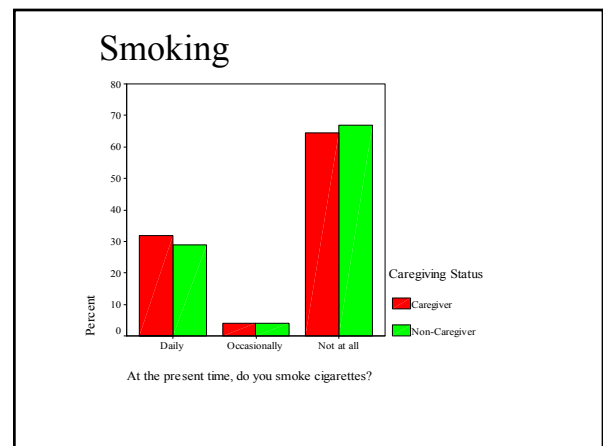
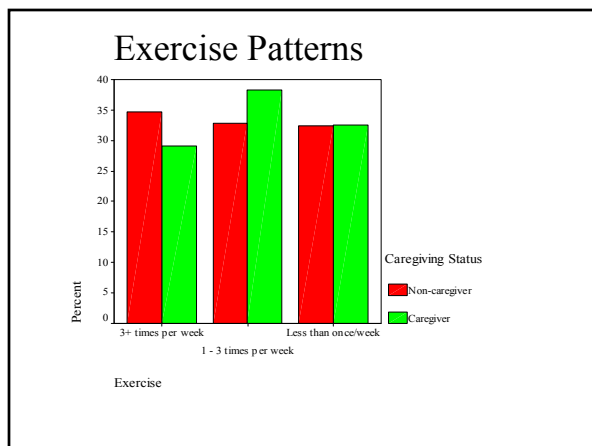
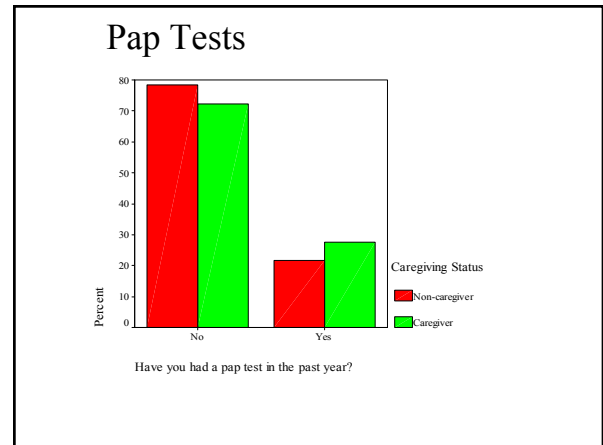
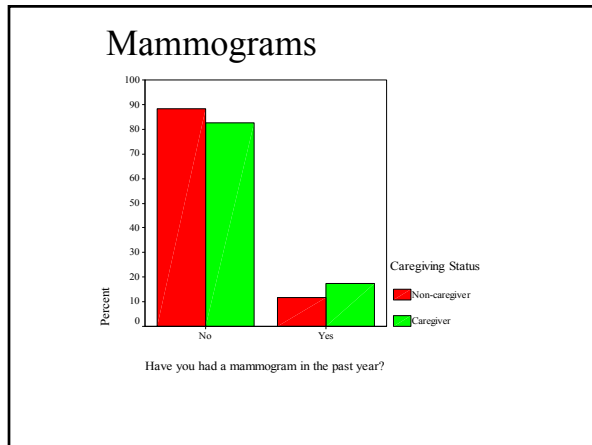
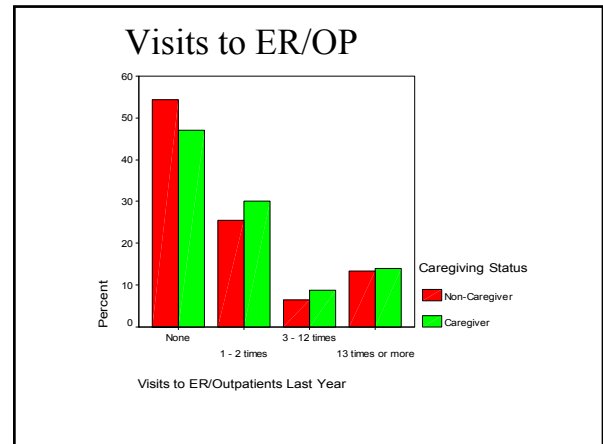
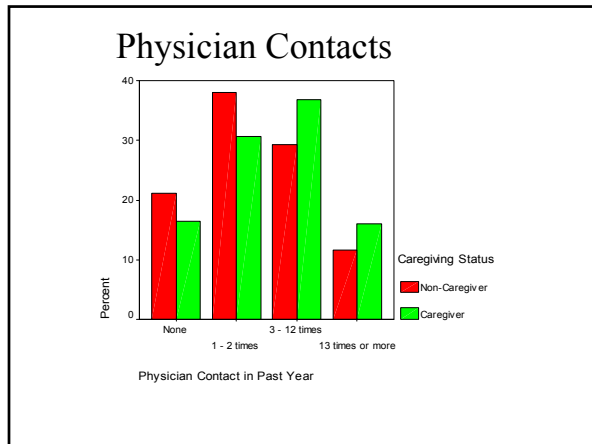


