



MEASURING SUSTAINABLE DEVELOPMENT

APPLICATION OF THE GENUINE PROGRESS INDEX TO NOVA SCOTIA

GLACE BAY GPI COMMUNITY PROFILE

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Introduction

This Glace Bay GPI Community Profile presents some key results from the GPI Community Health and Wellbeing Survey that was conducted in 2002. Many of the results do not change rapidly over time and are therefore still highly relevant (e.g., values, subjective wellbeing, time use, victimization, social supports, volunteerism). Indeed, Statistics Canada itself only conducts national surveys in some of these areas at infrequent intervals (e.g., time use once in seven years, victimization once in five years). Other results (such as employment) do change much more rapidly, so the results presented here should be taken as baseline data that can be updated in the near future to assess progress since 2002.

In general, Statistics Canada data do not reach down to the community level. So detailed information on the determinants of wellbeing in particular communities are not available to policy planners, economic development agencies, municipal councillors, and others. Such data, along with socio-demographic breakdowns to reveal which particular groups are most affected by different factors and conditions, are essential to informed decision-making to ensure that programs and interventions are effectively targeted to actual needs and to affected groups.

To give just one of many possible examples, existing survey materials and databases, and conventional measures of progress cannot tell us what the smoking rates in Glace Bay are, nor which groups have the highest smoking rates. Without such basic information, it is very difficult for health authorities to target smoking prevention programs effectively where they are most needed and where they will have the greatest positive effect. Thus, community-level indicators of wellbeing and measures of progress fulfil a vital need and are highly policy-relevant.

The Glace Bay GPI data provide an extraordinarily rich source of key information on the determinants of health and wellbeing not previously available at the community level, and they have the potential to spawn major research projects of value nationwide. In particular, since the same residents were asked questions on a very wide range of health and wellbeing determinants, many correlations were able to be drawn that are not possible when—as at the national level—separate survey instruments are administered on different subjects (e.g., employment, income, health, victimization, voluntary work, time use, environmental behaviours, etc.). As well, the survey sample size is large enough (1,700) to allow two cross-tabulations of the data with a very high degree of statistical validity (95% confidence with a margin of error of +/- 3%).

Perhaps the most important point to make in this introduction is that this GPI Community Profile only scratches the surface of the detailed information now available about Glace Bay. The results in this report should therefore be viewed as *representative samples* of the wealth of information actually available. They reflect GPIAtlantic's own recommendations for some of the key indicators that CBRM, CBCEDA, CBDHA, and the East Cape Breton County Community Health Board may wish to update on a regular basis (perhaps once every 3–5 years).

However, the results presented in this report by no means reflect a comprehensive summary of the available community-level data on Glace Bay. On the contrary, they point to just a few of the many fruitful areas of investigation that are possible. For example, each chapter may include between 2 and 6

suggested key indicators. But these are often culled from between 20 and 50 available data sets and indicators in each subject area.

As well, most chapters contain socio-demographic breakdowns by gender, age, and income. But other very important breakdowns are also possible—by labour force activity, by educational status, by type of employment (full-time vs. part-time), by marital status, and much more. In addition, important correlations may be made between the different data sets to understand the relationships between employment characteristics, income, volunteerism, values, community activities, time use, food consumption, energy use, health outcomes, feelings of safety and security, and much more. Again, we have suggested some key relationships that stood out for us. But these should be seen as the beginning of a much more extensive investigation rather than as end results and firm conclusions.

Thus, the key point here is that this report is a starting point for enabling Glace Bay citizens to know themselves better, and to enable policy audiences to serve those citizens better based on in-depth knowledge of the community. The best possible outcome of this initial Glace Bay Community Profile would be that it spurs intensive further research based on the existing data. The Glace Bay GPI data are now stored at Cape Breton University in Sydney and can be accessed through the data access forms available on the GPI Glace Bay website: http://discovery.uccb.ns.ca/glacebay_gpi/dataaccess.html. The authors hope that the database might be extensively used, for example, to teach data analysis and research skills to CBU students, who, in turn, might produce papers of practical use to the Glace Bay community and local and municipal policy makers.

What the results do show very clearly is that it is not possible to measure and assess community wellbeing according to one set of criteria. Rather, wellbeing is multi-dimensional, consisting of complex interactions between economic, social, health, and environmental realities. But this complexity has a very practical use, since community level indicators enable a community to identify its strengths and weaknesses and to assess its progress in achieving shared objectives. That, in turn, is vital information, since building on existing strengths and overcoming weaknesses is what good development strategies are all about.

In Glace Bay, for example, we found that, while the community has not fared well historically in conventional economic terms and in its physical health indicators, it has very high levels of social supports, safety, and spirituality, and much lower than average stress levels. While this latter set of indicators has remained largely invisible in standard measures of progress, they point to high levels of social wellbeing and mental health that can be the basis for very positive forward movement in overcoming some traditional health and economic weaknesses.

Background

Funding for this Glace Bay GPI project came from two key national sources and some subsidiary sources. In February, 2000, the National Crime Prevention Centre (NCPC) recognized that the GPI indicators could help communities identify the social and economic causes, costs, and impact of crime and develop annual benchmarks of progress towards creating more peaceful and secure communities. With initial funding from the NCPC's Business Action Program, the Glace Bay GPI project was launched in March 2000. A parallel project was undertaken in Kings County, Nova Scotia.

Following the launch of initial consultations and project planning with local development agencies and community groups, subsequent funding from the Canadian Population Health Initiative (CPHI) made it possible to construct a detailed questionnaire and to administer 1,708 surveys in Glace Bay. In consultation with Statistics Canada, this sample size was determined to be adequate for a high level of statistical certainty. After the draft survey underwent detailed review by experts from Statistics Canada's Social Survey Methods Division, it was extensively tested in Glace Bay and subsequently revised. In addition to the primary NCPC and CPHI funding, support was also received from the Cape Breton County Economic Development Agency.

In 2001–2002, about a dozen residents of Glace Bay were trained in survey administration methods, and administered the surveys to gather the necessary data for Canada's first community-level Genuine Progress Indicators. The Glace Bay GPI survey includes a very wide range of questions on employment, voluntary work and caregiving, values, population health, peace and security, impacts on the environment, time use, and other key dimensions and determinants of wellbeing.

Following the administration of the survey in 2001–2002, the data were entered into a unique new database designed by Dalhousie University's Population Health Research Unit. The database for the time use section of the survey was designed by St. Mary's University's Time Use Research Program. Data entry and data cleaning took place in 2002–2003. In this process, 20 unemployed Glace Bay residents were trained in data management skills and undertook the entire data entry process on site in Glace Bay. In 2003–2004, preliminary results for a few select components of the survey were analyzed and reported back to both communities in a series of workshops.

In 2004–2005, the Community GPI data were officially turned over to a newly created non-profit society—the Glace Bay GPI Society—to function as owner and guardian of the data. The Glace Bay GPI data were then stored at Cape Breton University and can be accessed, as noted, through the data access guidelines available on the GPI Glace Bay website:
http://discovery.uccb.ns.ca/glacebay_gpi/dataaccess.html.

In 2007–2008, new funding was received from the Province of Nova Scotia and the Provincial Department of Health Promotion and Protection, Cape Breton Regional Municipality, Enterprise Cape Breton Corporation, Cape Breton County Economic Development Agency, and Capital Health District for the purpose of compiling a Community Profile for Glace Bay, based on a selected sample of key representative indicators.

This summary report presents a few select key results pertaining to wellbeing in Glace Bay. Though respondents were randomly selected for this survey, it should be noted that the sample contained a somewhat larger proportion of females than males and a relatively higher proportion of persons 45 and over than younger people. There were also significant numbers of retired, unemployed, and lower income respondents in the sample—consistent with and reflecting some of the actual characteristics of the Glace Bay community (Table 1 and 2 below).

In particular, it should be noted that seniors were somewhat over-represented in the sample. According to the 2001 Census, a considerably higher proportion of the Glace Bay population (17.5%) and Cape Breton population (16%) is 65 and older than in Nova Scotia as a whole (13.9%) and Canada (13%).¹

In the 2002 Glace Bay GPI sample, however, 19.7% of respondents were 65 and older. Time and resources did not permit systematic age adjustment of all survey data, but it should be noted here that the over-representation of seniors in the sample (by 12.6%) will affect the results presented below.

Table 1. Demographic characteristics of Glace Bay based on GPI survey sample, 2002

Demographic	%
Gender	
Male	42.8
Female	57.2
Age	
15–19	3.6
20–24	5.6
25–34	10.7
35–44	19.5
45–54	24.6
55–64	16.3
65+	19.7
Labour force activity	
Employed	34.5
Unemployed	11.0
Student	6.6
Homemaker	14.2
Retired	29.8
Other	4.0
Household income	
<20,000	28.0
20,000–34,999	29.5
35,000–49,999	20.0
50,000–69,999	13.5
70,000+	9.0
Marital status	
Never Married	19.7
Married	60.4
Separated / divorced	9.9
Widowed	9.9

Table 2. Glace Bay GPI survey counts and distribution for demographic characteristics, 2002

Gender	Male	Count	730
		% within survey	42.8
	Female	Count	977
		% within survey	57.2
	Total	Count	1,707
		% within survey	100
Age (years)	15–19	Count	61
		% within survey	3.6
	20–24	Count	95
		% within survey	5.6
	25–34	Count	182
		% within survey	10.7
	35–44	Count	332
		% within survey	19.5
	45–54	Count	418
		% within survey	24.6
	55–64	Count	278
		% within survey	16.3
	65+	Count	336
		% within survey	19.7
Marital status	Never married	Count	335
		% within survey	19.7
	Married	Count	1,028
		% within survey	60.4
	Separated / divorced	Count	169
		% within survey	9.9
	Widowed	Count	169
		% within survey	9.9
	Total	Count	1,701
		% within survey	100
Household income	<20,000	Count	431
		% within survey	28.0
	20,000–34,999	Count	453
		% within survey	29.5
	35,000–49,999	Count	307
		% within survey	20.0
	50,000–69,999	Count	208
		% within survey	13.5
	70,000 +	Count	138
		% within survey	9.0
	Total	Count	1,537
		% within survey	100

Labour force activity	Employed	Count	588
		% within survey	34.5
	Unemployed	Count	187
		% within survey	11.0
	Student	Count	112
		% within survey	6.6
	Homemaker	Count	241
		% within survey	14.2
	Retired	Count	507
		% within survey	29.8
Education	Other	Count	68
		% within survey	4.0
	Total	Count	1,703
		% within survey	100
	Primary to 8	Count	175
		% within survey	10.4
	9 to 12	Count	848
		% within survey	50.2
	College	Count	322
		% within survey	19.1
	University	Count	180
		% within survey	10.7
	Other	Count	163
		% within survey	9.7
	Total	Count	1,688
		% within survey	100

Chapter 1. Core Values

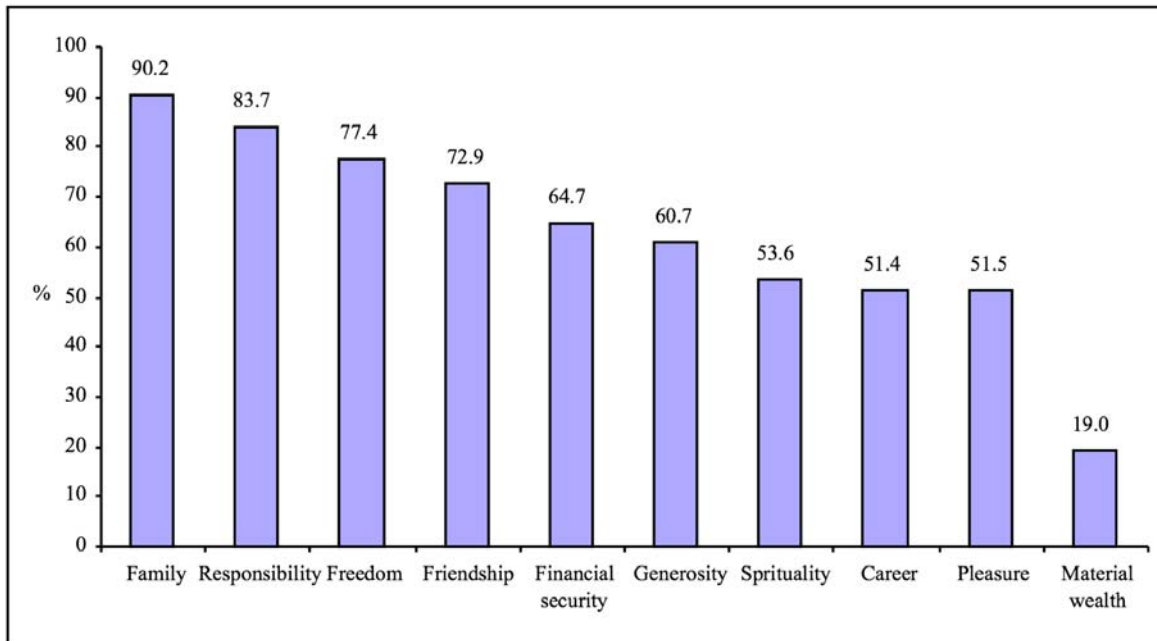
Selected Indicators: Core Values Spirituality

Core Values
Percentage of respondents who rate each core value as important (8, 9, or 10 on a 10-point scale).

Values are the ethical convictions or attitudes on which a population bases its sense of purpose, goals, or directions to guide its actions.² The utilitarian function of values is that they can help discriminate between what is beneficial to the wellbeing and sustainability of a society and what is detrimental. The values that people hold have been shown to have a major effect on their health and wellbeing, on how they learn, on their lifelong and daily priorities, and on how they live their lives.

Despite their vital importance as guiding life principles that affect every aspect of people’s lives, there is very little information available from conventional sources on the values that Nova Scotians actually hold. The GPI Glace Bay survey therefore asked respondents to rank a range of values on a scale of 1 to 10 according to the importance they attached to them as guiding life principles, with 1 representing not important at all and 10 representing the highest importance (Figure 1 below). Rankings of 8, 9, and 10 were regarded as reflecting a high level of importance.

Figure 1. Percent assigning high importance to particular values as guiding life principles, Glace Bay, 2002



As seen in Figure 1 above, respondents were most likely to rate family, responsibility, freedom, and friendship (in that order) as their most important guiding life principles, and material wealth as by far their least important value. In fact, nine out of ten Glace Bay residents (90.2%) ranked family as a very important guiding principle—more than four times the number that gave high importance to material wealth.

Considering the importance attached to material wealth both in our dominant consumerist and commercial culture in general and in the economic growth measures that are conventionally used to measure progress, it is revealing—indeed remarkable—that fewer than one in five Glace Bay residents attach high importance to material wealth—far fewer than give high importance to non-material values like responsibility, freedom, friendship, and generosity. This indicates that the dominant materialism of the times may be out of touch and misaligned with what really matters to people and with their deepest core values.

It is also noteworthy that more than five times as many Glace Bay residents attach high importance to financial security as to material wealth—indicating that they do not regard these as synonymous. In other words, it seems much more important for people to know with some certainty that they can feed, clothe, and house themselves and their families and take care of their basic needs, than simply be able to accumulate more possessions.

By implication, therefore, policies that enhance job security, that ensure a living wage, and that provide financial support in times of crisis and financial challenge (unemployment, sickness, single parenthood, death or disability of an earning partner, etc.) may correspond far more closely to people's

needs and values than policies and inducements designed to encourage more consumption and production.

Indeed, the distinction drawn by Glace Bay residents between financial security and material wealth may even enable us to distinguish between “sufficiency” and “excess” in terms of consumption, which would have vitally important ramifications both for macro-economic policy (including taxation systems) and for environmental sustainability. Thus, financial security might be more effectively sustained and enhanced by a re-distribution of resources designed to ensure that the basic needs of all citizens are effectively met than by policies designed to stimulate economic growth. A reduced focus on expansion of material wealth and consumption may, in turn, relieve pressure on the earth’s limited resources.

Gender differences

Although the ranking order of the five most important guiding life principles (family, responsibility, freedom, friendship, and financial security—in that order) was the same for both Glace Bay men and women, some significant differences also emerged.

As Table 3 below indicates, Glace Bay women assigned higher importance to most core values and guiding life principles than did men. The widest gender gaps were in relation to generosity, friendship, spirituality, family, responsibility, and financial security. Thus, a significantly higher proportion of women than men assigned high importance (rankings of 8, 9, and 10 on the 10-point scale) to spirituality (62% vs. 42%), generosity (67% vs. 52%), friendship (77% vs. 67%), and responsibility (87% vs. 80%).

By contrast, men tended to rate pleasure more highly (55% vs. 49%), and they were marginally more likely to assign high importance to material wealth than women (though fewer than 20% of both men and women rated material wealth highly).

The very wide gender gaps on friendship, generosity, and spirituality in particular (spreads of 10, 15, and nearly 20 percentage points respectively) seems to indicate that women place more value on non-materialist and relational principles than men.