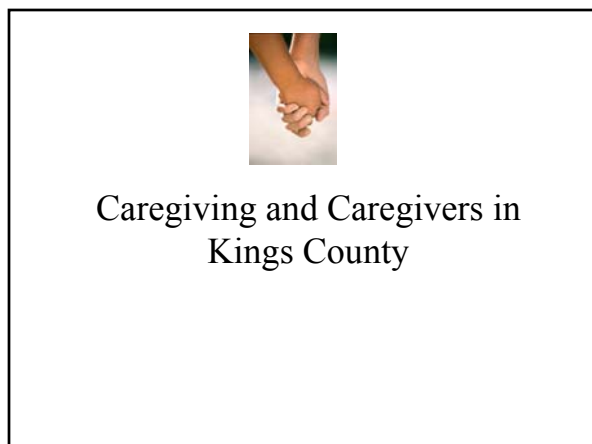
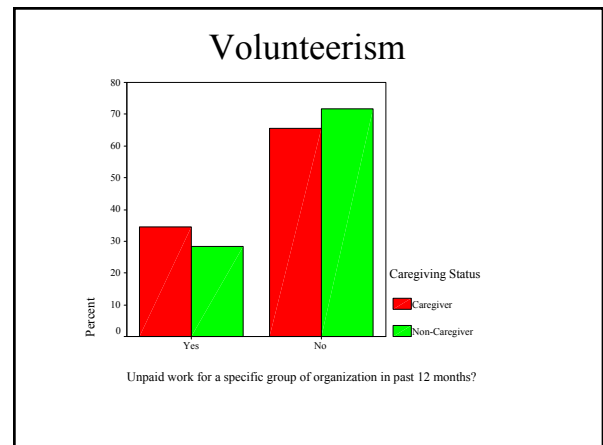
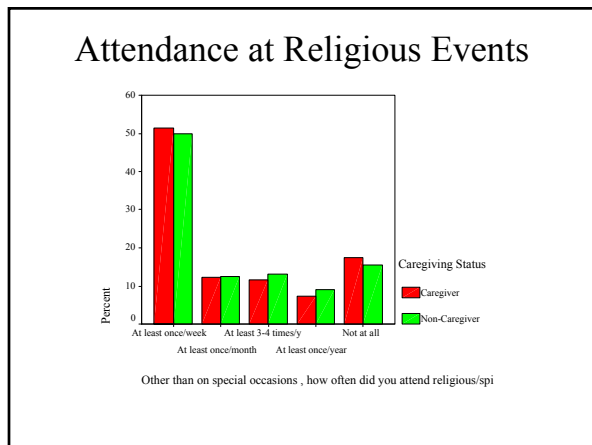
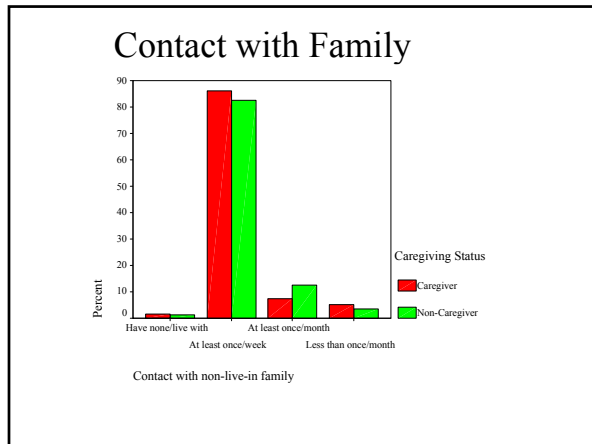
Main Activity











- ### Objectives
1. To examine the relationship between caregiving and health behaviours and practices in relation to demographic variables
 2. To examine similarities and differences in health behaviours and practices between caregivers in two Nova Scotian communities in relation to demographic variables

Variables – *What we looked at!*

- Demographics
 - » gender, marital status, education, age, income, and occupational status
- Health Status
 - » perceived physical and emotional health
 - » objective measures – limited activity and medication use

Variables – *cont'd*

- Health Care Utilization
 - » frequency of visits to physicians, other health care providers, mental health professionals, OP/Emerg.
- Health Behaviours
 - » frequency of pap smears & mammograms,
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Variables – *cont'd*

- Social Support
 - » frequency of contacting relatives or neighbours
 - » frequency in attending religious events
 - » ability to partake volunteer activities