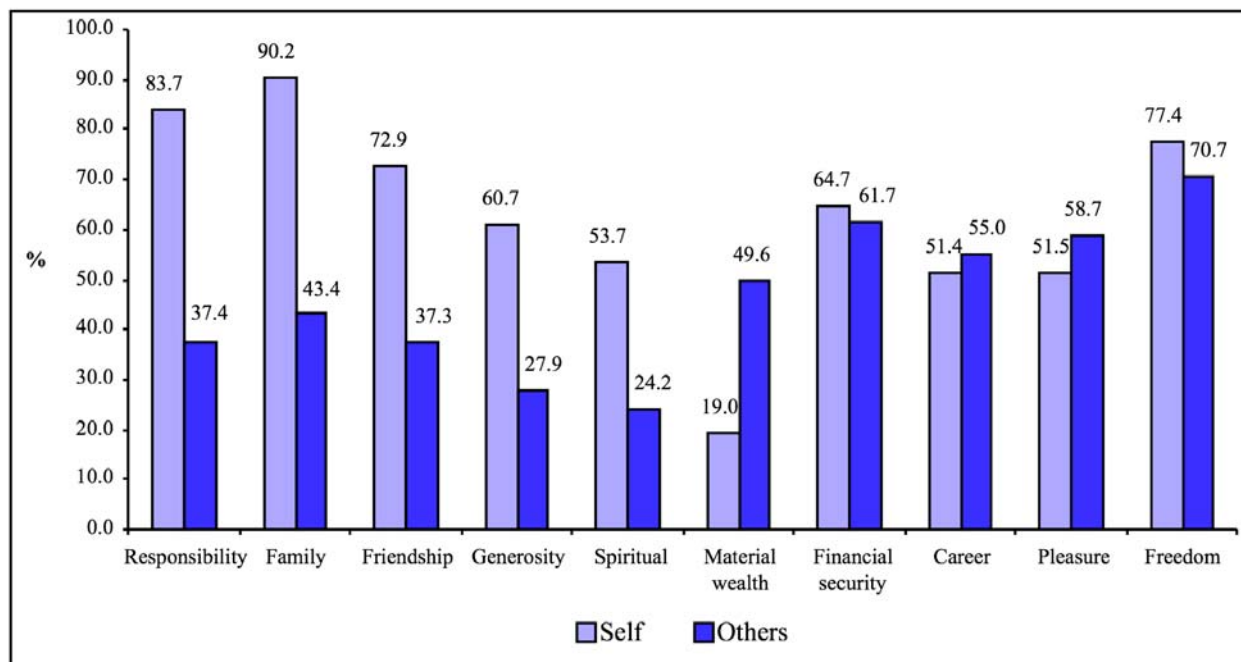
Table 3. Percent assigning high importance to particular values as guiding life principles, by gender, Glace Bay, 2002

Percent rating values as very important (8, 9, and 10)	Male	Female
Family	86.5	92.9
Responsibility	80.0	86.6
Freedom	77.7	77.7
Friendship	67.4	77.1
Financial security	61.4	67.1
Generosity	52.1	67.1
Career	50.8	51.9
Pleasure	54.9	48.9
Spirituality	42.4	61.9
Material wealth	19.7	18.4

While the results above reflect self-ratings, respondents were also asked how they felt most *other* Canadians rated the importance of these same core values and guiding life principles. The results were very interesting indeed. Respondents felt that other Canadians were much more materialistic and much less likely to hold strong social, caring, and spiritual values than they were themselves (Figure 2 below).

Thus, Glace Bay residents were more than twice as likely to rank themselves as attaching high importance to family, responsibility, generosity, and spirituality compared to other Canadians, and nearly twice as likely to give high importance to friendship as they felt other Canadians did. They were also 2.6 times more likely to think other Canadians placed high importance on material wealth than they were to rate themselves this way, and they were somewhat more likely to think Canadians rated pleasure highly.

Figure 2. Percent of other Canadians thought to assign high importance to particular values as guiding life principles, compared to one's own ratings, Glace Bay, 2002



In general, one could conclude from these results that Glace Bay residents tend to view themselves as less materialist and more caring, spiritual, and socially responsible, living in a materialistic and socially irresponsible society. Albeit in a somewhat different way than above, these results again point to an apparent gap between the core values and guiding life principles of Glace Bay residents and the perceived values of the larger society in which they live.

Further investigation is required to assess whether Glace Bay residents do indeed hold different values than other Canadians, or whether similar studies in other parts of the country would replicate the perceived disparities noted here. If the latter is the case, then Glace Bay residents are misjudging what matters to other Canadians, and it might well be concluded that the materialist values of our dominant commercial and consumerist culture are indeed out of synchrony with deepest values of Canadians. The fact that Kings County residents, like those in Glace Bay, were much more likely to see themselves as less materialist and more generous, responsible, spiritual, and caring for family and friends than they perceived other Canadians to be, lends further support to the hypothesis that the dominant materialism of our times may be out of touch with the what matters most to ordinary Canadians.

Spirituality

Percent of respondents who indicated that spiritual values play an important role in their lives.

Analysts have identified three key characteristics of spirituality as promoting a sense of inner strength, meaning in life, and harmonious interconnectedness. According to Jason, Reichler, King, Madsen, Camacho, and Marchese:

Inner strength involves finding an animated sense of joy and peace within one's inner wellspring of awareness. Finding a meaning or a purpose in life points to a sense of hope in the unfolding mystery, uncertainty, and ambiguity of life, and an ability to see beyond present realities. [. . .] Interconnectedness involves finding harmony with the self, others, and the universe.³

There is some evidence in the social-scientific study of religion and spirituality that spirituality can also be a predictor of psychological wellbeing and happiness, and that it can make important contributions to health and wellbeing particularly in the area of rehabilitation and in coping effectively with stress, illness, and trauma.⁴

Figure 3. Percent for whom spiritual values or faith play an important role in their lives, by gender, Glace Bay, 2002

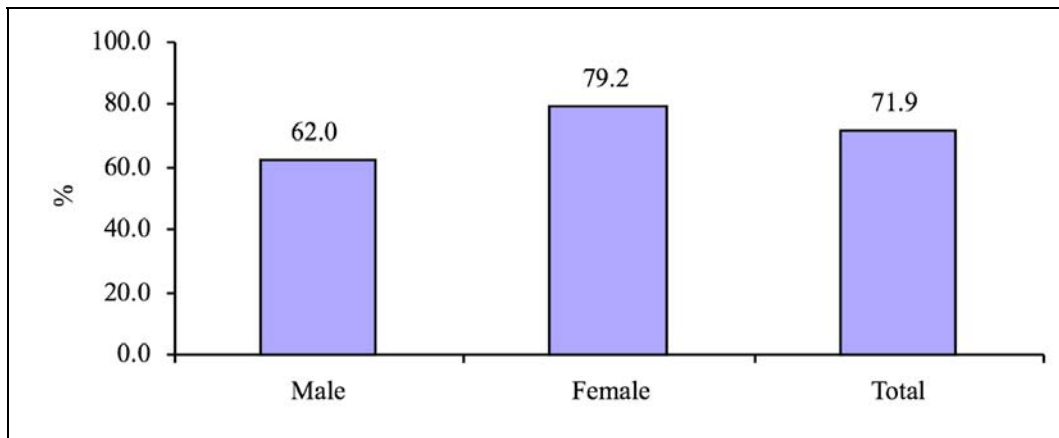
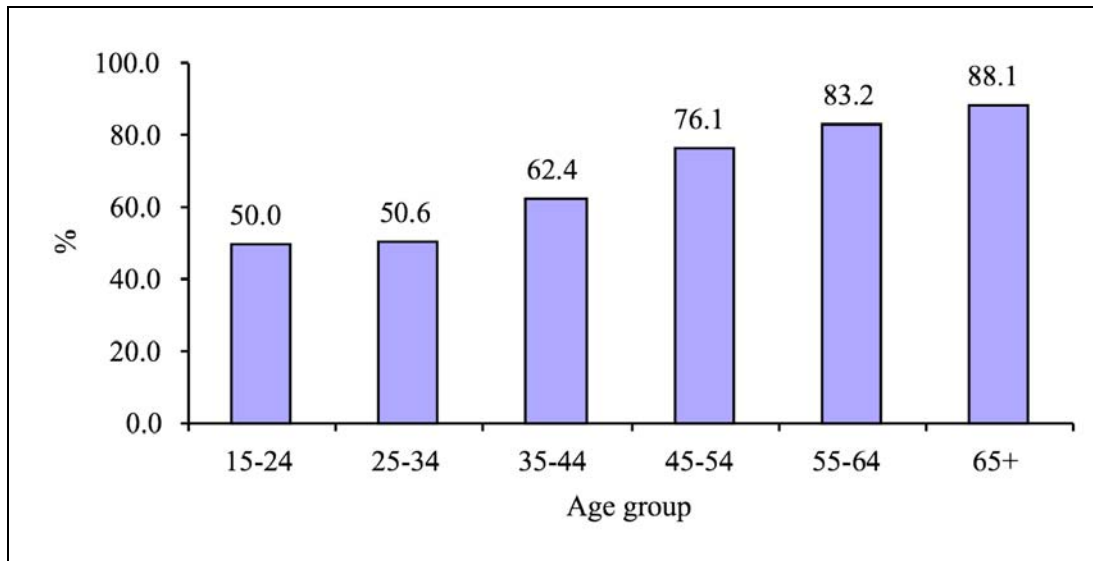


Figure 3 above shows that spirituality is important for most Glace Bay residents, with fully 72% reporting that spiritual values or faith played an important role in their lives. In general, spiritual values seem to be far more important for women in Glace Bay than for men—with 79% of women and 62% of men saying that spiritual values or faith played an important role in their lives.

Adherence to spiritual values increased directly with age, with a clear gradient emerging from the results. Only half of Glace Bay residents aged 15–34 years said that spiritual values or faith played an important role in their lives compared to fully 88% of those aged 65 and over.

This is very important information on a subject rarely reported, and it indicates that wellbeing may mean something quite different for older people than for younger ones.

Figure 4. Percent for whom spiritual values or faith play an important role in their lives, by age, Glace Bay, 2002



Chapter 2. Subjective Wellbeing

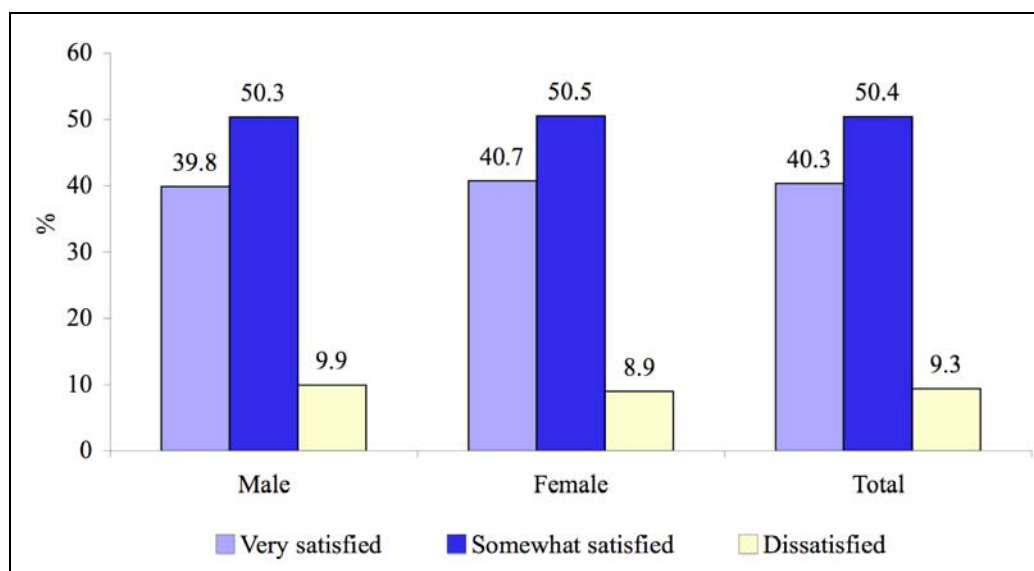
Selected Indicators: Life Satisfaction Happiness

Life Satisfaction
The percentage of respondents who report that they are very satisfied with their lives.

Subjective measures of wellbeing, including life satisfaction, are considered valid and reliable measures of how groups of people are faring in practice. Thus, studies indicate that “if a majority of people in a country report dissatisfaction with their lives, this seems to be a reasonable indication that something is awry, either with government policy, with society, or with both.”⁵ According to the New Economics Foundation (NEF), while life satisfaction is not a perfect measure of wellbeing, “as a general indicator of the state of well-being in a country, however, this single question performs surprisingly well, showing good validity when compared with other national-level statistics.”⁶

Forty percent of Glace Bay respondents reported that they were very satisfied with their lives, compared to 50% who were somewhat satisfied, and 9% who were dissatisfied. There was no significant difference between the sexes (Figure 5 below).

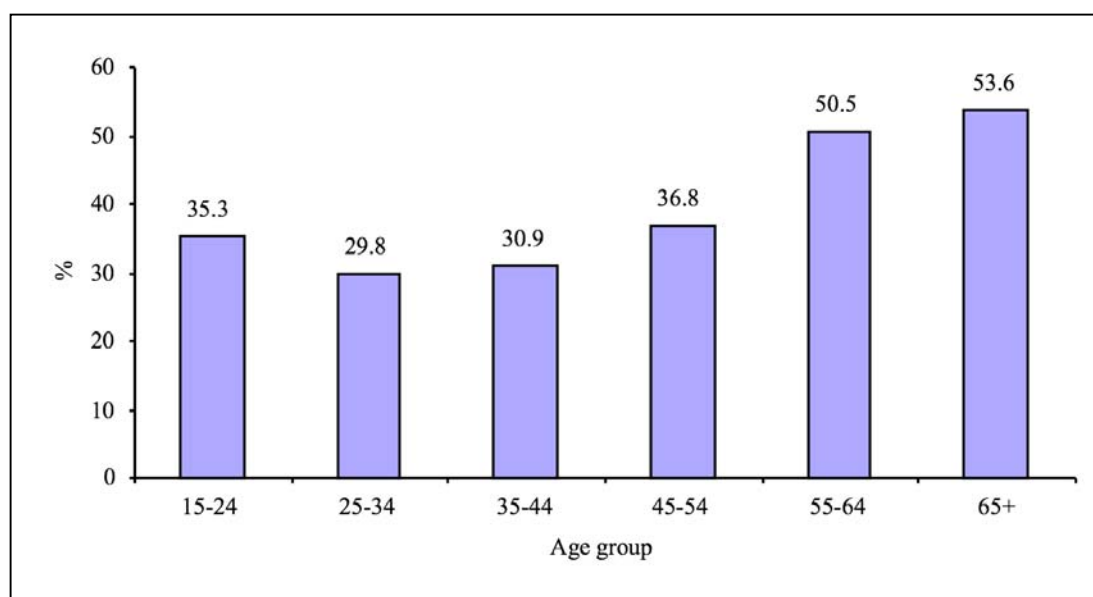
Figure 5. Percent of residents who are very satisfied, somewhat satisfied, or dissatisfied with their lives, by gender, Glace Bay, 2002



Statistics Canada's 2003 General Social Survey (GSS) (Cycle 17) asked respondents about their satisfaction with life as a whole. However, the respondents were asked to rank their satisfaction on a 10-point scale, with 1 meaning very dissatisfied and 10 meaning very satisfied.⁷ Since the Glace Bay survey question was not based on such a 10-point scale, it is not possible to compare the results.

In the Netherlands, Ruut Veenhoven, Director of the World Database of Happiness, has undertaken numerous international studies on happiness and life satisfaction. In 2000, on a scale of 1 to 10, with 10 being very satisfied and 1 being dissatisfied, Canadians' average response to the survey question "how satisfied are you with your life as a whole now" was 7.8.⁸ Satisfaction data in the Glace Bay GPI survey are reported differently, and therefore the Glace Bay results presented here are not comparable to the World Database of Happiness results for Canada.

Figure 6. Percent of residents who are very satisfied with their lives, by age, Glace Bay, 2002



Levels of life satisfaction were significantly related to age, with older residents of Glace Bay much more satisfied with their lives than middle-aged and younger residents. Life satisfaction levels were lowest among people aged 25–44, of whom only about three in ten reported they were very satisfied, and then rose to relatively high levels in the older age groups, with more than half of those 55 and older reporting they were very satisfied (Figure 6 above).

Levels of life satisfaction were highest in the higher income groups and lowest among low-income residents of Glace Bay, among whom only one in four said they were very satisfied with their lives. Those with household incomes over \$50,000 a year were twice as likely or more to say they were very satisfied with their lives than those with household incomes under \$20,000 (Figure 7 below).

Figure 7. Percent of residents who are very satisfied with their lives, by household income, Glace Bay, 2002

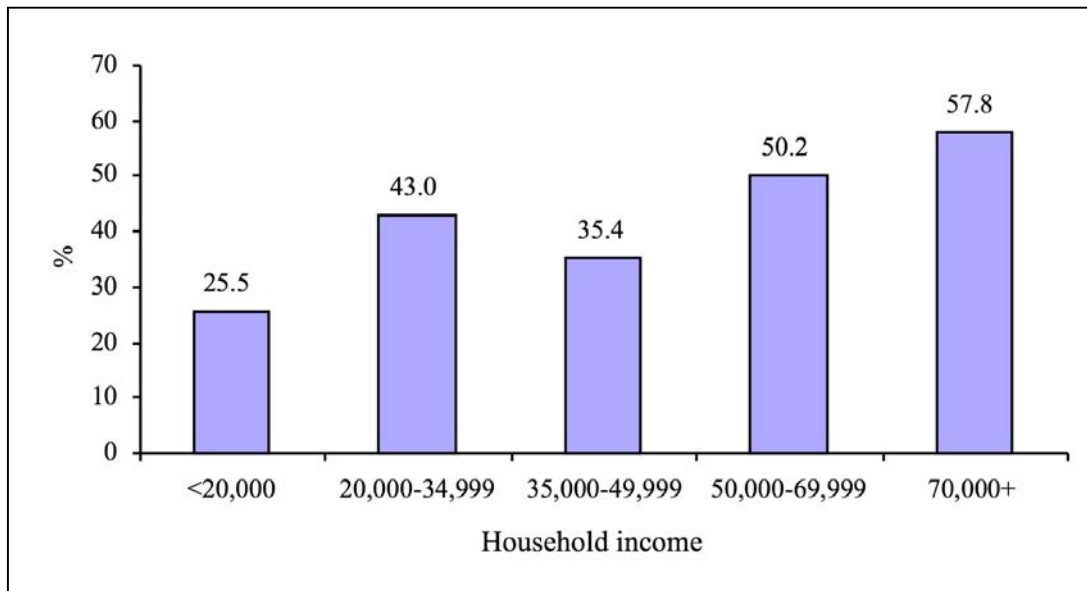
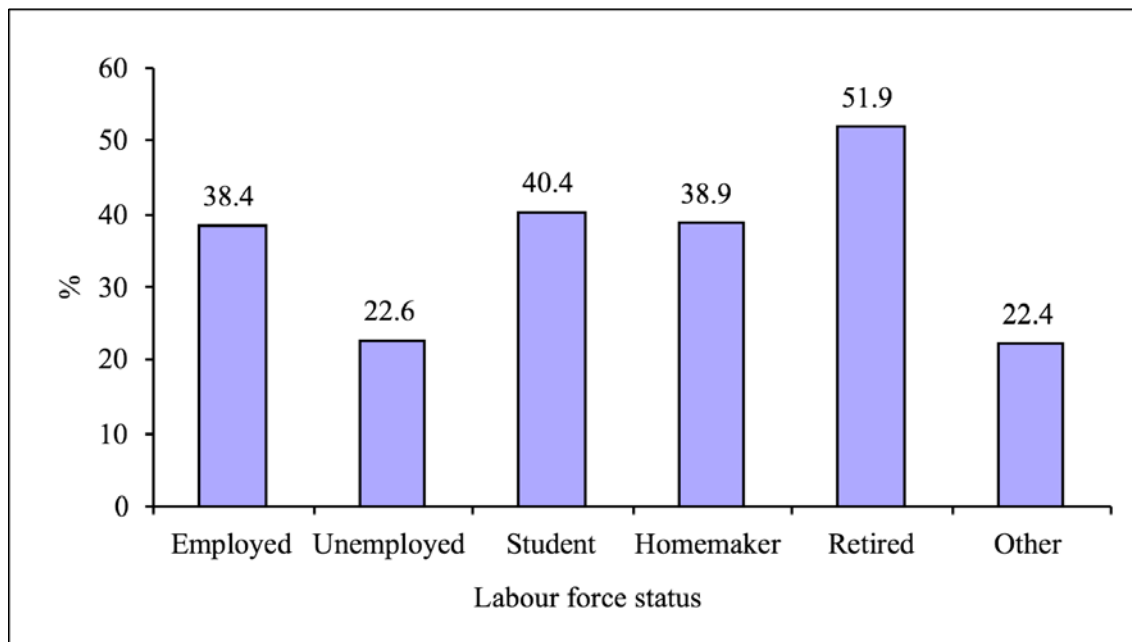


Figure 8. Percent of residents who are very satisfied with their lives, by labour force status, Glace Bay, 2002



Retired persons in Glace Bay reported the highest levels of life satisfaction (52% saying they were very satisfied with their lives) while employed persons, students, and homemakers were all in the mid-range (38–40% reporting they were very satisfied). The least satisfied residents of Glace Bay were those who were unemployed, of whom only 22.6% said they were very satisfied—less than half the rate among retired residents (Figure 8 above).

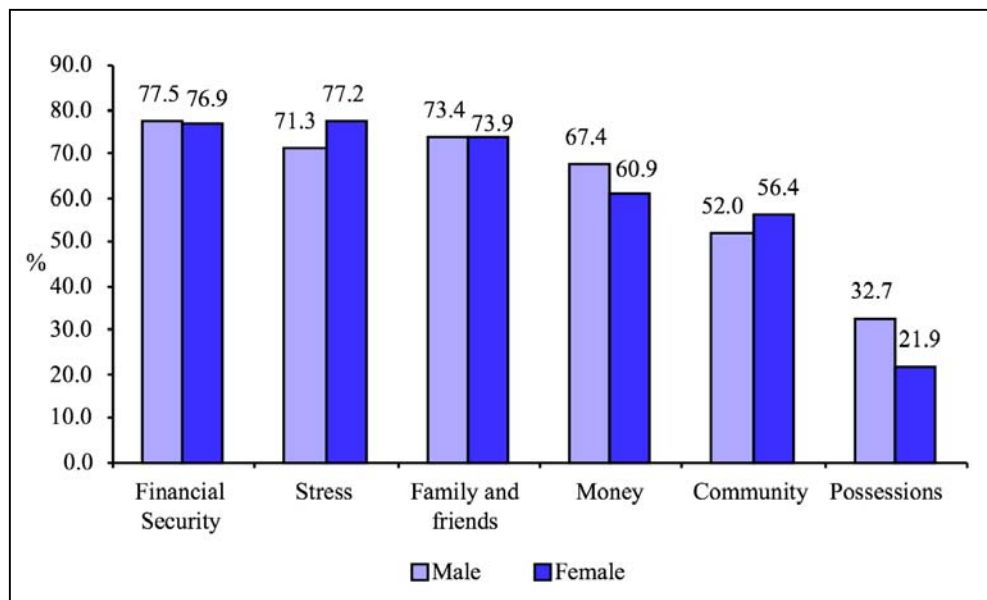
In the section on core values and guiding life principles, we saw that Glace Bay residents were much more likely to attach high importance to financial security than to material wealth. This finding is confirmed in Table 4 below, which shows that financial security is also more important to the life satisfaction of Glace Bay residents than money and possessions.

Table 4. What would make Glace Bay residents more satisfied?

I would be more satisfied with life if. . .	%
More financially secure	77.2
Less stress	74.7
Spend more time with family / friends	73.7
More money	63.7
Doing more to make a difference to my community	54.5
More possessions	26.5

Thus, more than three-quarters of Glace Bay residents (77%) said they would be more satisfied with their lives if they were more financially secure. This was followed closely by “less stress” and “spending more time with friends and family” as sources of increased life satisfaction (nearly three-quarters of residents). A somewhat smaller proportion of residents (64%) identified “more money” and increased community contribution (55%) as sources of increased life satisfaction. Only about one-quarter of respondents (27%) identified more possessions as a potential source of increased life satisfaction.

Figure 9. What would make Glace Bay residents more satisfied, by gender, 2002



For male residents of Glace Bay, greater financial security (78%), more time with family and friends (73%), and less stress (71%) were identified as the top three contributors to greater life satisfaction. For women, less stress (77%), more financial security (77%), and more time with family and friends (74%) were the top three sources of greater life satisfaction.

Figure 9 above shows some significant gender differences in the results. Males were significantly more likely than females to identify possessions (33% vs. 22%) and money (67% vs. 61%) as sources of increased life satisfaction, while females were significantly more likely to identify less stress (77% vs. 71%) and community contribution (56% vs. 52%).

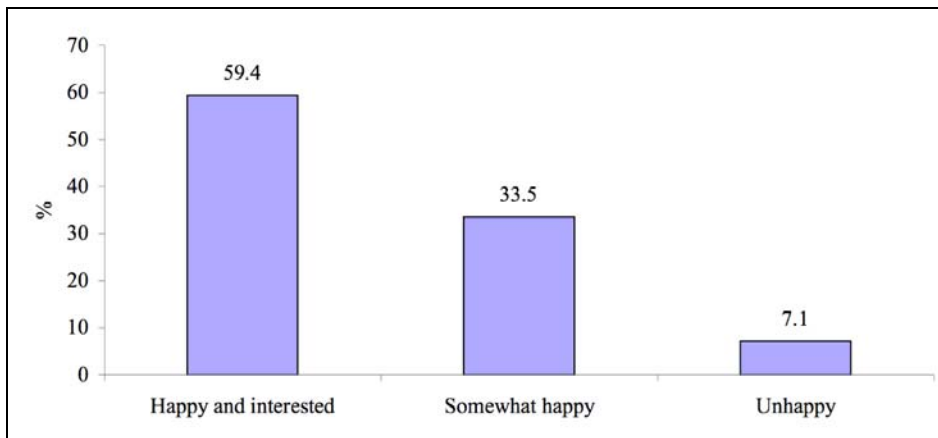
Happiness

The percentage of respondents who report that they are “happy and interested in life.”

There is increased recognition in the social science literature of the value and importance of correlating subjective expressions of wellbeing with objective variables like age, income, and employment, as in Figure 11, Figure 12, and Figure 13 below.

As indicated in Figure 10 below, almost 60% of Glace Bay respondents reported that they were happy and interested in life, compared to 34% who were somewhat happy, and 7% who were unhappy and had little interest in life. There was no significant difference between males and females. Statistics Canada’s 2003 GSS asked respondents about whether they would describe themselves as very happy, somewhat happy, somewhat unhappy, or very unhappy. One-half of Canadians (aged 15 and older) said that they were “very happy,” while just under one-half (46%) said they were “somewhat happy.” The remaining 4% said they were “somewhat” or “very unhappy.”⁹

Figure 10. Percent of residents who are happy and interested in life, somewhat happy, or unhappy, Glace Bay, 2002



In 2000, the World Database of Happiness conducted an international survey on happiness, measuring happiness on a scale of 1 to 4, with 4 being very happy, 3 being quite happy, 2 being not very happy, and 1 being not at all happy. Canadians averaged 3.35 on the scale of 1 to 4.¹⁰ Because the question was asked differently in the Glace Bay GPI survey, the results presented here are again not comparable to the World Database results.

Figure 11. Percent of residents who are happy and interested in life, by age, Glace Bay, 2002

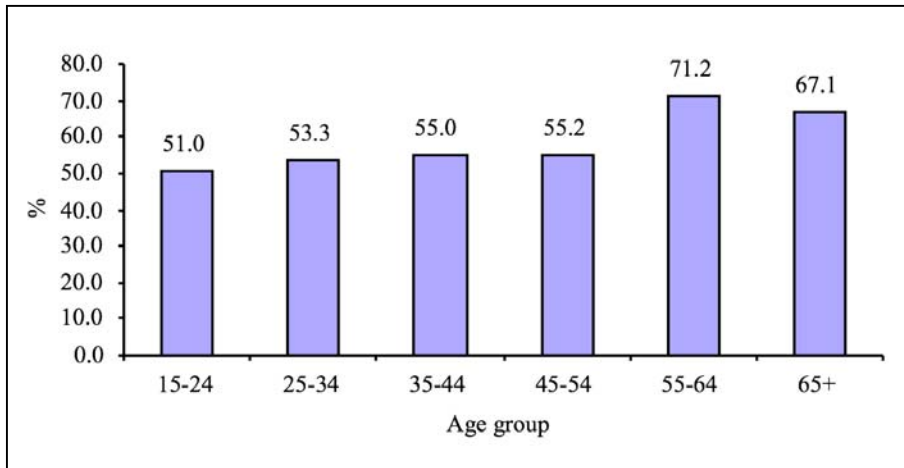


Figure 11 above shows a significant relationship between self-reported happiness and age. Although the youngest Glace Bay residents were least likely to be happy, there was actually relatively little variation between ages fifteen and fifty-four, with slightly over half of young and middle-aged Glace Bay residents reporting they were happy and interested in life. But rates of self-reported happiness were significantly higher for those aged 55–64 (71%) and for seniors (67%).

Figure 12. Percent of residents who are happy and interested in life, by household income, Glace Bay, 2002

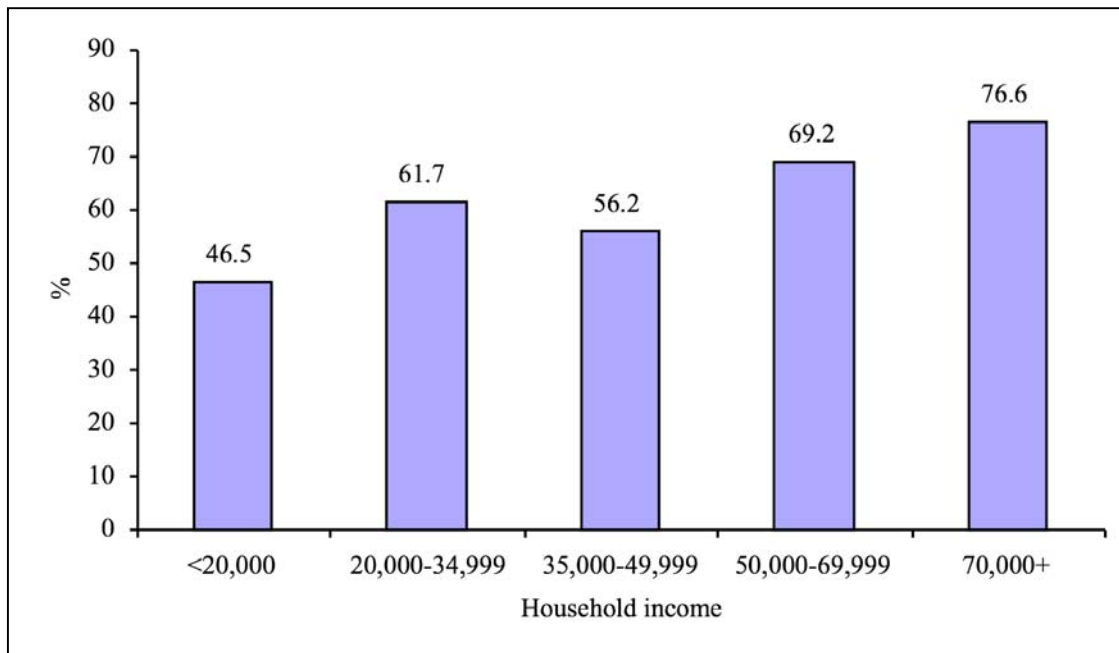
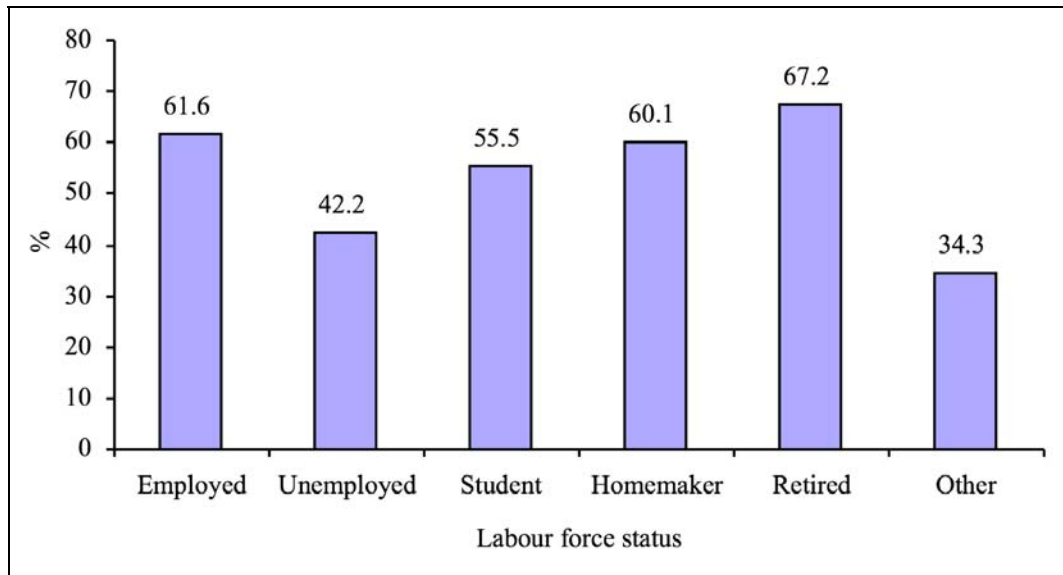


Figure 12 above also shows a significant relationship in Glace Bay between self-reported happiness and household income, with higher income groups significantly more likely to be happy and interested in life than lower income groups.

More than three-quarters (77%) of the highest income group (\$70,000+) and 69% of those with household incomes between \$50,000 and \$70,000 reported being happy, compared to only 47% of the lowest income group (incomes less than \$20,000 a year).

As well, Figure 13 below shows a significant relationship between self-reported happiness and labour force activity, with unemployed residents of Glace Bay much less likely to say they were happy and interested in life (42%) than those who were retired (67%), employed (62%), or homemakers (60%).

Figure 13. Percent of residents who are happy and interested in life, by labour force status, Glace Bay, 2002



Chapter 3. Employment and Job Characteristics

Selected Indicators: Unemployment
Part-Time Employment
Wanting Work but Unable to Find It
Long-Term Unemployment
Employee Benefits
Multiple Job Holdings
Work Reduction

Note: The following results from the 2002 Glace Bay Community GPI survey are intended to provide baseline data for Glace Bay, but will need to be updated to assess changes in employment trends.

Unemployment Rate

The percentage of Glace Bay labour force participants who were unemployed during the week prior to the survey, 2002.

Unemployment has been associated with stress, financial insecurity, poor health outcomes, and a wide range of social problems. In addition to these costs there are economic costs associated with maintaining large numbers of unemployed people through employment insurance and various other social programs intended for those on low incomes. The unemployed also pay less income tax (if any at all), spend less, and represent lost productive potential to society.

These productivity losses and other hidden indirect costs to the economy are substantial. In 2004, GPIAtlantic published a report, *Work Hours*, in which it estimated that unemployment in Nova Scotia cost the provincial and national economies at least \$4 billion in 2001 in lost output and taxes, and in direct payments to the unemployed.¹¹

In 2002, unemployment rates were very high among residents of Glace Bay, with more than one-quarter of the labour force (26.4%) unemployed, compared to 19.1% in Sydney, 17% in Cape Breton as a whole, 9.7% in Nova Scotia, and 7.2% in Canada.¹² Though the Glace Bay GPI survey found more males than females unemployed in Glace Bay in 2002 (28.6% vs. 24.4%), the gender differences were not statistically significant (Figure 14 below).

However, these comparisons must be interpreted with a great deal of caution, since the comparative Sydney, Nova Scotia, and Canadian unemployment rates are from Statistics Canada's Labour Force Survey, which posed the question differently than the Glace Bay GPI survey. The Glace Bay GPI survey used the same definition of unemployment as used by Statistics Canada—namely persons 15 years and over who are currently not working for pay, yet have been actively looking for paid work in the past four weeks. However, the GPI survey asked respondents directly if they were employed,

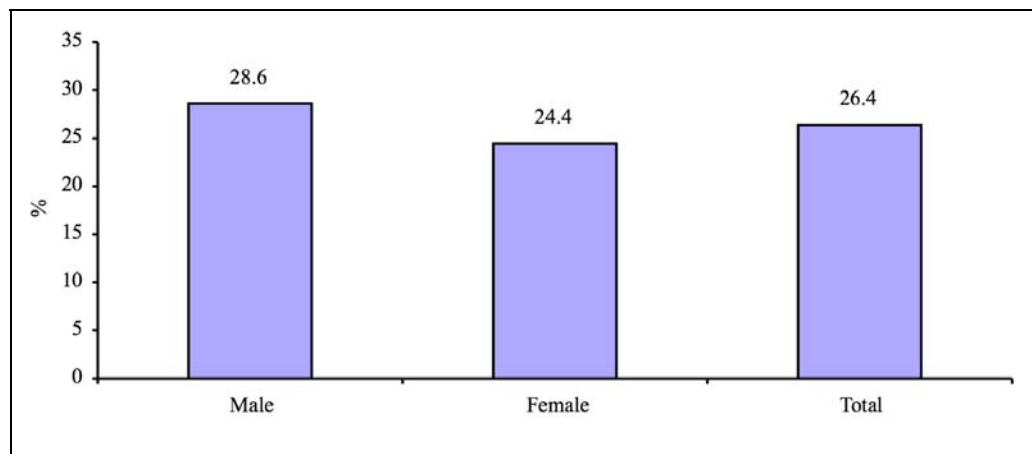
unemployed, or not in the labour force (defined as not employed and not actively looking for work). By contrast, Statistics Canada's Labour Force Survey does not use term "unemployed" at all, but instead classifies the unemployed as "job seekers."

Thus, the Labour Force Survey has three questions under the title "job search" to assess whether someone was actually looking for work: did they do anything to find work in the last four weeks, what did they do to find work in the last four weeks, and how many weeks had they been looking for work since the date last worked. If the respondent was not working or looking for work, the Statistics Canada survey also asks: what was the main reason the respondent did not look for work last week, and, if they could have worked last week, what was the main reason they were unavailable for work last week. Based on responses to its job search questions, Statistics Canada then calculates the unemployment rate, though the survey never asks respondents directly whether they were unemployed.