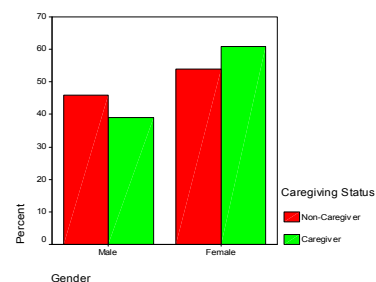
Hypotheses – *what we expected!*

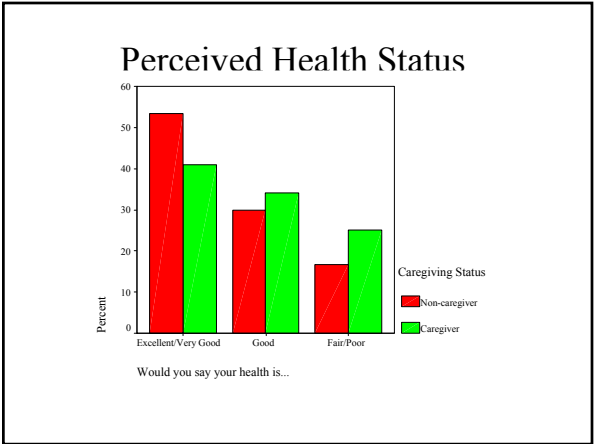
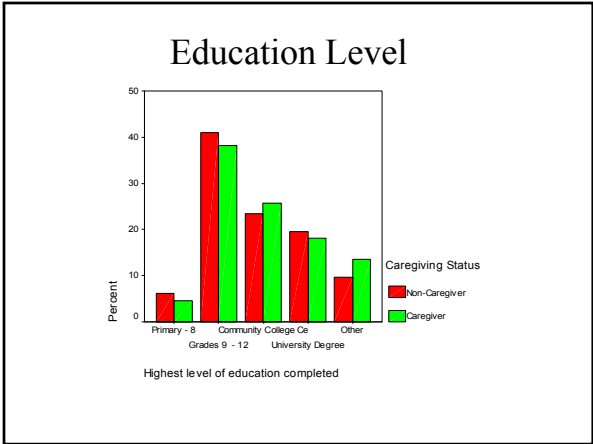
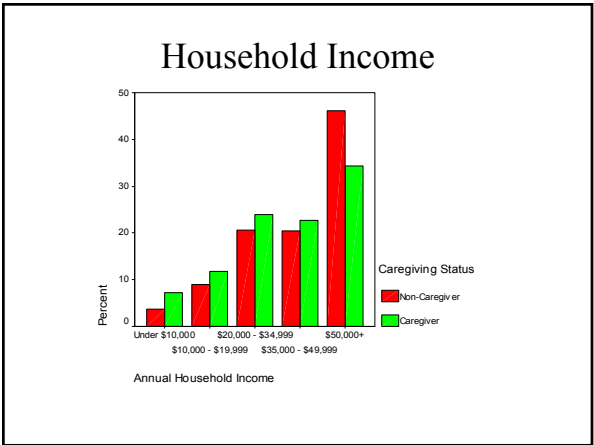
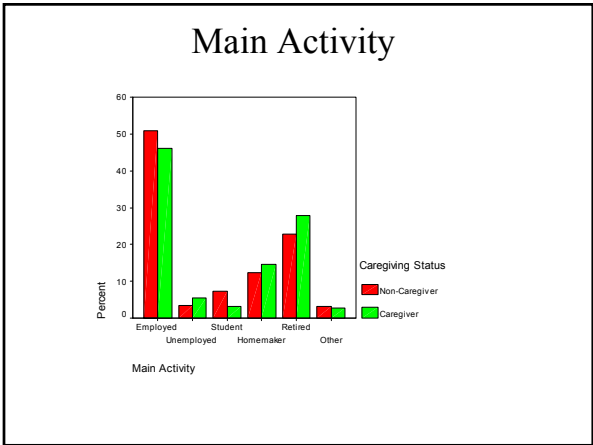
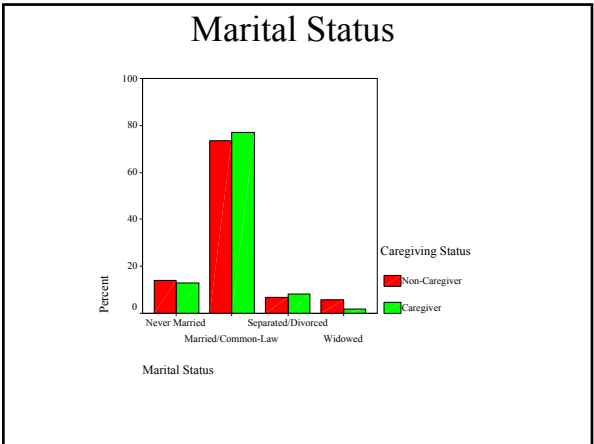
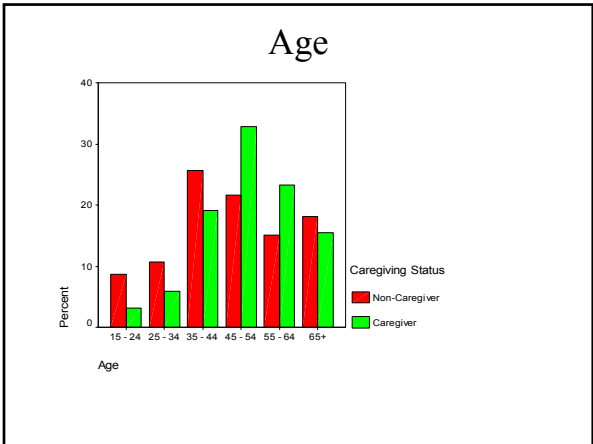
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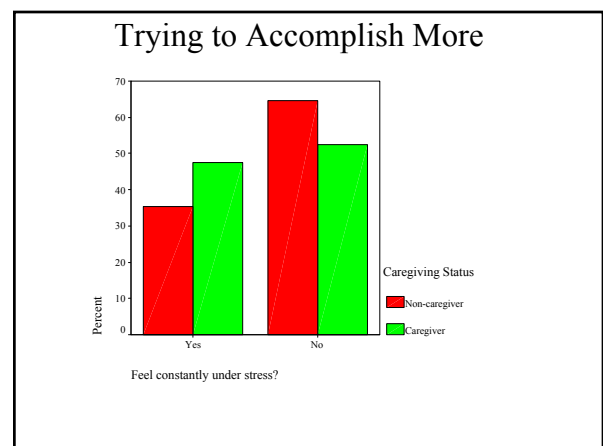
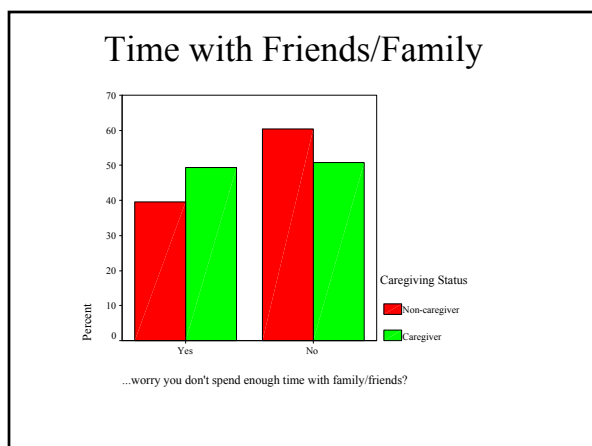
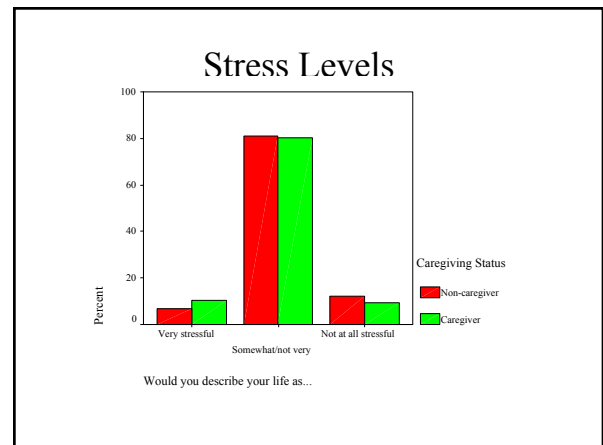
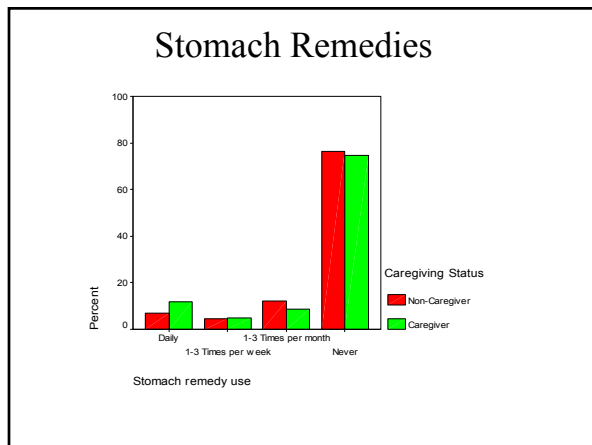
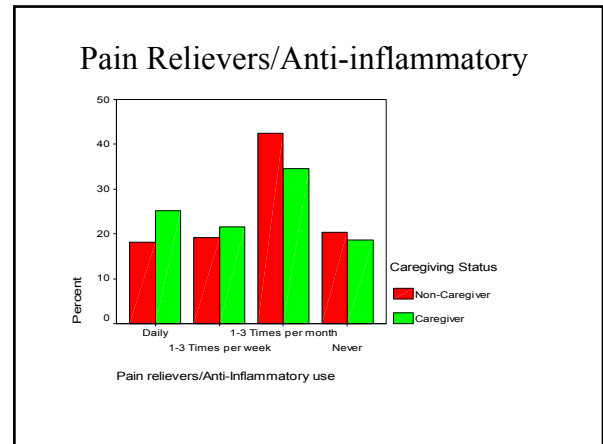
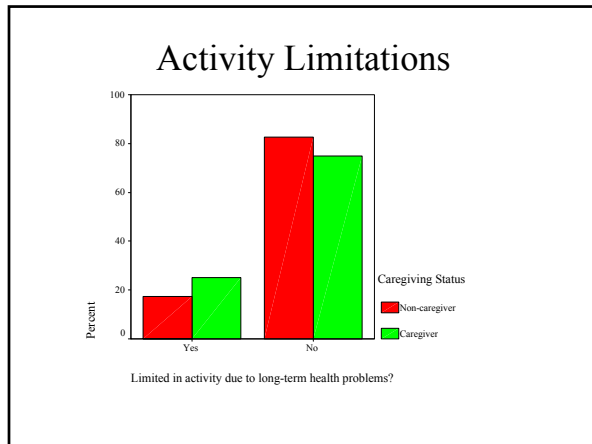
Kings County - *respondents*