Albeit in less detailed form, Statistics Canada's Census also asks respondents about their recent search for paid work (question 37, 2001 Census) and on their availability for work (question 38), but again never uses the term "unemployed." Again, the unemployment rates are subsequently calculated based on responses to the job search and availability questions. It seems clear that when the survey question is posed in terms of job search rather than being out of work, the resultant numbers will very likely be smaller, even if unemployment is explicitly defined the same way.

Thus, the 2001 Census determined that 21.8% of Glace Bay labour force participants were unemployed (still higher than the 19.1% in Sydney, more than double the Nova Scotia rate, and triple the Canadian rate). However, the 21.8% is still fewer than the 26.4% who responded affirmatively to the unemployment question in the GPI Glace Bay survey. Considerable further investigation would be required into the actual status of the 26.4% of Glace Bay respondents who said they were unemployed in order to assess the proportion of those who could be classified as "discouraged" workers—who had given up looking for work because they did not think any was available, but who, in reality, could certainly be considered unemployed in a slightly broader interpretation than currently used by Statistics Canada.

Figure 14. Percent of Glace Bay labour force participants who were unemployed, by gender, 2002



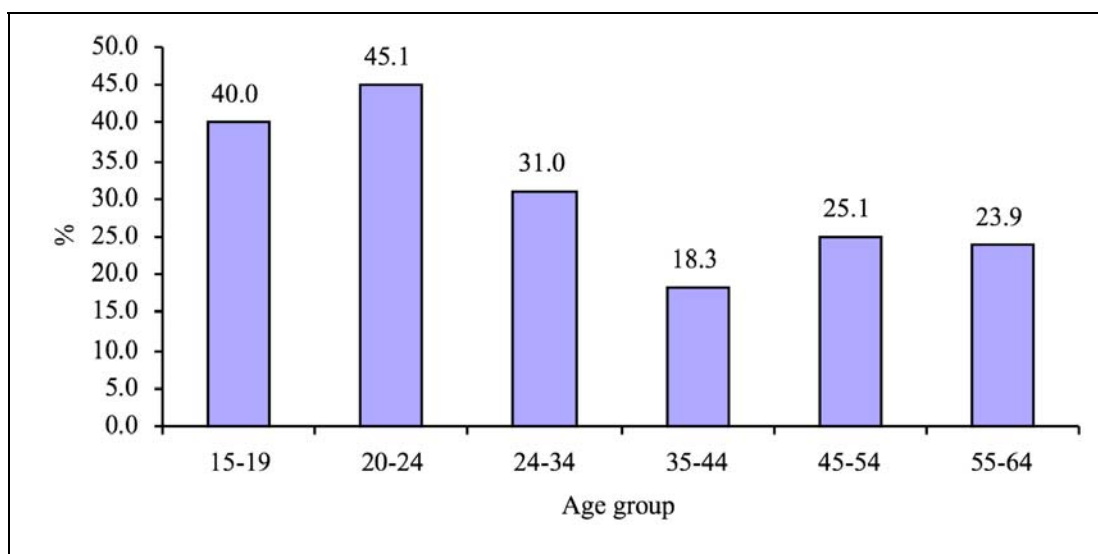
These high unemployment figures have had a direct impact on the demographics of the community. Between 2001 and 2006, the population of the town declined by more than 6%, “mainly because of reduced industrial employment,” according to a recent (2007) report. However, “[f]ollowing several years of high unemployment and substantial out-migration, unemployment percentages have begun to drop recently,” due in part to the location of telemarketing operations in Glace Bay since the time of the GPI survey.¹³ It is clearly essential to conduct a follow-up survey to assess the impact of these recent changes on both employment and other aspects of wellbeing in Glace Bay.

The Glace Bay GPI survey revealed significant differences in the profile of the Glace Bay unemployed—pointing once again to the crucial importance of detailed community-level data on the determinants of wellbeing, since it these socio-demographic breakdowns that enable policy makers, planners, and economic development agencies to target labour force, training, counselling, and health promotion programs where they will be most effective.

For example, the GPI survey revealed that unemployment rates in Glace Bay differed significantly by age, with fully 45% of those 20–24 years old unemployed in 2002—2.5 times the rate of those aged 35–44 (18%) (Figure 15 below).

Given the significant association of unemployment with unhappiness, low life satisfaction, poor health, and a wide range of social problems, youth unemployment emerges as a very important issue in Glace Bay in 2002—with the 20–24 year age group requiring particular attention in new job creation, counselling, and appropriate training for emerging labour market opportunities. Again, follow-up survey work is now needed to assess changes in youth employment rates since this first GPI Glace Bay survey.

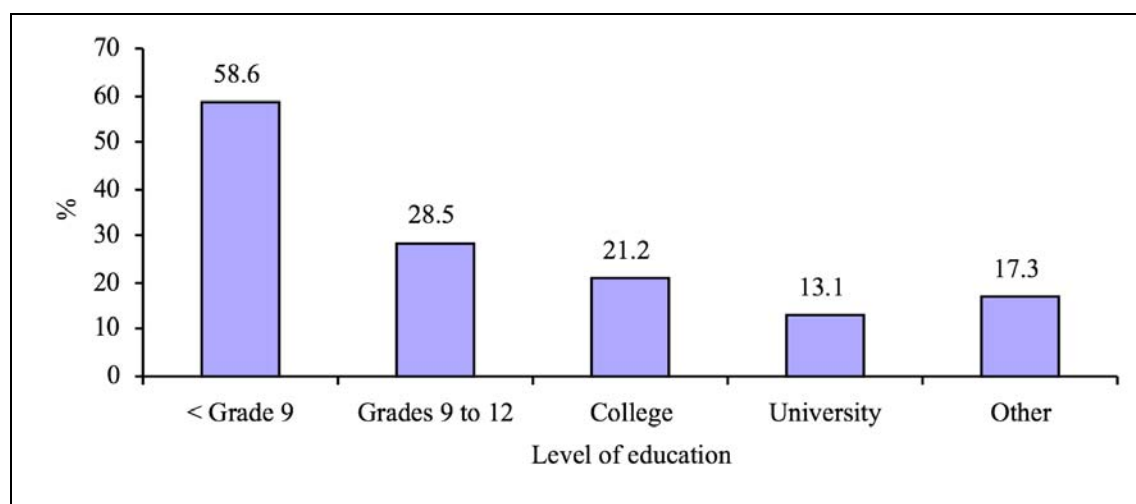
Figure 15. Percent of Glace Bay labour force participants who were unemployed, by age, 2002



There were also very significant differences in unemployment rates by education, with a clear gradient according to educational attainment. Thus, nearly 60% of Glace Bay labour force participants with less than a grade 9 education were unemployed in 2002—a rate that was 4.5 times higher than among university graduates (13%) and more than twice as high as among high school graduates (29%) (Figure 16 below).

Clearly, programs that encourage youth to stay in high school, and which offer remedial and adult education courses to those who have dropped out, can have a very significant impact on later employment prospects in Glace Bay.

Figure 16. Percent of Glace Bay labour force participants who were unemployed, by education, 2002



Part-Time Employment

The percentage of employed persons in Glace Bay who were working part-time at the time of the survey.

Part-time work in countries like the Netherlands generally fetches equal hourly pay, pro-rated benefits, and equal opportunity for seniority, career advancement, promotion, and training. This is because the Netherlands has laws and labour practices that prevent discrimination against part-time workers in terms of promotion, pay, and fringe benefits. However, here in North America, part-time work tends to be much less desirable and is associated more often with work that is temporary, insecure, fetches lower pay, rarely carries benefits, and does not advance careers.¹⁴

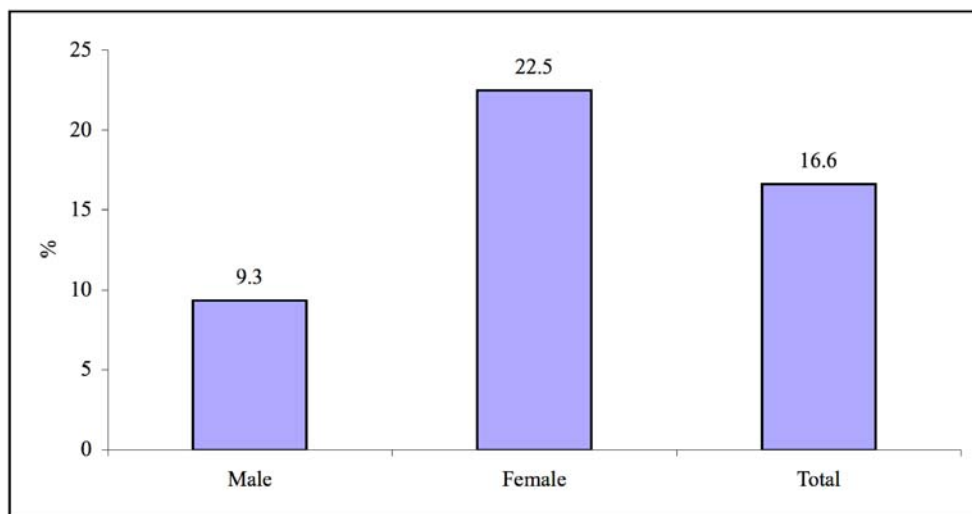
Not surprisingly, rates of involuntary part-time work (undertaken only because full-time work is unavailable) are generally 2.5–5 times higher in Canada and Nova Scotia than in the Netherlands, where part-time jobs make up a third of all employment (and 58% of female jobs), where part-time

work is seen as desirable, and where only 6% of part-time workers say they would prefer full-time work.¹⁵

This distinction is important, as high rates of part-time work only signify a real problem when they are involuntary, and when part-time work is associated with lower pay, job insecurity, and poorer work conditions. Thus, Figure 17 and Figure 18 below present both total rates of part-time work in Glace Bay, and rates of involuntary part-time work in particular. Again, such distinctions point to the importance of detailed community-level data for policy planning purposes, to ensure that programs are accurately and cost-effectively targeted where they can have the greatest and most beneficial effect.

In 2002, female workers in Glace Bay were two and a half times more likely to be employed part-time as males (23% vs. 9%). In all, 17% of Glace Bay workers were working part-time in 2002 (Figure 4).

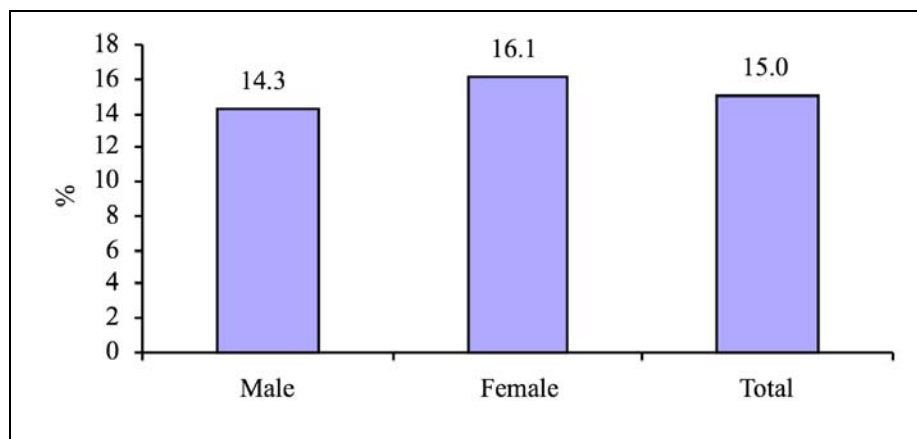
Figure 17. Percent of employed Glace Bay residents who were working part-time, by gender, 2002



Some workers choose to work part-time because of family responsibilities, because they are students, and for other reasons. But, as noted above, those who are working part-time because they cannot find full-time jobs are called “involuntary part-time workers” and are classified as “underemployed.” By this definition, 14% of male part-time workers in Glace Bay and 16% of female part-time workers were underemployed in 2002. In total, 15% of part-time workers were underemployed (Figure 18 below).

It should be noted that the equation of involuntary part-time work with underemployment produces a very narrow and limited definition of underemployment. More broadly, that term is also used to describe work that is below the skill and education level of the employee. Data are unavailable on the extent of that broader form of underemployment, and so results are confined here to the rate involuntary part-time work among part-time workers (with results expressed as a percentage of part-time workers).

Figure 18. Percent of part-time workers in Glace Bay who were underemployed (involuntary part-time workers), by gender, 2002



Wanting Work but Unable to Find It

The percentage of non-employed Glace Bay residents who wanted paid work but felt it was somewhat or very unlikely that they would find work in the next six months.

An unemployed person is classified by Statistics Canada as a person 15 years or over not currently working for pay but who has been actively looking for paid work in the past four weeks. Non-employed people who have given up looking for work because they do not think anything suitable is available are therefore not included in the official unemployment statistics. These are classified by Statistics Canada as “discouraged workers.”

The Glace Bay GPI question on inability to find work is considerably broader than the Statistics Canada definition of discouraged workers, since our goal was to assess the total proportion of non-employed Glace Bay residents who would work for pay if paid work were available. Thus, the question was asked in such a way as to assess whether respondents felt optimistic or pessimistic about finding such work, and (unlike the Statistics Canada classification) it is also directed at residents who are not currently classified as being in the labour force. In other words, it might include those students, homemakers, and retirees who want to work but do not think they can find work.

Thus, the question as asked in the GPI Glace Bay survey seeks to capture the potential work force and hidden production capacity that exists in Glace Bay. Another way of framing this is to say that the numbers in Figure 19 below are a partial measure of the potential value that could be added to the Glace Bay, Cape Breton, and Nova Scotia economies if sufficient job opportunities existed in the town to provide work to all Glace Bay residents who want it.

This is not simply a hypothetical situation: Alberta, for example, has the lowest high school graduation rates in the country because so many teenagers are able to find lucrative work at young ages. Many such teenagers were not classified as being in the labour force or as having ever looked for work, but their dropping out of school to take paid work clearly classifies them part of the population wishing to

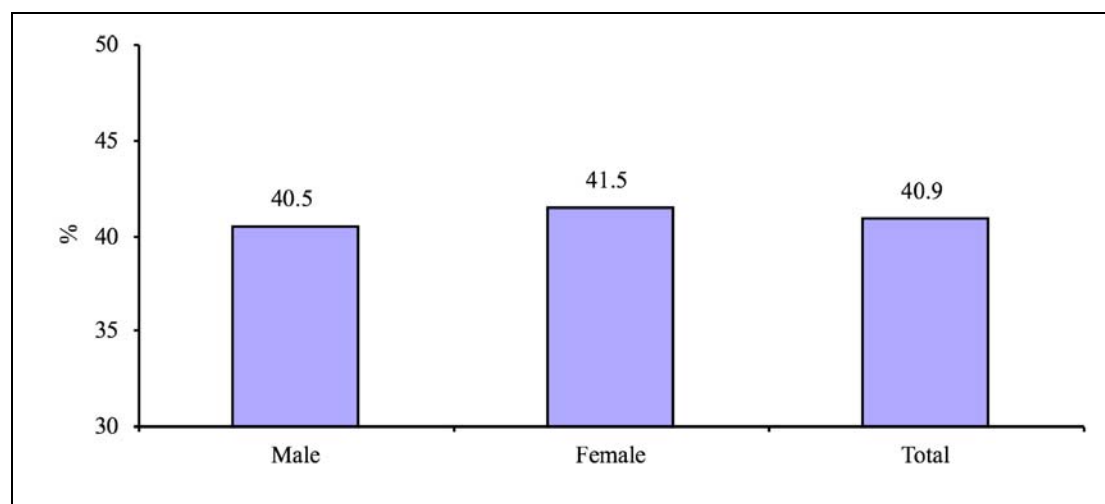
work if work becomes available. In other words, the “potential” work force of any jurisdiction is much larger than indicated by the conventional labour force participation rate.

While there is considerable value in this assessment, it must be noted that the results below cannot be compared to Statistics Canada estimates for discouraged workers—10.2% in Canada and 14% in Nova Scotia in 2001—which are clearly much lower based since on the narrower Statistics Canada definition. Yet, it is reasonable to consider Glace Bay residents who want work, but hold out little or no hope that they will find any, as “discouraged.”

While efforts have been made, to the extent possible, to strive for comparability between the Glace Bay results and analogous data in Cape Breton, Nova Scotia, and Canada in the phrasing of many questions in the GPI Glace Bay survey, that is not the only function of this GPI survey. On the contrary, the survey provided an opportunity to go beyond existing survey tools to collect important information on health, livelihood security, safety, voluntary work, ecological behaviour, and other key determinants of wellbeing that is not available from conventional sources. This question is an example of one such effort—in this case to assess the potential size of the Glace Bay work force if work were available for all who want it.

Thus, Figure 19 below indicates that about 41% of non-employed Glace Bay residents (male and female) wanted paid work in 2002, but did not have it at the time of the survey, and were pessimistic about their chances of finding a job in the next six months.

Figure 19. Percent of non-employed Glace Bay residents who wanted paid work but felt it somewhat or very unlikely they would find it in the next six months, by gender, 2002



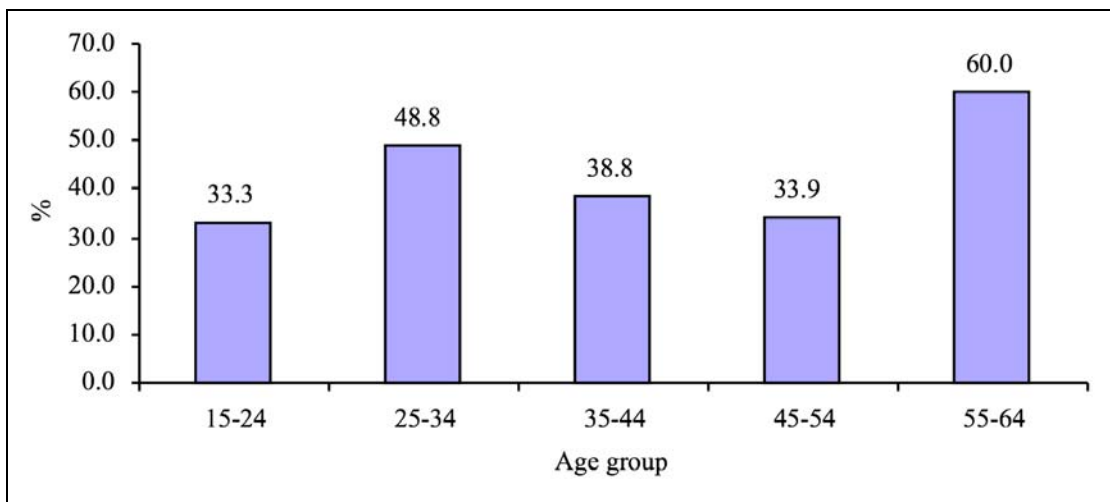
Non-employed Glace Bay residents aged 55–64 and wanting jobs were substantially more pessimistic than younger persons about the chances of finding work. Indeed, 60% of 55–64 year olds wanting work thought it unlikely they’d find it in the next six months, compared to about one-third of 15–24 year olds and 45–54 year olds, and 39% of those aged 35–44 (Figure 20 below).

Interestingly, nearly half of those wanting paid work in the 25–34 age group thought it unlikely they’d find any in the next six months. Further investigation is required to find out why 25–34 year-old Glace Bay residents were so much more pessimistic about finding work than those who were younger and those in their 40s and 50s.

If discouraged and underemployed workers, including those who wanted to work but did not think any work was or would be available, were added to the official unemployment statistics, the 2002 unemployment rate in Glace Bay would be significantly higher than the 26.4% figure indicated in Figure 14 above.

Again, it would be very valuable to do follow-up survey work to assess whether the more recent location of telemarketing operations in Glace Bay has made non-employed Glace Bay residents who want work more optimistic about finding it. In particular, it would be valuable to find out which age groups have been most positively affected by the new developments.

Figure 20. Percent of non-employed Glace Bay residents who wanted paid work but felt it unlikely they would find it in the next six months, by age, 2002



Long-Term Unemployment

Percentage of unemployed workers who had been unemployed for 25 weeks or longer at the time of the survey.

Some forms of short-term unemployment do not necessarily connote livelihood insecurity, especially for skilled and highly educated workers, and in cases where there is a high likelihood for re-employment. However, long-term unemployment has been particularly associated with livelihood insecurity, poverty, stress, poor health, and a range of social problems.

According to Williams and Windebank: “Long average spells of unemployment tend to imply greater economic costs and social costs than shorter spells.” These costs include the depreciation of skills and loss of confidence, leading to the eventual withdrawal and “exclusion” from the labour force.¹⁶ Studies have also indicated that those who experience longer spells of unemployment are at greater risk of illness and even death.¹⁷

In one of the most dramatic findings of the entire Glace Bay GPI survey, 62% of unemployed Glace Bay residents had been out of work for 25 weeks or longer in the twelve months prior to the 2002 Glace Bay GPI survey. Males were slightly more likely than females to report long-term unemployment (63% vs. 61%), but the difference was small (Figure 21 below).

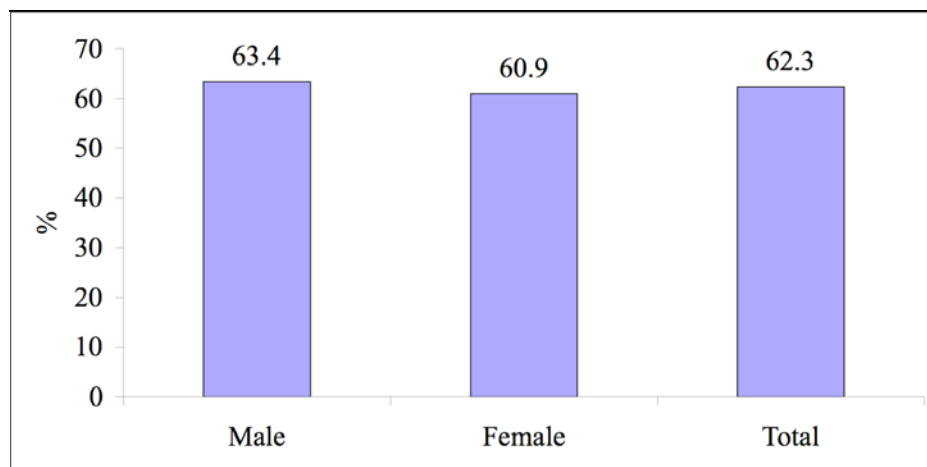
These numbers for 25+ weeks are not comparable to national and provincial statistics on long-term unemployment, which is defined by Statistics Canada as the proportion of the labour force aged 15 and older who did not have a job any time during the current or previous year. In 2001, 9% of unemployed Canadians and 8.6% of unemployed Nova Scotians had been jobless for a year or more, compared to 28.3% of the unemployed in Glace Bay (2002). It seems, therefore, that long-term unemployment was more than three times as prevalent in Glace Bay in 2002 as in the rest of Canada and Nova Scotia.

As noted above, however, these comparisons must be interpreted with a great deal of caution, since we saw that Statistics Canada’s Labour Force Survey, which is used to calculate long-term unemployment rates, phrases its questions on the subject in terms of job search rather than being out of work. Thus, the GPI Glace Bay survey asked: “If you have been unemployed in the last twelve months, how many weeks, in total, during the last twelve months, have been unemployed?” By contrast, the Labour Force Survey asks: “As of last week, how many weeks had [the respondent] been looking for work since the date last worked?” Again, questions asked in terms of job search will likely yield much smaller numbers than those asked in terms of being out of work.

Considerable further investigation is again required to assess the degree to which some of the long-term unemployed had given up searching for work due to its lack of availability, and who might therefore have been missed in Statistics Canada’s assessments of long-term unemployment based on job search criteria alone. Indeed, such discouragement is arguably much more likely among the long-term unemployed than those experiencing shorter spells of unemployment. Here we therefore raise the possibility that the 62% of unemployed Glace Bay residents who had been out of work for at least 25 weeks, and the 28.3% who had been out of work for at least a year, according to the GPI Glace Bay survey, may well represent a reasonable description of respondents’ actual status, since they responded directly to a question on being unemployed, rather than this rate being calculated *ex post facto* based on job search responses.

Certainly the fact that as many as 62% of unemployed Glace Bay residents had been unemployed for at least 25 weeks and that 28% had been unemployed for a year or more, at least as assessed in the GPI Glace Bay survey, is vitally important community-level information for policy makers, economic development agencies, job counsellors, and health authorities. Such key local data on the unique characteristics of a community like Glace Bay are not available from conventional sources and existing national labour force survey data.

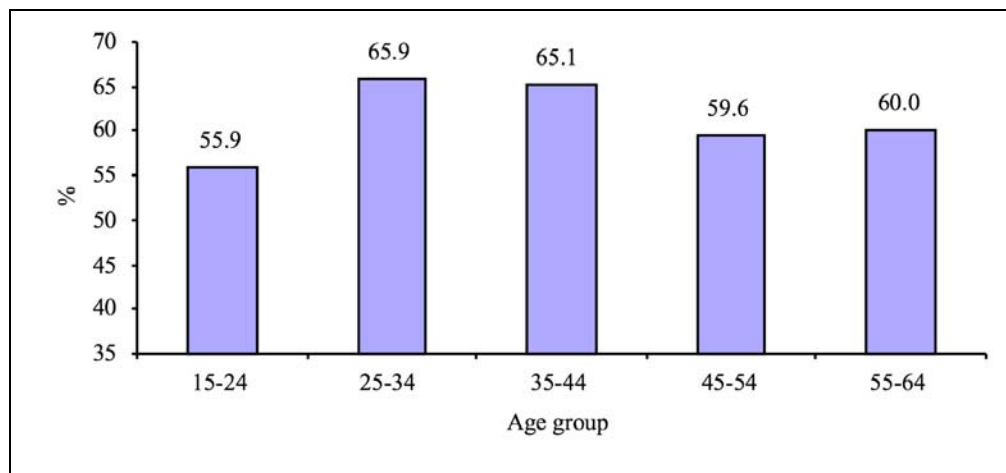
Figure 21. Long-term unemployment (%), Glace Bay, by gender, 2002



Nearly two-thirds of unemployed Glace Bay residents between 25 and 44 years of age had been out of work for the 25 or more weeks in the twelve months prior to the Glace Bay GPI survey, compared to 60% of those 45 and older, and 56% of those aged 15–24 (Figure 22 below).

Again, the value of such socio-demographic breakdowns, which are made possible with a high degree of statistical validity by the large sample size of the Glace Bay GPI survey (1,700 residents), is that they can help policy planners and economic development agencies target particular job creation, counselling, and training programs to the most affected demographic segments—in this case, younger Glace Bay adults, aged 25–44.

Figure 22. Long-term unemployment (%), Glace Bay, by age, 2002



Employee Benefits

Percentage of employed workers covered by specified employee benefits at the time of the survey.

Employee fringe benefits—such as paid vacations, sick leave, and employer-subsidized pension, health, and dental benefits—can greatly improve livelihood security and thereby positively impact quality of life.

A small majority of employed Glace Bay workers reported pension benefits (55%), health benefits (59%), dental benefits (52%), and paid sick leave (59%). Nearly three-quarters (74%) had paid vacation. However, this leaves a significant portion of Glace Bay workers (more than 40%) without the security (and personally carrying the additional expense) of pension, health and dental benefits, or sick leave, and it leaves more than a quarter of Glace Bay workers without paid vacation (Figure 23 below).

Figure 23. Percent of workers with benefits, Glace Bay, 2002

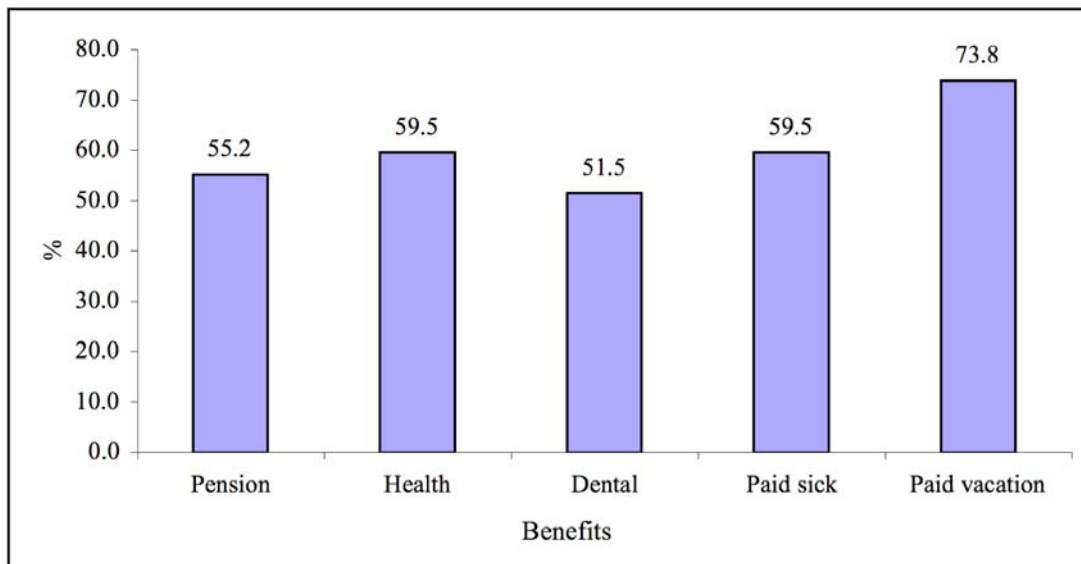


Figure 24 below shows that part-time and temporary jobs are much less likely to carry fringe benefits than full-time jobs. Thus, full-time workers in Glace Bay were nearly twice as likely as part-time workers to have paid vacations, more than twice as likely to have pension benefits, about three times as likely to receive health benefits and paid sick leave, and more than four times as likely to have dental benefits.

A large majority of part-time workers in Glace Bay have no benefits of any kind. Fully six out of ten of part-time workers get no paid vacation, more than seven out of ten get no employer-subsidized pensions, about eight out of ten get no health benefits or paid sick leave, and only a tiny fraction (one in eight) get any dental benefits as part of their jobs (Figure 24 below).

According to Statistics Canada's Survey of Labour and Income Dynamics, 17% of part-time workers in Canada in 2000 received insurance benefits (extended medical, dental, and life / disability insurance); 22% received retirement benefits; and just 3% were entitled to stock options or profit sharing.¹⁸ In other words, part-time workers, both in Glace Bay and nationally, have substantially greater livelihood insecurity as far as benefits are concerned than full-time workers.

Figure 25 below shows that receipt of benefits is clearly and sharply related to household income, with a clear and dramatic gradient apparent for each type of benefit. Employed respondents in lower income households were substantially less likely to report benefits of all kinds than higher income households. In effect, this means that those respondents who were least able to afford the costs that are covered by benefits were the least likely to be covered.

Glace Bay workers with annual household incomes of \$70,000 or more were about ten to twenty-six times more likely to receive benefits than workers with incomes under \$20,000, and three to six times more likely to receive them than workers with incomes between \$20,000 and \$35,000. About 60% of workers with household incomes of \$70,000 or more received paid vacations, and pension, health, and paid sick leave benefits, compared to about 33–40% of workers with household incomes of \$50,000 to \$70,000, 11–20% of workers with incomes of \$20,000–\$35,000, and only 3–6% of workers with incomes of less than \$20,000.

Figure 24. Percent of full-time and part-time workers with benefits, Glace Bay, 2002

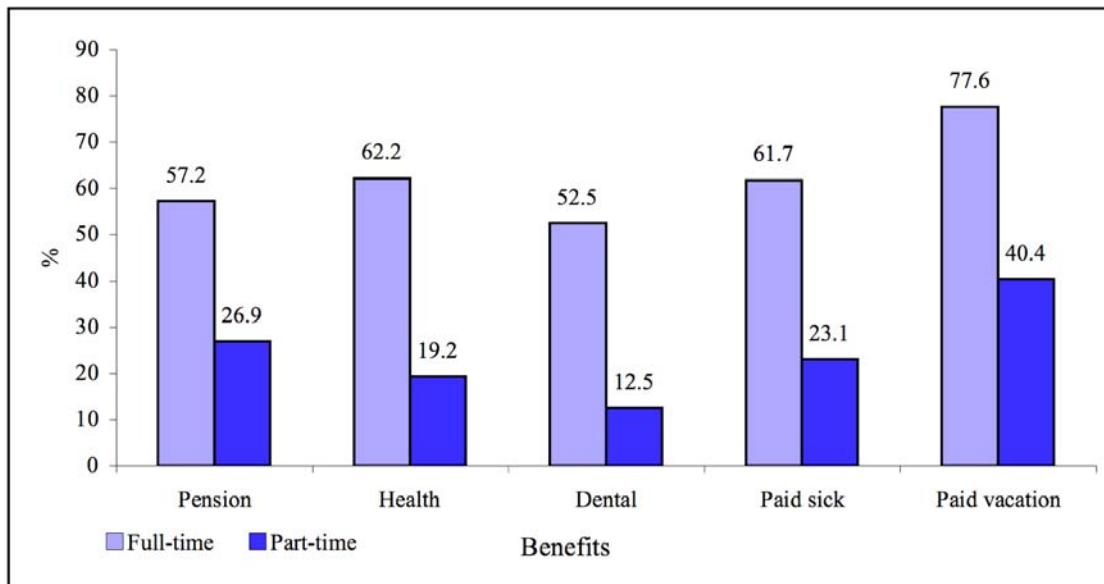
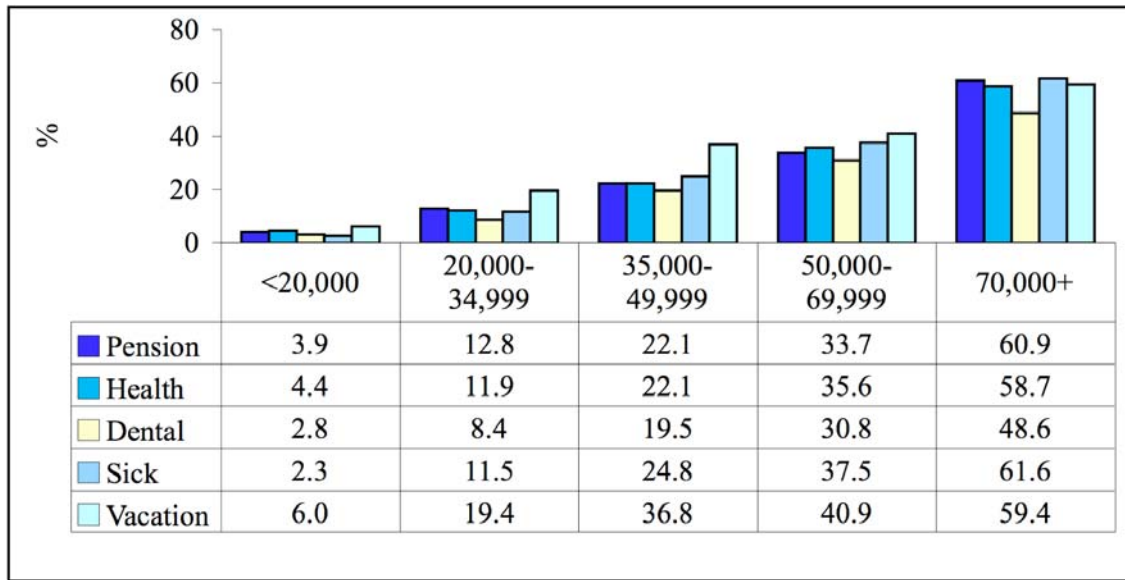


Figure 25. Income level and likelihood of receiving benefits (%), Glace Bay, 2002



Multiple Job Holdings

Percentage of employed workers who had more than one job at the time of the survey.

Holding more than one job (moonlighting) is often associated with long work hours, and sometimes with inadequate income from the main job. In some cases, particularly for youth, two or more short-hour jobs often add up to one full-time job.¹⁹ According to American analyst Barbara Ehrenreich: “In the new version of the law of supply and demand, jobs are so cheap—as measured by the pay—that a worker is encouraged to take on as many of them as she possibly can.”²⁰

In Canada, there is evidence that some people take on a second job for security reasons, particularly when their first job is temporary, or if they are self-employed and uncertain of making ends meet. According to one Statistics Canada analysis: “Companies are increasingly hiring and shedding workers as demand for their goods and services fluctuates. In response, more people are arming themselves with several jobs in the event that one disappears.”²¹

However, Figure 26 below indicates that multiple job holding is not a major issue in Glace Bay, and that multiple job holding rates in Glace Bay are comparable to those in Canada. Thus, only one in twenty Glace Bay workers held more than one job, compared to 4.4% of workers in Nova Scotia and 4.7% in Canada.²² The rate of multiple job holding was 75% higher among female workers (6.3%) than among male workers (3.6%) largely because women have a higher rate of part-time work (see Figure 26 below).