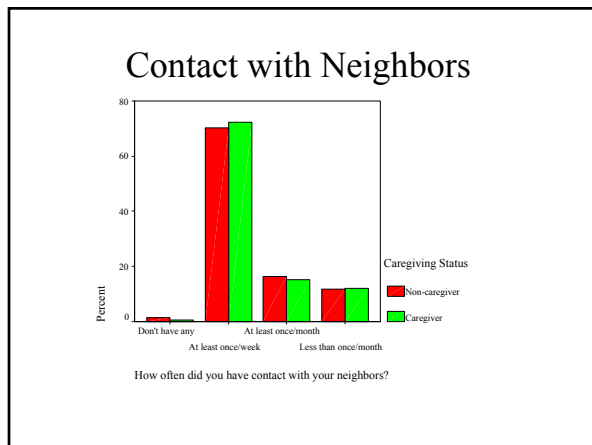
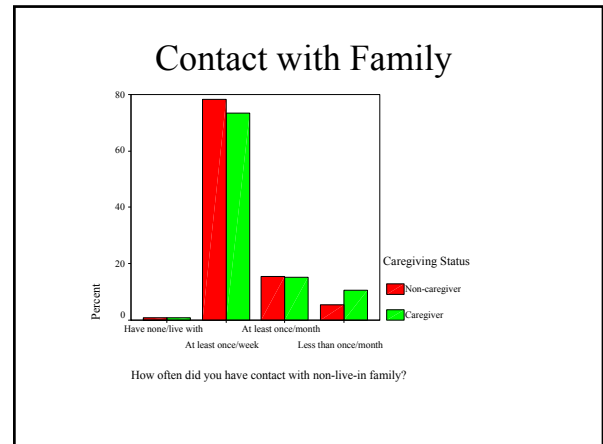
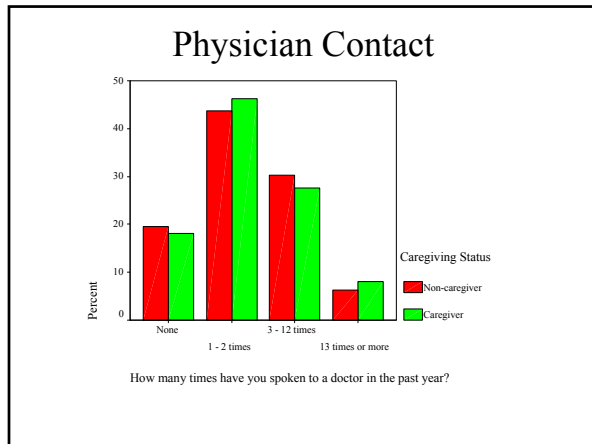
70% response rate 1869 respondents	57% Aged 45+	65% Household inc. \$35,000+
55% Female	40% University/ Community College	73% Married or Living CL

Gender

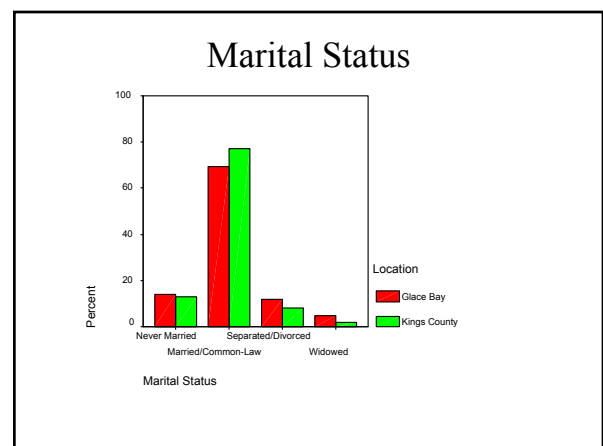
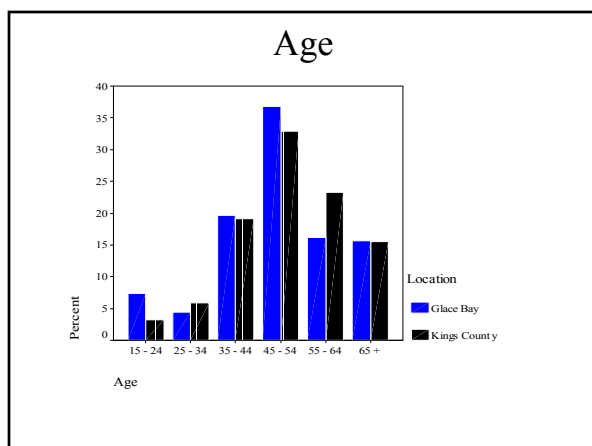


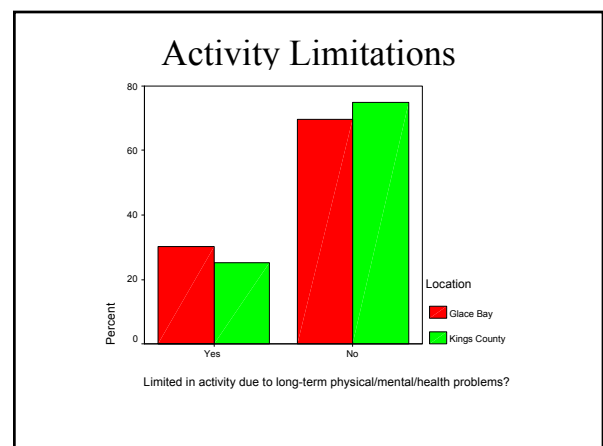
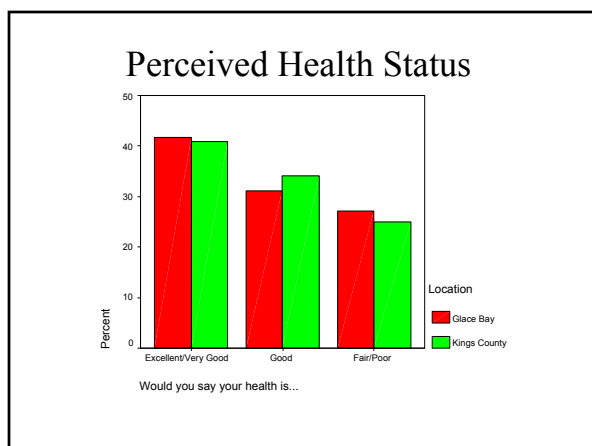
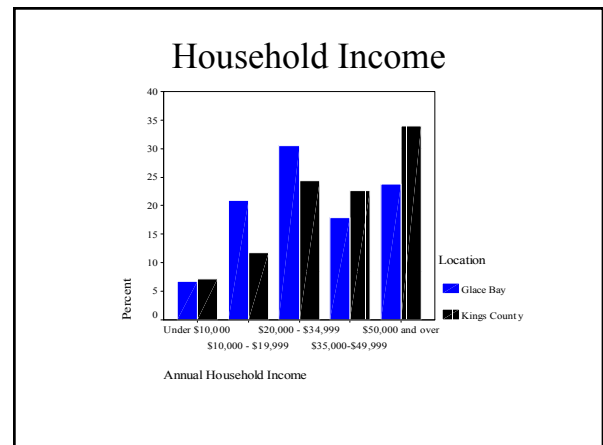
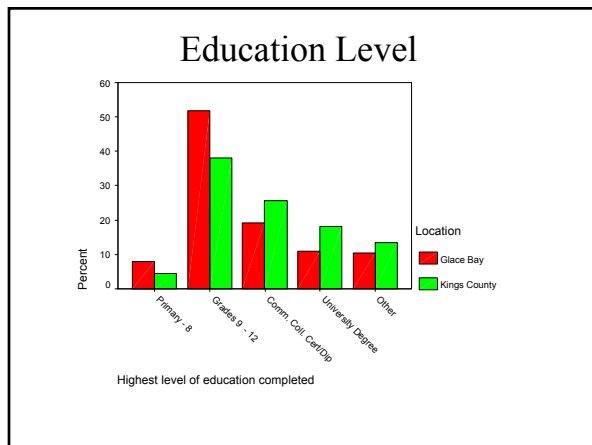
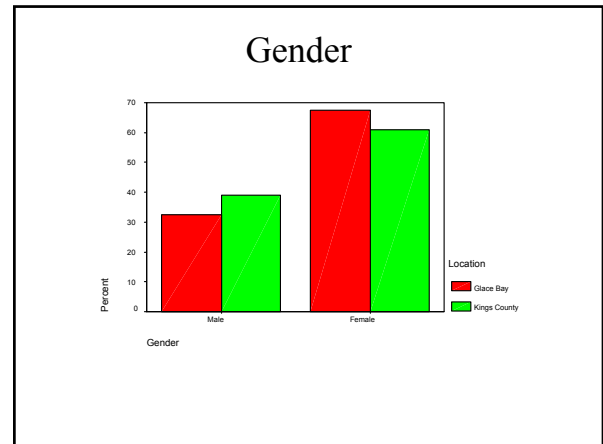
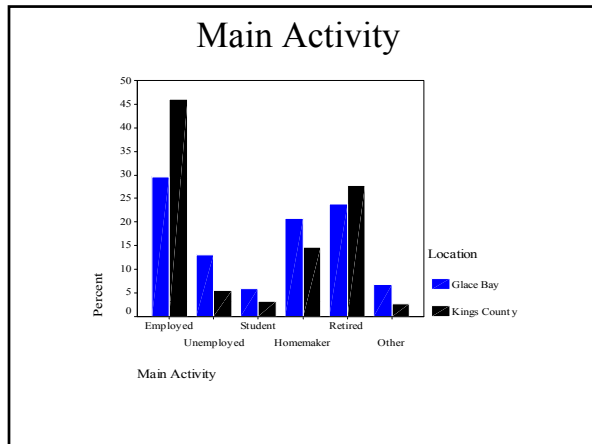