Not surprisingly, moonlighting and high levels of unemployment do not mix. According to Statistics Canada: “In provinces where even one job can be hard to find, it should not be surprising that second jobs are also scarce.”²³ In comparison to provinces with lower unemployment rates, therefore, moonlighting rates in Nova Scotia are somewhat below the national average. Similarly, moonlighting

rates also tend to be lower in those parts of the province where unemployment rates are higher, though this expected difference is not seen in Glace Bay.

Not surprisingly as well, Figure 27 below shows that the rate of multiple job holding was about three times higher among part-time workers in Glace Bay (10.8%) than among full-time workers (3.7%), and it was also considerably higher among casual workers.

It is likely that the overall low rates of multiple job holding in Glace Bay are due to the overall greater scarcity of job opportunities in Glace Bay. The same reason likely explains the relatively modest level of interest among Glace Bay workers in work reduction opportunities, as seen in the next section (below).

Figure 26. Percent of workers holding more than one job, Glace Bay, 2002

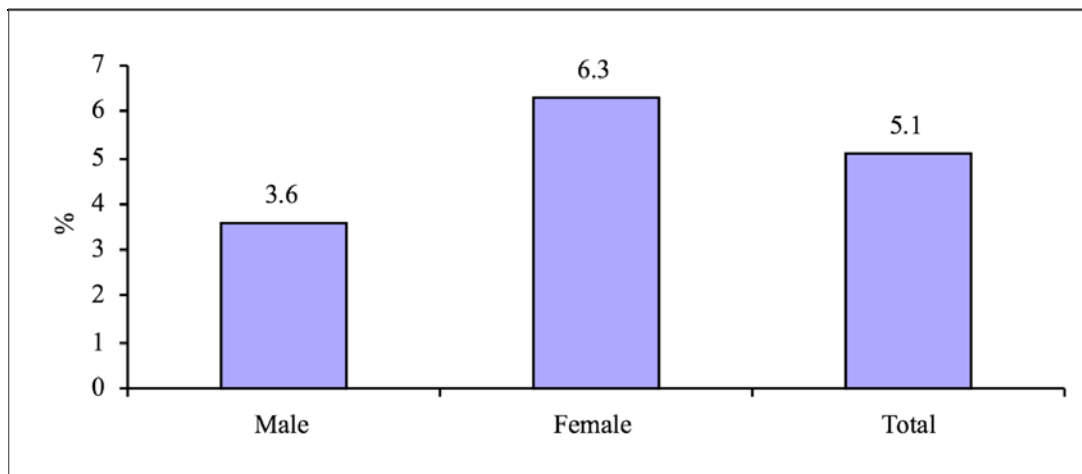
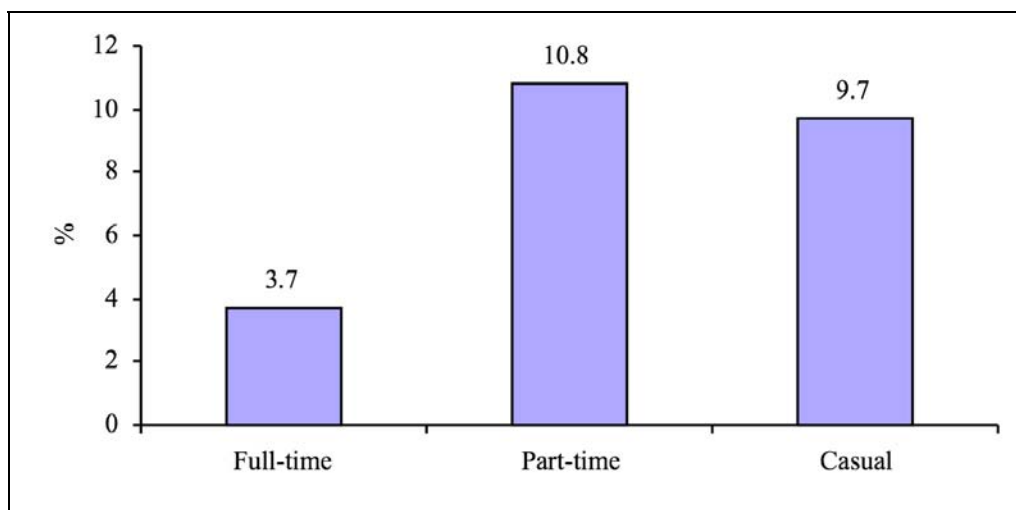


Figure 27. Percent of full-time, part-time, and casual workers holding more than one job, Glace Bay, 2002



Work Reduction

Percentage of employed workers who would trade income for reduced hours.

Working long hours has been associated with stress and poor health outcomes. For example, a Statistics Canada study found that women moving to longer work hours were four times more likely to smoke than women working shorter hours, twice as likely to drink more, 1.8 times more likely to experience an unhealthy weight gain, 40% more likely to decrease their physical activity, and more than twice as likely to suffer bouts of major depression.²⁴ In fact a Japanese study found that those working long hours and those unable to get the hours they need to make ends meet were at equal risk of heart attack.²⁵

Because wellbeing can be compromised by overwork stress as well as by the stress of unemployment and work hours that are inadequate to make ends meet, it is important to assess the percentage of employed workers willing to trade some income for shorter work hours.

That there might potentially be some openness to work hours reductions among those Glace Bay employees stressed by long working hours is indicated by the finding in the previous chapter that three-quarters of Glace Bay residents would be more satisfied with their lives if they were less stressed—considerably more than identified more money or possessions as sources of greater life satisfaction. So a potential time–income trade-off may well address that broader life satisfaction issue.

In fact, it is worth noting here that the entire purpose of a Genuine Progress Index is not simply to list results and provide data sets in discrete bundles, but rather to point to the linkages between these data sets that demonstrate the inter-related nature of reality in all its social, economic, and environmental dimensions.

From that perspective, the potential time–income trade off is also particularly important to explore in light of strong evidence that a reduction in work hours by employees working long hours can free up hours and create new job opportunities for those out of work. Such a redistribution of work hours can therefore potentially reduce unemployment.

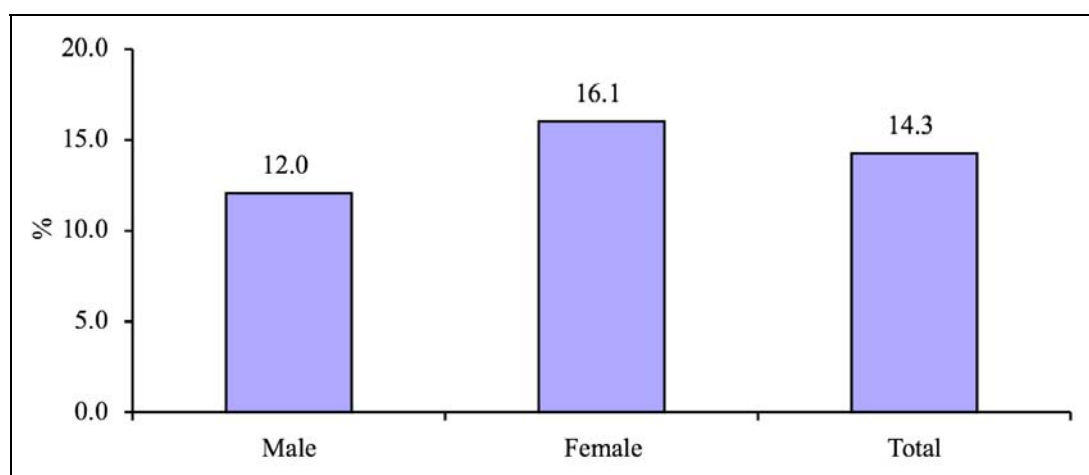
In sum, the question of work reduction is not simply a way of increasing free time and improving quality of life for stressed and overworked employees, and helping them to achieve better work-life balance. Rather, it is also potentially the other side of the unemployment challenge, and carries the possibility of making a dent in the high unemployment levels that have plagued Glace Bay in the last two decades.

To give one concrete example of this connection: the Netherlands effectively reduced its high unemployment rates of the early 1980s (more than 12%) in large part through efforts in the late 1980s and early 1990s to reduce and redistribute working hours. This was achieved voluntarily, in large part by labour practices and legislation that made part-time work more attractive, carrying equal hourly pay, pro-rated benefits, and equal opportunities for career advancement. By 2001, the Netherlands had the shortest average work hours and the highest rate of part-time work of any industrialized country, and had reduced its unemployment rate to less than 3% of the work force.

In short, work reduction options and time–income trade-offs are innovative potential ways of grappling with Glace Bay’s high unemployment rate that have not yet been properly explored either in Cape Breton or provincially and nationally. By raising the issue and the possibility in this Glace Bay Community Profile, Glace Bay and Cape Breton altogether could become models of such innovative approaches to employment creation that have been tried, tested, and proven in Europe, and that may have considerable applicability to North American conditions and circumstances.

For all these reasons, the work reduction question was included in this GPI Glace Bay survey. The results shows that about one in seven Glace Bay workers would indeed be willing to trade off all or part of a future pay increase for reduced work hours. That proportion alone would potentially be sufficient to create many new jobs for currently unemployed Glace Bay residents seeking work. Willingness to trade a pay increase for shorter work hours was slightly higher among Glace Bay females than males (Figure 28 below).

Figure 28. Percent of workers willing to trade all or part of a future pay increase for shorter work hours, Glace Bay, 2002



Again, it is important to emphasize that this discussion is not purely theoretical and that the GPI survey questions on work reduction are based on actual working models, mostly from Europe. The GPI Glace Bay survey included ten questions on this issue, of which results for only two are included here by way of illustration.

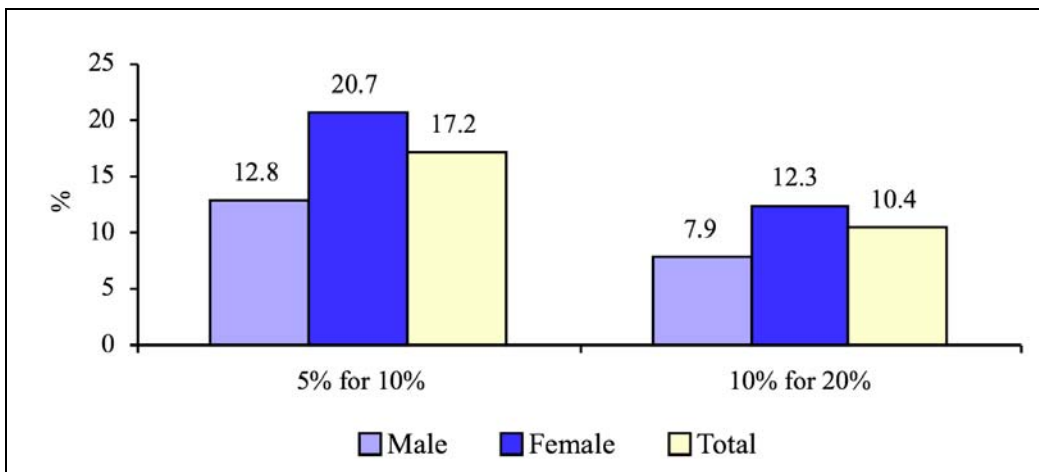
The second set of results reported here is based on a 1985 Belgian government initiative, in which it offered civil servants the option of taking a 20% reduction in work hours (the equivalent of one full day of work per week), in exchange for a 10% pay cut, without loss of job security, seniority, or opportunity for promotion.²⁶

Support for this type of income–time trade-off rose somewhat among female workers in Glace Bay when presented with the specific option of a 5% reduction in pay in exchange for a 10% decrease in working hours. One in five female workers in Glace Bay reported support for this option, though only

one in eight male workers was interested—about the same proportion as was interested in trading all or part of a future pay increase for shorter work hours.

Fewer Glace Bay workers (about one in ten) were interested in a 20% reduction in work-time in exchange for a 10% reduction in pay. One in eight female workers and one in 13 male workers in Glace Bay would opt for this trade-off (Figure 29 below).

Figure 29. Percent of workers willing to trade a pay reduction for a decrease in work hours, Glace Bay, 2002



It is important to note that both the Belgian and Dutch work reduction models noted above were offered to workers on a purely voluntary basis, so that no worker who wished to maintain existing hours was compelled to reduce hours or take a pay cut. In collaboration with particular employers, such voluntary work reduction options could be offered to Glace Bay workers on an experimental basis as a strategy for freeing up additional work hours and thus making more job opportunities available to presently unemployed Glace Bay residents. Further investigation of results for all ten questions in the work reduction section of the Glace Bay GPI survey should be undertaken if economic development planners, municipal councillors, and other authorities are interested in experimenting with work reduction options as potential job creation strategies in Glace Bay and Cape Breton.

Chapter 4. Health

Selected Indicators:	Health Status:	Self-Reported Health Status Pain and Discomfort Chronic Disease Prevalence Activity Limitations
	Risk Behaviours:	Smoking Obesity Sedentary Lifestyle Leisure-Time Physical Activities
	Mental Health:	Cognitive Ability Emotional Distress Depressed Mood Childhood Risk Factors Life Stress, Time Stress, and Job Stress Decision Control
	Child Health:	Child Happiness Child Health Status Child Chronic Conditions Child Cognitive Functioning
	Prevention:	Mammogram Testing Blood Pressure Monitoring Pap Smears Breast Examinations by a Health Professional

4.1 Health Status

Self-Reported Health Status

The percentage of respondents who report that their health status is excellent, very good, good, fair, or poor.

Self-rated health has been found to be a reliable predictor of health problems, health care utilization, and longevity.²⁷

Fewer than half of Glace Bay residents (47%)—compared to 56.2% in Cape Breton as a whole, 58.1% in Nova Scotia, and 58.4% in Canada—rated their health as very good or excellent. One in five Glace Bay respondents—compared to 14.6% in Cape Breton as a whole, 13.8% in Nova Scotia, and 11.3% in Canada—reported that their health status was only fair or poor. In other words, Glace Bay residents appear to have considerably lower rates of self-rated health than other Canadians.²⁸

Further investigation is required to assess the reasons for this disparity, including the degree to which it may be a function of an older age profile in Glace Bay (see below), and the degree to which it may reflect the average age of the survey sample. It is important to note that the national and provincial results from the Canadian Community Health Survey (CCHS) are for the population 12 and older, while the Glace Bay GPI survey was administered to residents 15 and older. Younger people are more likely to register better health, so a younger survey sample will produce higher rates of excellent and very good self-rated health.

Thus, it should be noted that seniors were somewhat over-represented in the GPI survey sample. According to the 2001 Census, a considerably higher proportion of the Glace Bay population (17.5%) is 65 and older than in Nova Scotia as a whole (13.9%) and Canada (13%).²⁹ In the 2002 Glace Bay GPI sample, however, 19.7% of respondents were 65 and older. Time and resources did not permit systematic age adjustment of all survey data, but it should be noted here that the over-representation of seniors in the sample (by 12.6%) will affect the results presented here and below. Future data analysis should apply weights that adjust the survey counts and proportions within each age category to the corresponding census age counts and ratios. Our preliminary analysis indicates that, while such weighting will modify some of the raw results presented here, it cannot explain the entire disparity between the Glace Bay results and those for Nova Scotia and Canada.

Females in Glace Bay generally reported better health than males, with about 50% of women—compared to 60.2% in Nova Scotia and 58.8% in Canada—and 44% of men—compared to 56% in Nova Scotia and 59.5% in Canada—reporting excellent and very good health.³⁰

Table 5. Percent reporting their health as excellent, very good, good, fair, or poor, Glace Bay, 2002

Self-reported health status	Male (%)	Female (%)	Total (%)
Excellent	12.9	13.8	13.4
Very good	31.5	35.8	34.0
Good	35.0	31.3	32.9
Fair	16.6	15.0	15.7
Poor	4.0	4.0	4.0

Not surprisingly, self-reported health status declined with age, with the proportion of Glace Bay residents rating their health as good, fair, or poor surpassing the proportion rating their health as very good or excellent after age 45. Thus, a majority of those in the 45–54 age group (56%), nearly two-thirds of those aged 55–64 (65%), and nearly 70% of those 65 and older rated their health as good, fair, or poor, rather than as very good or excellent.

In fact, seniors (65+) were more than twice as likely to rate their health as good, fair, or poor as they were to rate it very good or excellent, while youth (15–24) were 2.5 times as likely to rate their health as very good or excellent as they were to rate it good, fair, or poor (see Figure 30 below).

However, what is disturbing in these numbers is that Glace Bay residents *within* each particular age category tend to assess their own health more poorly than other Canadians. This confirms the finding above that self-rated health is generally poorer in Glace Bay than nationally.

For example, only 31.5% of Glace Bay seniors rank their health as very good or excellent compared to 36.7% of Canadian seniors, while 68.5% of Glace Bay seniors rate their health only as good, fair, or poor, compared to 63.2% of Canadian seniors.³¹

Even in middle age, Glace Bay residents tend to rate their health more poorly than other Canadians. Thus, only 56.7% of 35–44 year-olds in Glace Bay rate their health as very good or excellent, compared to 63.6% of Canadians in that age group, while 43.3% of 35–44 year-olds in Glace Bay rate their health only as good, fair, or poor, compared to just 36.3% of Canadians in that age group.

But the greatest disparities are in the 45–64 age group. Among Glace Bay residents aged 45–54, only 44% rate their health as very good or excellent, compared to 56.4% of Canadians in that age group, while 56% of 45–54 year-old Glace Bay residents rate their health only as good, fair, or poor, compared to just 43.4% of Canadians in that age group.

Among Glace Bay residents 55–64, only 35.5% rate their health as very good or excellent, compared to 49.1% of Canadians in that age group, while 64.5% of 55–64 year-old Glace Bay residents rate their health only as good, fair, or poor, compared to just 50.8% of Canadian in that age group. This nearly 14 percentage point difference is the widest in any age group.

Comparable numbers are not available from published sources for youth aged 15–24, since Statistics Canada reports its self-rated health results for Canada separately for 15–19 year-olds and for 20–24 year-olds. However, comparable numbers are published for young adults (25–34). In that age group,

64.8% of Glace Bay young adults rank their health as very good or excellent, compared to 69.6% of Canadian young adults, while 35.2% in Glace Bay rate their health as good, fair, or poor, compared to just 30.4% in Canada.

In particular, it is noteworthy that there is a gradually widening disparity in self-rated health by age between the Glace Bay and Canadian results—from a 5 percentage point gap for 25–34 year-olds to 7 percentage points for 35–44 year-olds to 12 percentage points for 45–54 year-olds to 14 percentage points for 55–64 year-olds. The only exception is among seniors, where the Glace Bay–Canadian gap is just 5 percentage points.

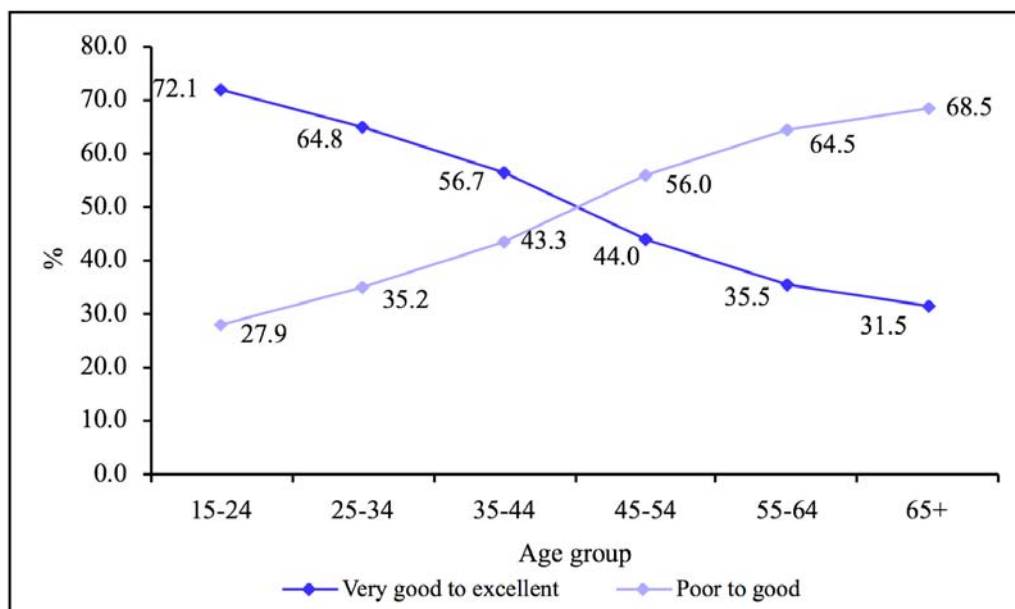
What this may indicate is that the health of Glace Bay residents is declining more rapidly with age than nationwide, and that particular emphasis may need to be placed on the determinants of what is sometimes called “successful aging.” Behavioural factors like good nutrition, regular exercise, and quitting smoking are known determinants of successful aging.

If self-rated health is indeed a reliable predictor of actual health status, as numerous studies have confirmed, then these results are troubling. In particular, it appears that, *relatively* speaking (i.e., by comparison with Canada-wide results), the unhealthiest segment of the Glace Bay population is older adults, aged 45–64. Again, from a *relative* standpoint and by comparison with Canadian results, 45–64 year-old Glace Bay residents are unhealthier than seniors (aged 65+) whose self-rated health profile is closer to the Canadian average. This is important information for health promotion professionals, who may wish to target appropriate programs to that 45–64 year-old segment of the population.

In general, the age-related comparisons also demonstrate clearly that the age of Glace Bay’s population alone cannot explain the disparity between the Glace Bay and national results for self-reported health. Other factors, including risk conditions and behaviours must clearly be considered. Since self-rated health has been shown to be a reliable predictor of health problems and premature death, as noted above, this disparity clearly requires urgent attention in any strategy to improve the health and wellbeing of Glace Bay residents.

As well, since self-rated health also predicts health care utilization, which is an economic burden to taxpayers, the disparity noted above also requires attention for economic reasons. Conversely, dedicated health promotion efforts in Glace Bay may be considered a highly cost-effective investment that will reduce the demand for health care services.

Figure 30. Self-reported health (%), by age, Glace Bay, 2002

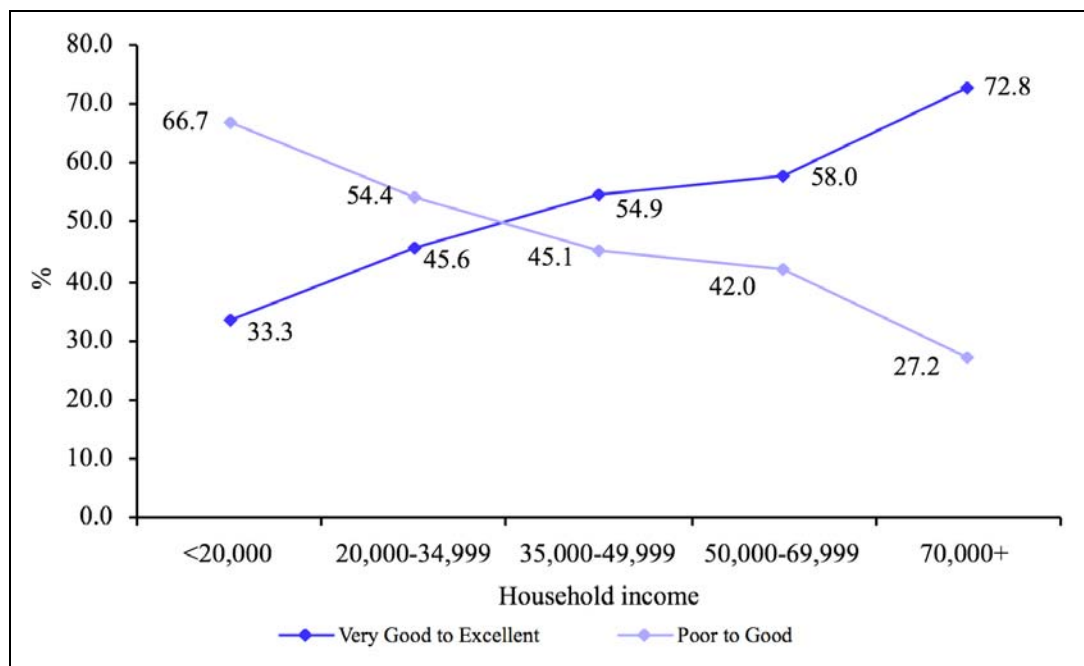


The Glace Bay GPI results also demonstrate that self-reported health status has a very strong relationship with household income, confirming abundant other evidence that poverty is the most reliable predictor of poor health—more so, in fact, than a wide range of medical determinants like blood pressure, cholesterol, or other factors.

A wide range of studies has found that low-income Canadians are more likely to have poor health status and to die earlier than other Canadians.³² For example, Canadians in the lowest income households are four times more likely to report fair or poor health than those in the highest income households, and they are twice as likely to have a long-term activity limitation.³³

Confirming those national data, Figure 31 below demonstrates that the percentage of Glace Bay residents reporting their health as very good or excellent rose in a clear gradient across each household income category. Only a third of respondents with household incomes under \$20,000 a year, and fewer than half (46%) with incomes between \$20,000 and \$35,000 rated their health as very good or excellent, compared to 73% of respondents with household incomes of \$70,000 or more (Figure 31 below).

Figure 31. Self-reported health (%), by household income, Glace Bay, 2002



Pain and Discomfort

The percentage of respondents reporting that they are usually free of pain or discomfort.

Wellbeing and quality of life may be seriously compromised by chronic and high levels of physical pain and discomfort. Such pain and discomfort may also potentially restrict physical activity, which, in turn, may further compromise health.

Sixty-four percent of Glace Bay residents reported that they were usually free of pain and discomfort, with rates among men and women almost identical (Table 6 below). While these results are not fully comparable to national and provincial statistics, due to differences in survey questions, methods, respondent ages, and other factors, it is noteworthy that in the 2003 CCHS, fully 83.2% of Nova Scotians reported having “no pain or discomfort”³⁴—a considerably higher proportion than the 64% in Glace Bay who report themselves as “usually free of pain or discomfort.”

Though the comparison must be treated with caution, the authors of this study do feel confident that the apparent disparity cannot be attributed entirely to methodological differences and that it does reflect at least some significant difference in the proportions of Glace Bay residents and other Canadians that experience pain and discomfort on a regular basis. The higher apparent prevalence of pain and discomfort in the Glace Bay population likely reflects the poorer health outcomes indicated by the self-rated health data above.

While there are reasonable grounds for concluding that more Glace Bay residents suffer from pain and discomfort than in the Canadian population at large, comparisons are not possible concerning the

severity of the pain discomfort experienced. That is because the question on severity was asked to all Canadian respondents in the CCHS, but only to those Glace Bay respondents who reported that they were not usually free from pain and discomfort.

Among those Glace Bay respondents who reported having pain or discomfort (36% of all respondents), almost 18% reported that their pain and discomfort was severe, 59% that it was moderate, and 24% that it was mild.

Once again, there was relatively little difference between the genders. It is notable, however, that, among those in Glace Bay usually experiencing pain and discomfort, males were significantly more likely than females to report that *most* of their activities were restricted by their pain and discomfort (29% vs. 18%).

Table 6. Percent reporting pain or discomfort, and activity restriction due to pain or discomfort, Glace Bay, 2002

Pain or discomfort	Male (%)	Female (%)	Total (%)
Usually free of pain/discomfort	64.4	63.6	64.0
Severity of pain/discomfort (among those reporting pain/discomfort):			
Mild	24.3	23.1	23.6
Moderate	57.1	59.6	58.6
Severe	18.5	17.3	17.8
Activities restricted by pain/discomfort (among those reporting pain/discomfort):			
None	19.2	20.8	20.1
Few	28.8	33.2	31.4
Some	23.5	28.5	26.4
Most	28.5	17.5	22.1

Not surprisingly, younger respondents in Glace Bay were the most likely to report that they were usually free from pain and discomfort, with 82% of those aged 15–24 usually pain-free. This proportion fell across age groups and reached its lowest level among respondents aged 45–64, of whom only 56% were usually free of pain and discomfort (Figure 32 below).

Surprisingly, two-thirds (66%) of Glace Bay seniors (65+) were usually pain-free—substantially more than in the 45–64 age group (56%) and the same level as persons in their late thirties and early forties. Further investigation will be required to assess the reasons for this surprising result.

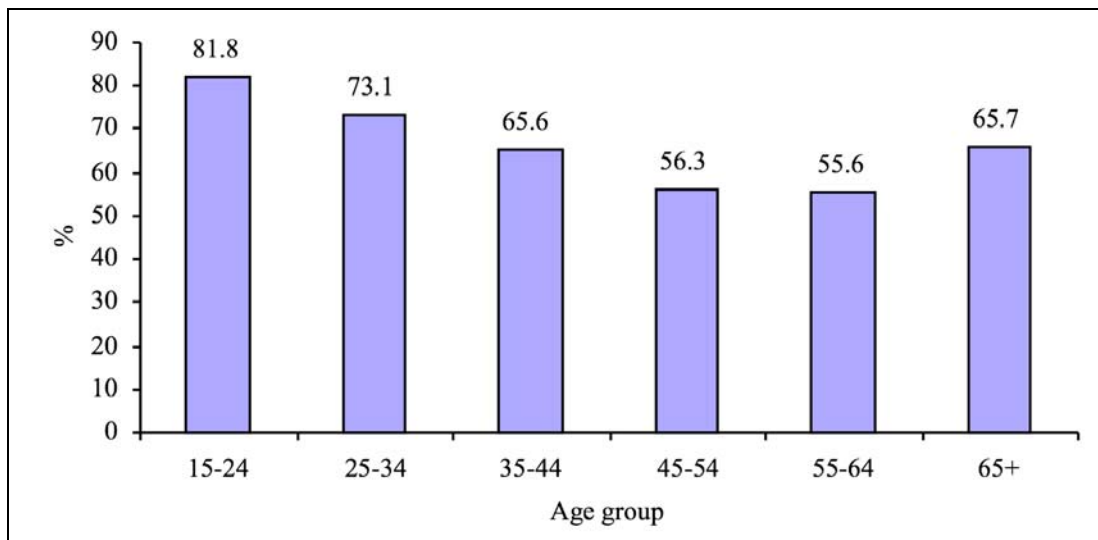
At the national level, 90% of 25–34 year-olds (vs. 73% in Glace Bay), 86% of 35–44 year-olds (66% in Glace Bay), 80% of 45–64 year-olds (56% in Glace Bay), and 75% of seniors (66% in Glace Bay) reported being free of pain and discomfort in the 2003 CCHS. Again, although results are not entirely comparable, the gap is too wide to be explained through methodological differences alone, and it must again be concluded that pain and discomfort are more prevalent at all age levels in Glace Bay than in the Canadian population at large.

When these age differences are examined and compared with the self-rated health results above, the phenomenon observed above in relation to seniors is easier to explain. First, even among Glace Bay seniors, pain and discomfort appear to be more prevalent than among Canadian seniors. Secondly, however, just as with the self-rated health results, the size of the Glace Bay–Canadian disparity is greatest in the 45–64 age group; and significantly larger than among seniors. Since we saw that the *gap* in self-rated health assessments between 45–64 year-olds in Glace Bay and 45–64 year-old Canadians was very much larger than it was among seniors, it is perhaps not so surprising to find particularly high levels of pain and discomfort in the 45–64 year-old age group.

Even allowing for some methodological differences that partially compromise accurate comparability between the Glace Bay and Canadian results, therefore, the pain and discomfort results do appear to confirm the self-rated health results reported above where comparability problems by age group are not an issue. In particular, the excessive levels of pain and discomfort among 45–64 year-old Glace Bay residents seem to point to a serious problem in “successful aging” in Glace Bay that might be effectively addressed through health promotion initiatives.

At the very least, these preliminary results indicate the necessity for further investigation that may lead to policy initiatives designed to improve the health of Glace Bay residents in general, to promote more successful aging, and to address risk conditions and behaviours that may compromise the health of Glace Bay residents as they enter their late 40s and 50s. Certainly, the results presented here point to evidence of a substantial unnecessary and avoidable burden of pain and suffering among many Glace Bay residents.

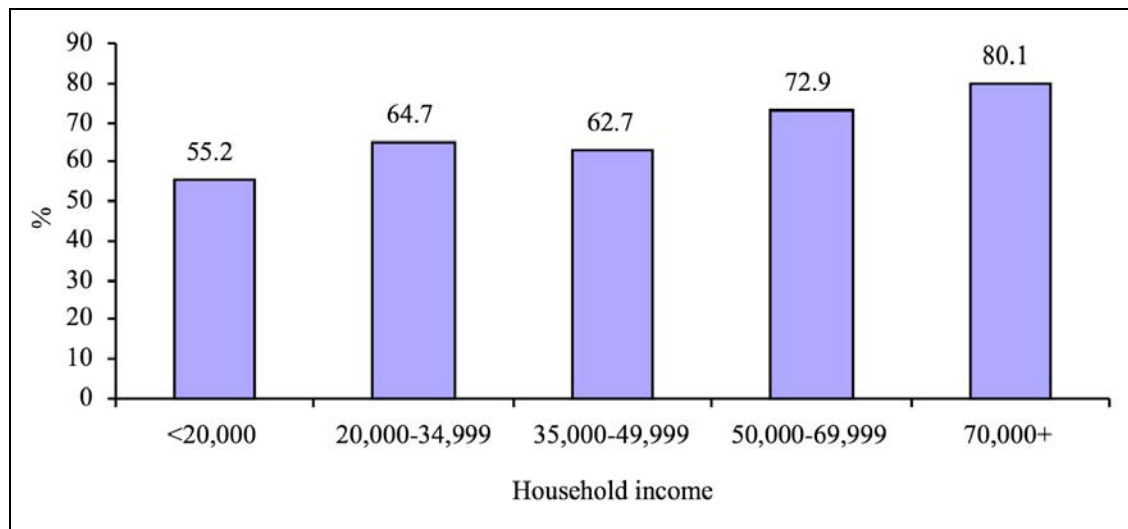
Figure 32. Percent reporting freedom from pain or discomfort, by age, Glace Bay, 2002



The experience of pain or discomfort among Glace Bay respondents was also strongly related to household income—providing further evidence of the well-established relation between income and health. Thus, higher income residents of Glace Bay were substantially more likely to be free from pain or discomfort than lower income residents. In particular, more than twice as many respondents with

household incomes under \$20,000 a year usually experience pain or discomfort than those with incomes of \$70,000 or more (45% vs. 20%; Figure 33 below).

Figure 33. Percent reporting freedom from pain or discomfort, by household income, Glace Bay, 2002



Chronic Disease Prevalence

The percentage of respondents reporting that they had been diagnosed with specific chronic diseases.

The disability, pain, and discomfort of chronic diseases can severely compromise wellbeing and quality of life over long periods of time. It has been estimated that 40% of chronic disease incidence is attributable to socioeconomic, behavioural, and lifestyle factors, and is therefore preventable. Epidemiological studies indicate that 25% of all medical costs are attributable to a small number of excess risk factors like smoking, obesity, physical inactivity, and poor nutrition.³⁵

A previous GPIAtlantic report, *The Cost of Chronic Disease in Nova Scotia (2002)*, estimated that seven categories of chronic disease cost Nova Scotia more than \$3 billion in direct health care costs and indirect productivity losses. The authors found that the province could save half a billion dollars a year in avoided health care costs (about one quarter of total annual costs) if all Nova Scotians had healthy weights, exercised regularly, and did not smoke.

The same report investigated the socioeconomic causes of chronic disease and estimated that the province could avoid 200 deaths and save \$214 million a year in avoided direct and indirect poverty-related heart disease costs if all Nova Scotians were as heart healthy as those with higher incomes.

The report further cited a Dalhousie University study by Kephart et al., which estimated excess physician costs attributable to income and educational inequality at 17.4% of total physician expenditures, or \$42.2 million per year, out of a total of \$242.4 million. Excess physician use associated with income inequality was estimated at 11.3% of all physician costs, or \$27.5 million annually. In other words, \$42.2 million is the estimated amount that would be saved in avoided physician services if all Nova Scotians were as healthy as those with university degrees and higher incomes.³⁶

In short, in addition to potential improvements in health and wellbeing, there is also an economic case for investments in health promotion that reduce the incidence of chronic disease. In addition to reducing taxpayer-funded health care costs, health promotion efforts can also improve labour productivity by reducing the incidence of premature death, disability, and sick days among employees. Such health promotion efforts must begin with a clear profile of the most prevalent chronic diseases in any community.

The Glace Bay GPI survey found that the most prevalent chronic diseases among Glace Bay residents were: high blood pressure (23%, compared to 23% in Cape Breton as a whole, 18% in Nova Scotia, and 14.4% in Canada³⁷) and arthritis / rheumatism (22%, compared to 29.4% in Cape Breton as a whole, 24.1% in Nova Scotia, and 16.8% in Canada.³⁸) As well, 19% of Glace Bay residents reported that they had back problems and 16% reported that they had allergies, both food and non-food related (Table 7 below).