- ### Hypothesis 2 – What we expected
- ♦ The population of Kings County will be younger than that of Glace Bay
 - ♦ Based on age:
 - » Glace Bay caregivers will use health care services more frequently than Kings County
 - » caregivers in Glace Bay will have lower income levels than those of Kings County

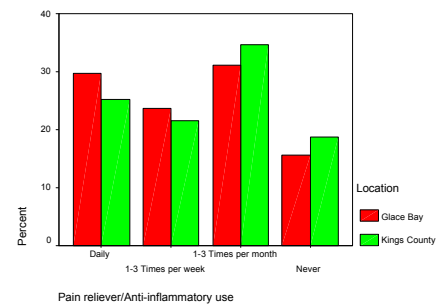




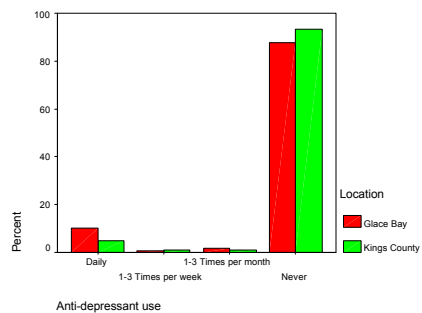
Chronic Diseases

- Caregivers
- Twice as many CG migraine headaches, and intestinal disorders
- Three times as many CG bowel disorders

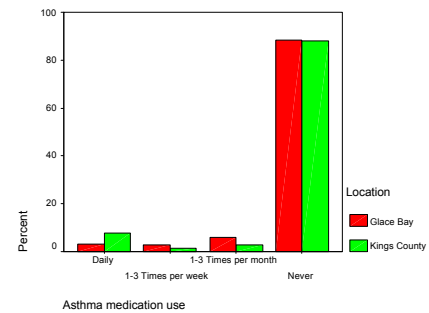
Pain Relievers/Anti-inflammatory



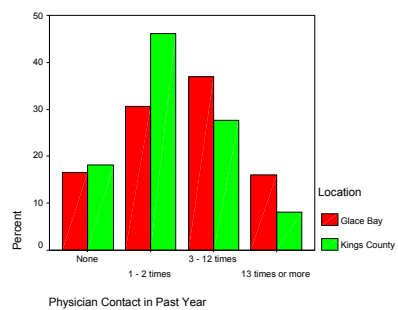
Anti-depressants



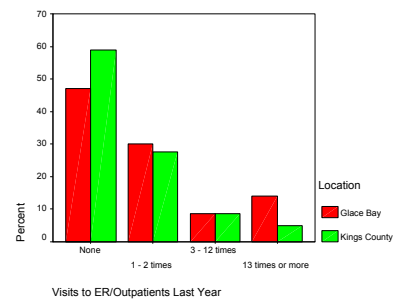
Asthma Medications

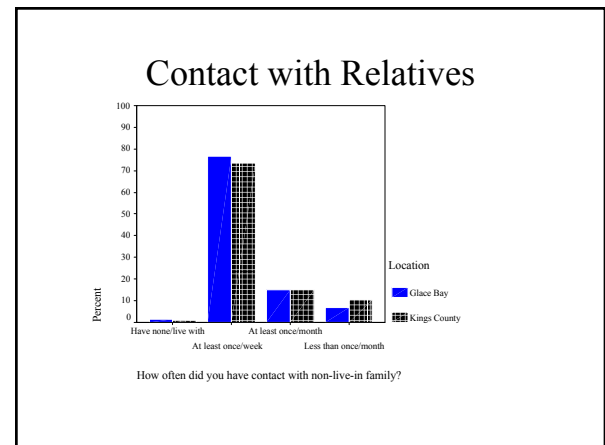
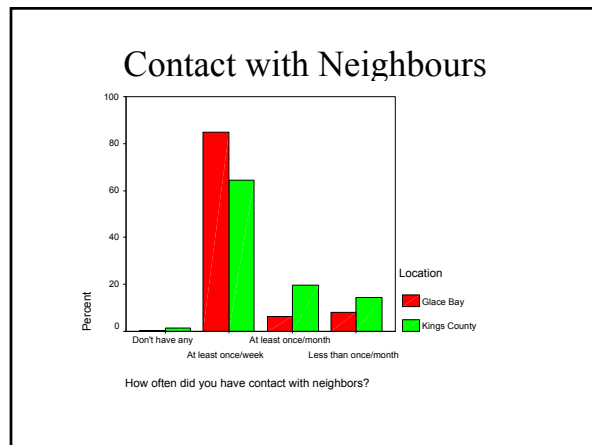
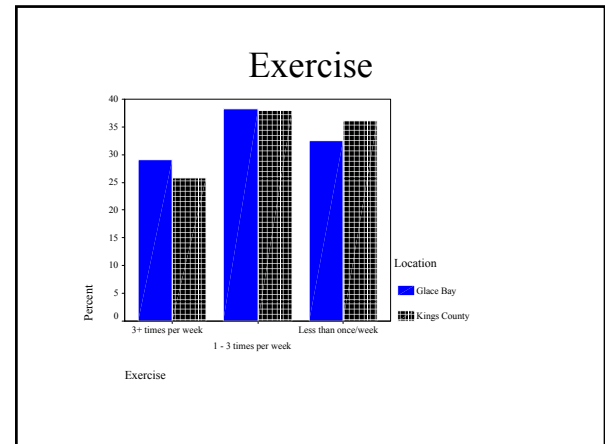
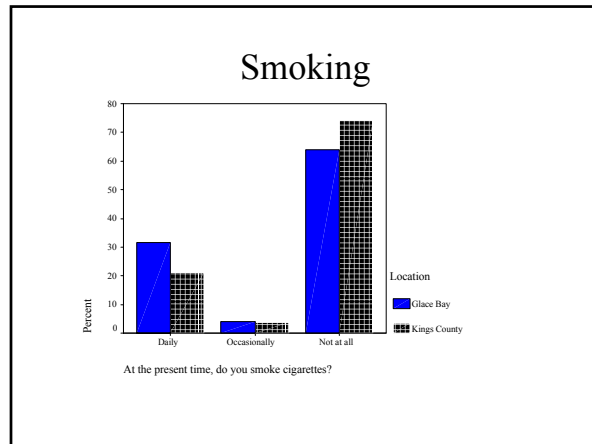


Contact with Physicians



ER/OP Visits





Suggestions for Future Research

- Resource availability
- Factors associated with care-receiver's illness
- Length of time in caregiver role
- Caregiver's health status pre- and post-caregiving role

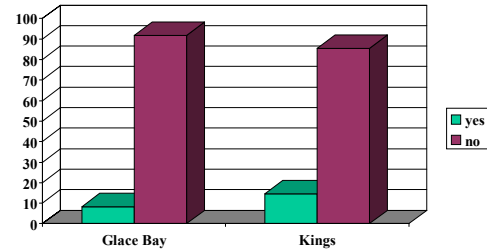


Peace and Security Issues in Glance Bay & Kings County

Interpreting results from the GPI
Community Health Survey

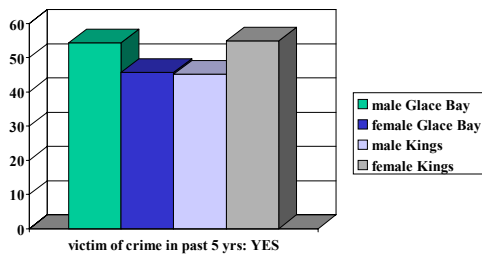
Marcie D. Smith & Dr. Peter MacIntyre
University College of Cape Breton

Were you a victim of crime in the past 5 years?



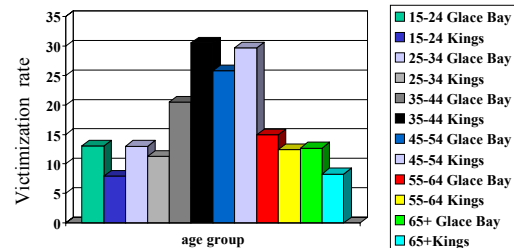
*Crime victimization is low in both regions

Sex differences in crime victimization



• Females in Kings County experience the most victimization,
while males in Glance Bay are the most victimized.

Which age groups were most victimized in each region?



• 45-54 year olds in Glance Bay are the most victimized age group, while in Kings County the most
victimized age group are 35-44 year olds.

Crime worries in each area:

GLANCE BAY

Top 3 concerns:

- Underage drinking
- Drug use/trafficking
- Vandalism

Bottom 3 concerns:

- Noisy parties/quarrels
- Child abuse
- Fighting among groups

KINGS COUNTY

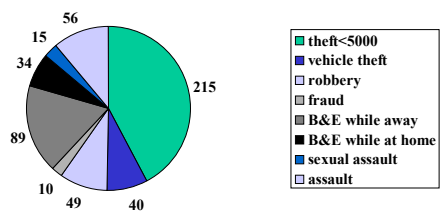
Top 3 concerns:

- Drinking and driving
- Drug use/trafficking
- Underage drinking

Bottom 3 concerns:

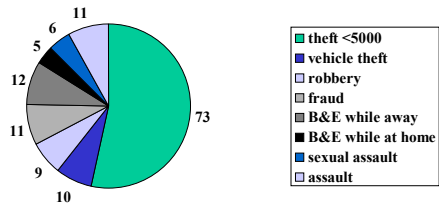
- Fighting among groups
- Noisy parties/ quarrels
- Violence against spouses

Number of criminal incidents: Glance Bay



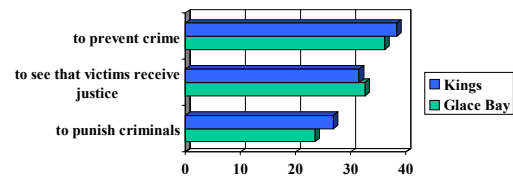
* Number of incidents are within a 12 month period

Number of criminal incidents: Kings County



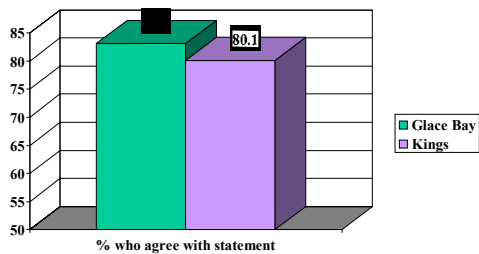
* Number of incidents are within a 12 month period

The most important role of the criminal justice system is:



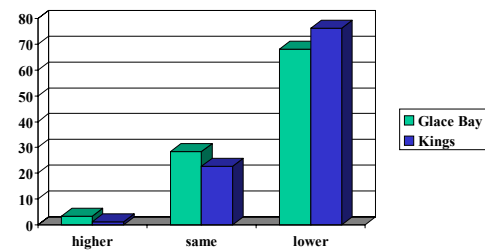
* Crime prevention should be the priority of the criminal justice system, according to both groups

More and better youth programs would help reduce crime



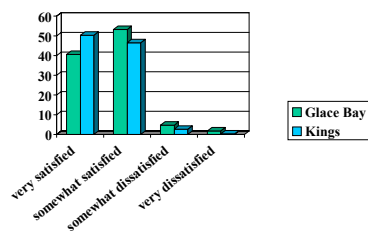
* Respondents in both regions feel strongly about this issue

What level of crime do you think your neighbourhood has compared to the rest of Canada?

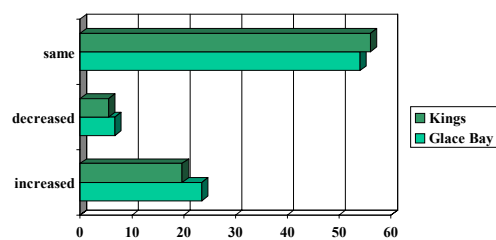


* Both regions feel that the crime level in their area is lower than that in other areas of Canada

Satisfaction with personal safety from crime:



In the past 5 years has the level of crime in your neighbourhood increased, decreased, or stayed the same?



* Residents see crime rates as remaining relatively stable

Is fear of crime controlling you?

KEY SECURITY INDICATORS:

- Changes in behaviours
- Fear when walking alone at night
- Fear when home alone



1) Changes in Behaviours

GLACE BAY	KINGS	"YES" to behaviour
10.7%	9.5%	Carry something to defend self or alert others
42.8%	46.7%	Lock car doors when alone in car
47.5%	50.5%	Check back seat of car for intruders
33.7%	33.7%	Plan route with safety in mind
7.5%	4.9%	Stay home at night
16.0%	18.9%	Changed routines, activities, avoided places
20.3%	20.9%	Installed locks, security bars
15.8%	21.4%	Installed alarms, motion detectors
4.1%	3.6%	Installed a car alarm
2.5%	4.2%	Self-defence course

1) Changes in behaviours continued...

GLACE BAY	KINGS	"YES" to behaviour
3.9%	1.8%	Changed phone number
10.4%	11.2%	Obtained a dog
0.8%	0.8%	Obtained a gun
0.7%	1.3%	Moved

•In both Glace Bay and Kings County there has been little change in behaviours due to crime
 • percentages are out of 100.

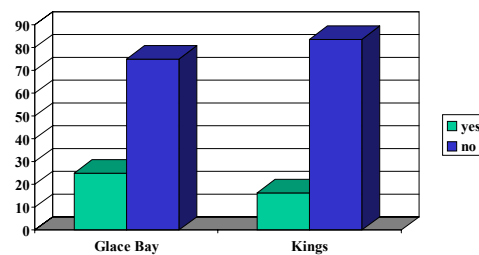
2) How safe do you feel alone walking after dark in your area?

	Very safe	Reasonably safe	Somewhat safe	Very unsafe	Don't walk alone after dark
Glace Bay	24.3%	41.1%	13.3%	2.7%	18.6%
Kings	27.9%	45.3%	10.5%	1.4%	15.0%

3) How safe do you feel when alone in your home at night?

	Very worried	Somewhat worried	Not at all worried	Never home alone in evenings
Glace Bay	1.8%	25.7%	61.2%	11.2%
Kings	0.7%	21.3%	69.8%	8.2%

Was your business victimized by crime in the past 12 months?



•In Kings County theft was the biggest problem for business owners, while in Glace Bay vandalism caused the biggest loss.

Business Losses:



- Was the crime to your business reported to the police?

	<u>yes</u>	<u>no</u>
Kings	66.7%	33.3%
Glac Bay	69.6%	30.4%

- Was your loss compensated by insurance?

	<u>yes</u>	<u>no</u>
Kings	6.7%	93.3%
Glac Bay	6.1%	93.9%

- Was any of your stock, money, property recovered?

	<u>yes</u>	<u>no</u>
Kings	6.6%	93.4%
Glac Bay	6.5%	93.5%

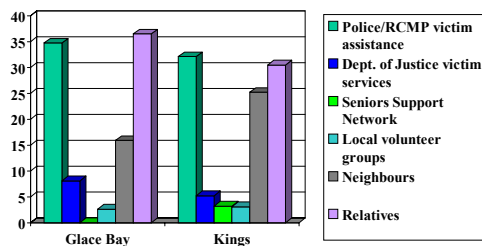
Business Loss

In the past 12 months did you take any security measures to protect your business from crime?

	<u>yes</u>	<u>no</u>
Kings	23.9%	76.1%
Glac Bay	31.0%	69.0%

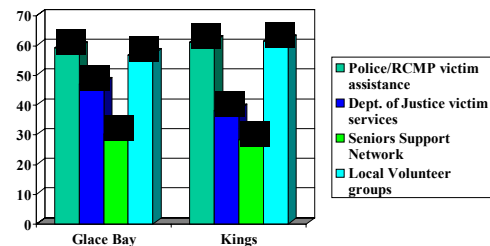
- The most popular security measures in both regions were to install electronic surveillance equipment, locks, bars, and shutters, over other methods such as guard dogs and security staff. In both regions approximately 74% of those spending money on security measures, spent under \$2000 to protect their businesses.
- Business owners in both Kings County (99.5%) and Glac Bay (97.7%) felt that they did not have to close their businesses earlier due to crime and fear of crime. They also disagreed that fear of crime in their neighbourhood had reduced economic activity (Kings = 96.6%, Glac Bay = 90.1%).

If you were a victim of crime in the past year did you receive help from the following services?



*In both Glac Bay and Kings County, victims received the most help from police, RCMP, neighbours, and relatives

Knowledge of services existing in community:



* Numbers represent percentages

Ideas on the path to solutions for Kings County and Glac Bay:

- Assess risks and assets
- Develop programs that combat risk factors and social problems, i.e. unemployment and drug use.
- Strengthen community networks and develop partnerships
- Citizens need to be made aware of community programs and support networks through promotion and advertising
- Involve the business community in crime prevention initiatives.
- Block watch
- Police-community councils
- Foot patrols and community police stations
- Concerned citizens groups
- Community beautification projects: cleaning, painting
- More and better youth programs: created by youth for youth
- Employment and recreation initiatives are essential

Conclusions



- Solutions developed by the communities of Glac Bay and Kings County will be stronger and longer lasting than the more punitive solutions of the criminal justice system. These ideas and solutions will increase the capacity of the community to handle new problems.
- By strengthening connections to the community obligations are created that act as both a deterrent and rehabilitative measure.
- Citizen's desire for harsher sentences may be reduced when they see the value and success of community initiatives.
- Restorative justice, increased recreation, and new community programs might be tried as solutions for Peace and Security issues.

Core Values as Potential Mediator Between Health & Employment: A Comparison of Glace Bay and Kings County

Alissa Brennan
&
Dr. Peter MacIntyre
University College of Cape Breton

Genuine Progress Index GPI Glace Bay

- Extensive 78 page survey
- Covering a range of issues including health, security, care-giving, employment, etc.



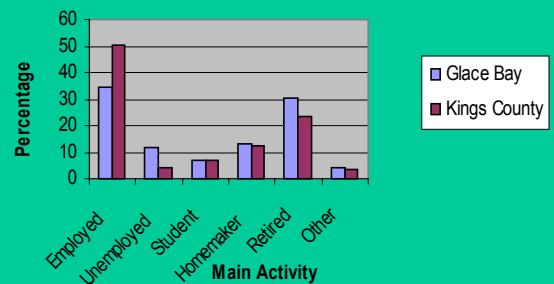
- surveys randomly distributed
- Approximately 80% response rate

Core Values

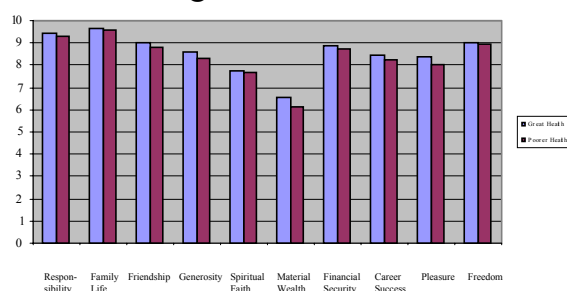
Respondents were asked to rate the following core values on a scale of 1(not at all important) to 10 (extremely important):

- Responsibility
- Family life
- Friendship
- Generosity
- Spiritual faith
- Material wealth
- Financial wealth
- Career success
- Pleasure
- Freedom

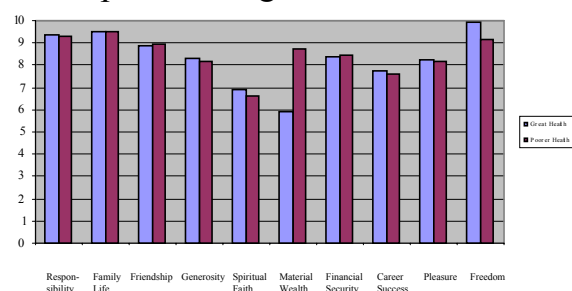
What Is Your Main Activity?



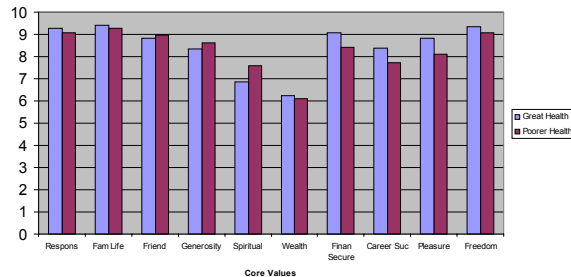
Glace Bay: Employed Peoples' Ratings of Core Values



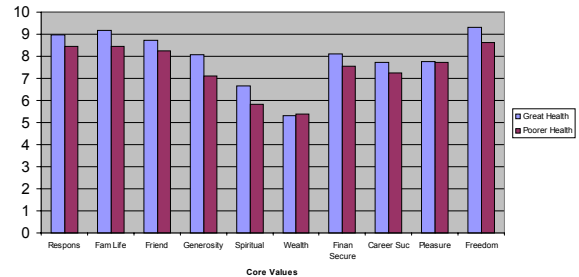
Kings County: Employed Peoples' Ratings of Core Values



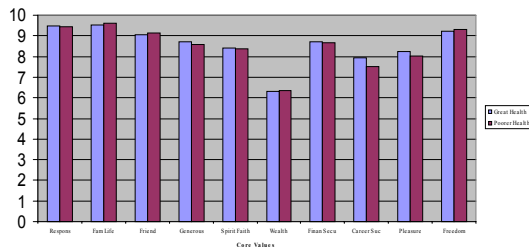
Glace Bay: Unemployed Peoples' Ratings of Core Values



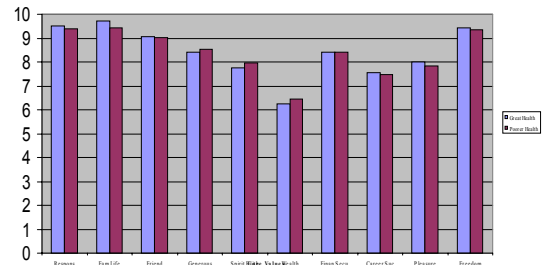
Kings County: Unemployed Peoples' Ratings of Core Values



Glace Bay: Retirees' Ratings of Core Values



Kings County: Retirees' Ratings of Core Values



Core Values as a Mediator Between Health & Employment

- There was a consistent trend across all groups
- High percentages of people in all of the groups ranked responsibility and family values as extremely important, regardless of health or employment status
- Results could be attributed to the strong ethnic ties and concerned social milieu of the small community

Findings of note

- There is a striking difference between higher and lower self-ratings of health and the value placed on "wealth" in King's County versus Glace Bay.
- This is one interesting difference, though overall there are more similarities than differences in core values.

REPORTING AGENCY: GPI Atlantic
PRINCIPAL INVESTIGATOR: Dr. Ronald Colman
TITLE OF PROGRAM: <i>Development and Application of Community Health Indicators</i>

CPHI Statement of Account (Programs): Expenditures for the 6-month period October 1, 2003 to August 31, 2004

A	B	C	D	E	F	G	H	I
Budget Categories	(exp to Mar 31/03) Previous Year(s) Expenditures	Previous Six Month's Expenditures (Apr/03-Sep/03)	Current Expenditures	Current Fiscal Year Total	Proposed Fiscal Year Expenditures	Variance (F - E)	Next Scheduled Payment	Approved Total Budget by Category
Compensation	\$180,053.34	\$14,862.53	\$0.00	\$14,862.53				\$190,505.00
Equipment and Software Purchase	\$648.00	\$0.00	\$0.00	\$0.00				\$720.00
Supplies and Services	\$33,283.39	\$528.24	\$0.00	\$528.24	per payment schedule in			\$34,099.00
Infrastructure	\$95,924.67	\$23,157.45	\$0.00	\$23,157.45	original Contribution Agreement			\$108,861.00
Travel/Accommodation	\$11,627.60	\$1,928.15	\$0.00	\$1,928.15				\$12,750.00
Total Budget	\$321,537.00	\$40,476.37	\$0.00	\$40,476.37	\$93,163.27	\$52,686.90	\$2,063.82	\$346,935.00
Total amount awarded to the Program in the Contribution Agreement								

Column A: Major budget categories
Column B: Expenditures from past fiscal year(s) April 1 - March 31 (if applicable)
Column C: Expenditures for the previous 6 months
Column D: Current expenditures (For current 6 month period)
Column E: Current Fiscal Year Total (April 1st- March 31st) (C+D)
Column F: Proposed Fiscal Year Expenditures (as per your Contribution Agreement)
Column G: Variance (Proposed Fiscal Year Expenditures minus Current Fiscal Year Total) (F-E)
Column H: Next Scheduled Payment (As per your Contribution Agreement)
Column I: Approved Budget Total by Category

Current Reporting Period Cash Flow

Period	Projected	Actual/revised	6 Month Variance
April 1, 2003- September 30, 2003		\$40,476.37	
Total			

RECORD OF EXPENDITURES

I certify that this is an accurate account of expenditures and forecast for the period specified and that supporting documents are available for audit.

Ronald Colman

30 August, 2004

AUTHORIZED SIGNATURE

DATE

Ronald Colman, Ph.D,
Executive Director, GPI Atlantic