It is also noteworthy that Glace Bay residents had markedly higher rates of diabetes (7.6%) than Nova Scotians (5.5%) and Canadians (4.6%). In Cape Breton as a whole, diabetes incidence was 8.2%. But Glace Bay residents had lower rates of asthma (5.6%) than other Cape Bretoners (9.4%), Nova Scotians (9.3%), and Canadians (8.4%).

The very high prevalence of high blood pressure in Glace Bay, compared to provincial and national averages, is particularly noteworthy, since this condition may lead to a wide range of other problems and is a major risk factor for cardiovascular diseases, particularly heart disease. High blood pressure is also linked to avoidable risk factors like obesity and physical inactivity.

The high rates of arthritis, rheumatism, and back problems in Glace Bay are also worthy of note, in light of evidence from the Canadian government's Economic Burden of Illness in Canada (EBIC) database (reported in GPIAtlantic's Cost of Chronic Disease) that musculoskeletal problems account for a higher proportion of disability costs than any other disease category.

Glace Bay's much higher than average incidence of diabetes is also a particular concern because diabetes is a serious, lifelong condition that can cause heart disease, kidney failure, and blindness, and often leads to disability and death. Because it leads to other serious illnesses, diabetes is under-reported on death certificates. Conventional estimates of mortality, disease specific disability, and health expenditures attributed to diabetes are therefore almost certainly underestimates, because of the convention of classifying illnesses by principal diagnosis.

According to Health Canada: "There were 5,447 deaths in 1996 for which diabetes was certified as the underlying cause. This ranks diabetes as the seventh leading cause of death in Canada. However, the

actual number of deaths for which diabetes was a contributing factor is probably five times this number.”³⁹

The U.S. Centers for Disease Control similarly report:

[D]iabetes contributes to a much larger proportion of mortality, since it is reported on only about half of the death certificates for persons who die with the disease and is listed as the underlying cause on only one-quarter of the certificates on which it appears. The most frequent causes of death among persons with diabetes are ischemic and other forms of heart disease, cerebrovascular disease, and other forms of atherosclerosis; renal disease, including nephritis / nephrosis and uremia; respiratory disease; and infection.⁴⁰

Diabetes is closely associated with obesity, with more than 50% of cases attributable to overweight.⁴¹ Given the epidemic increase in obesity, it is not surprising that the global population with diabetes has jumped nearly five-fold from 30 million in 1985 to 143 million in 1998. The average age of diabetics is getting younger, and the global incidence of the disease is expected to double to 300 million by the year 2025.⁴² Statistics Canada reports that Canadians with a body mass index greater than 30 are four times as likely to have diabetes.⁴³

A substantial portion of diabetes costs could be avoided through improved nutrition, physical activity, and weight reduction. One study found that the achievable reduction in the risk of non-insulin-dependent diabetes mellitus by favourably altering modifiable risk factors was 50–75% for obesity and 30–50% for physical activity.⁴⁴

However, chronic disease incidence can be reduced not only by lifestyle and behavioural interventions, but also by improving socioeconomic conditions. Thus, the Glace Bay GPI survey found a strong relationship between chronic disease prevalence and the incomes of Glace Bay residents, with a clear inverse gradient across almost all income categories.

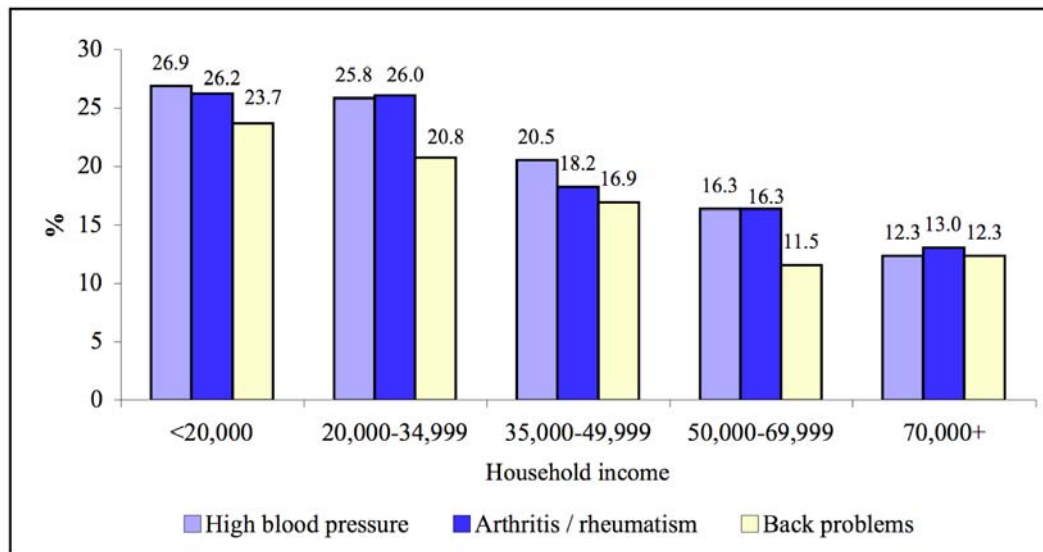
For all the most frequently reported chronic diseases (high blood pressure, arthritis / rheumatism, and back problems), for example, the lowest income respondents reported the highest prevalence, and rates tended to fall across income groups with the lowest rates reported by persons with household incomes of \$70,000 or more. In fact, rates for all these chronic illnesses among the highest income residents were less than half the rates among the lowest income residents (Figure 34 below).

These results indicate that poverty reduction may reduce chronic disease prevalence, and that poverty reduction interventions may be highly cost-effective in reducing health care costs and productivity losses.

Table 7. Prevalence of chronic diseases (%), Glace Bay, 2002

Chronic disease	%
High blood pressure	22.8
Arthritis / rheumatism	21.7
Back problems	19.1
Other allergies	12.4
Ulcers	9.0
Diabetes	7.6
Sinusitis	6.8
Migraine	6.7
Heart disease	6.4
Thyroid	6.4
Asthma	5.6
Bronchitis / emphysema	3.5
Cataracts	3.5
Food allergies	3.3
Bowel disorders	3.2
Incontinence	2.6
Cancer	2.4
Glaucoma	1.6
Other	11.8

Figure 34. Prevalence of high blood pressure, arthritis and rheumatism, and back problems, by household income, Glace Bay, 2002



Activity Limitations

Percentage of respondents who report that their activity is limited by a chronic physical or mental health problem.

Like the closely related pain and discomfort indicator above, activity limitations may potentially (and in many cases quite severely) compromise wellbeing and quality of life. Thus, Statistics Canada's 1991 Health and Activity Limitations Survey (HALS) and its subsequent 2001 Participation and Activity Limitation Survey (PALS) both found that activity limitations create major obstacles to full participation in Canadian society in many ways. For example, Canadians with disabilities are more likely to have dropped out of high school and to have lower incomes, and they are less likely to be in the labour force or to be employed.⁴⁵

PALS also found that Canadians aged 15–64 with disabilities were almost twice as likely to experience low income as others in that age range (26.6% vs. 13.9%), and that employment rates among the disabled were only 45.7% for youth, 51.2% for middle-aged workers, and 27.3% among older workers.⁴⁶ As well, the Disabled Women's Network Ontario (DAWN) reports that disabled girls suffer significantly high rates of sexual assault, physical and emotional abuse, and other forms of violence.⁴⁷

Despite finding lower rates of self-rated health, and higher rates of pain and discomfort and key chronic illnesses among Glace Bay residents, the Glace Bay GPI survey did not find unusually high rates of activity limitations among residents. In fact, the proportion of Glace Bay residents who reported that their activity was limited by a chronic physical or mental health problem (24%) was in line with the Canadian average (also 24%), and was considerably lower than in Nova Scotia (29.4%) and Cape Breton as a whole (32.3%).⁴⁸

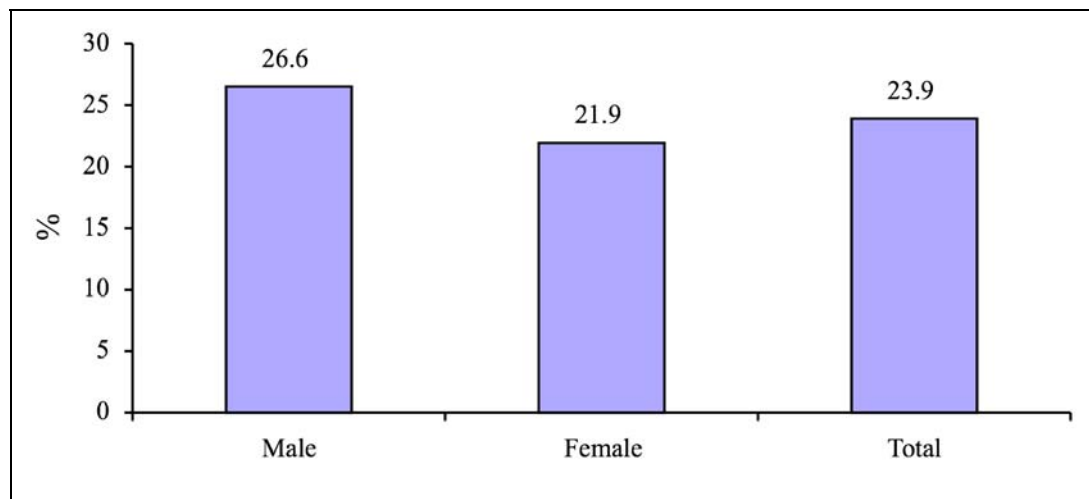
Surprisingly (in light of national data), the rate of activity limitation was higher among Glace Bay men (27%) than women (22%) (Figure 35 below). By contrast, the gender gap for this indicator at the national level was 26.7% for women and 21.8% for men.⁴⁹ Further investigation is required to explain this disparity, as well as the relatively lower rate of activity limitations in Glace Bay compared to the rest of Cape Breton and Nova Scotia. Indeed, it is apparent that the relatively lower-than-average rate of activity limitation among Glace Bay women in particular may help account for the moderate rate of activity limitations in the town overall.

Among other issues that require further investigation is the degree to which differences in results for all these health indicators may be attributable to differences in the age-structure of the Glace Bay population compared to the rest of Nova Scotia. Adjusting the health results for age may shed light on this factor, but was beyond the scope of this report, given limitations of time and resources.

These yet unanswered questions point directly to the considerable value of community-based indicator work. It is clear that national, provincial, and regional averages cannot account for the unique conditions, circumstances, and profiles of particular communities. The many unique characteristics of the Glace Bay community highlighted by these results indicate that simplistic solutions based on provincial and national profiles may miss the mark in Glace Bay. Community-level data therefore provide immensely useful information to policy planners and analysts who are concerned to shape particular programs so that they effectively target the populations where they are delivered.

This Glace Bay Community Profile is simply a first step. It is intended not merely to provide results and numbers, but to raise important questions, and to steer researchers, analysts, and policy planners to the much larger Glace Bay GPI database stored at Cape Breton University. That huge database can enable analysts to go beyond the summary quality of this profile, to answer some of the key questions raised in these pages, and to explore in far more depth and detail the characteristics of the Glace Bay community, with a view to implementing effective measures that can improve wellbeing in Glace Bay.

Figure 35. Prevalence of activity limitations (%), by gender, Glace Bay, 2002



Not surprisingly, the prevalence of activity limitations due to long-term physical or mental health conditions increased across age groups, although, surprisingly, it fell for seniors (65+). Interestingly, seniors had roughly the same rate of activity limitations as 45–54 year-olds (28%), and well below the 36.5% rate among 55–64 year-olds (Figure 36 below).

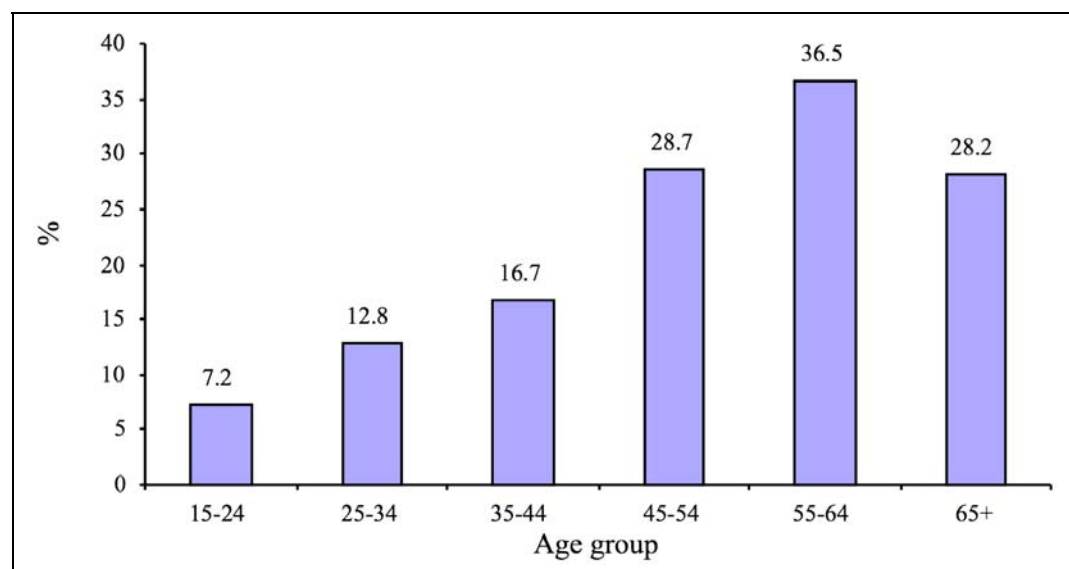
This is in line with the equally surprising finding above that Glace Bay seniors were more likely to be free from pain and discomfort than those aged 45–64. It also accords with the findings on self-rated health, which found the gap between Glace Bay and provincial / national rates among seniors to be much narrower than among 45–64 year-olds.

Further investigation into this apparent anomaly will be required, including careful analysis of the survey sample, to assess, for example, whether there was a tendency for only healthier seniors to complete the survey. Given the statistically rigorous random sampling that took place, based on the electoral rolls, and the very high overall survey response rate (82%), it is, however, unlikely that there were major age-related distortions in the sample population large enough to explain the degree of apparent anomaly in the results for seniors found above.

It is more likely that substantive causes, like poorer health profiles, higher risk behaviours, and certain socio-economic circumstances among 45–64 year-olds, and correspondingly healthier lifestyles and particular socio-economic conditions among seniors, may underlie the age-related differences among older Glace Bay residents observed with some consistency throughout this chapter. However, further

data cross-tabulations will be required in order to understand the reasons for the age-related disparities observed.

Figure 36. Prevalence of activity limitations (%), by age, Glace Bay, 2002

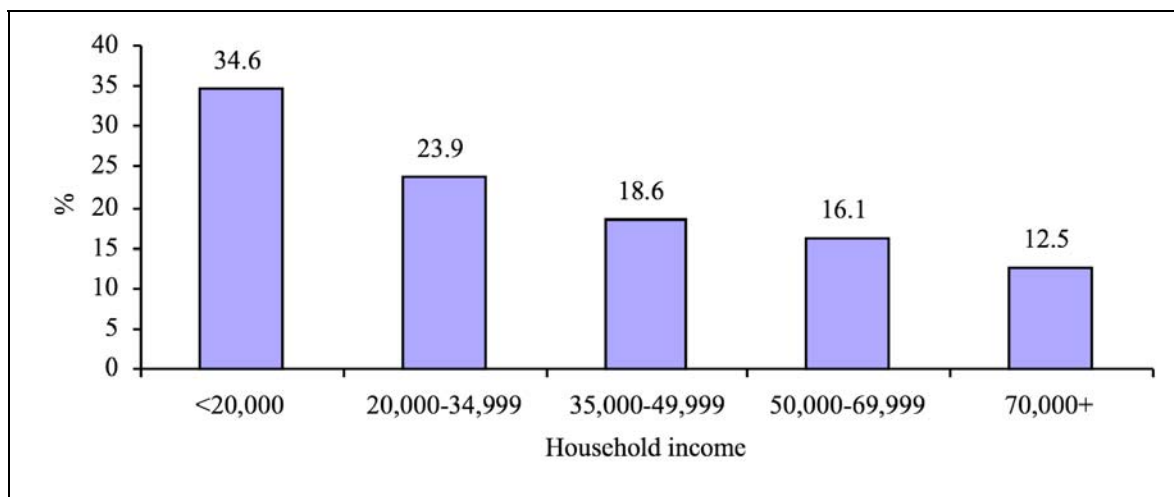


There was also a strong relationship between activity limitations and household income, with a clear inverse gradient across all income groups. As with earlier findings, these results again confirm the very strong predictive power of income on health status and health outcomes. From a policy perspective, they also demonstrate again that poverty reduction programs, and initiatives aimed at raising the minimum wage, strengthening employment insurance, and improving social supports to groups like single mothers who have high low-income rates can improve population health and reduce excess health care expenditures attributable to income inequality.

Thus, low-income Glace Bay residents (household incomes under \$20,000 per year) were 2.7 times more likely to report activity limitations than high income residents (\$70,000+)—35% vs. 13%—and more than twice as likely to have such limitations as those with household incomes of \$50,000–\$70,000 per year—35% vs. 16%. Those in the \$20,000–\$35,000 household income range were nearly twice as likely to experience activity limitations as high income residents (\$70,000+)—24% vs. 13%.

In other words, over one in three low-income respondents, nearly one in four of those with household incomes of \$20,000–\$35,000 (24%), one in five of those with \$35,000–\$50,000 per year, one in six of those with \$50,000–\$70,000 per year, and just one in eight of those in the highest income group reported activity limitations (Figure 37 below).

Figure 37. Prevalence of activity limitations (%), by household income, Glace Bay, 2002



4.2 Behavioural and Lifestyle Determinants of Health

Smoking
Percentage of the population who smoke cigarettes.

Smoking is the leading preventable cause of sickness and premature death in Canada and in Nova Scotia. Worldwide, tobacco kills one in ten adults, and by 2030 it will kill one in 6, or 10 million people a year—more than any other single cause of death.⁵⁰ Health Canada reports that 21% of all deaths in Canada are attributable to smoking—45,000 preventable deaths a year.⁵¹ Smoking and exposure to Environmental Tobacco Smoke (ETS) kill approximately 1,748 Nova Scotians every year, also accounting for 21% of all deaths in the province.

Ninety per cent of lung cancers are attributable to smoking, and tobacco is also a significant risk factor for a wide range of other cancers, for coronary heart disease, for respiratory illnesses, and for a range of other ailments.⁵² In fact, tobacco is the only product sold legally that causes sickness and death when used exactly as intended.

The economic costs of tobacco use include direct hospital, physician, and drug expenditures on smoking-attributable illnesses and indirect costs such as productivity losses to the economy due to premature mortality and disability. Tobacco use, therefore, adds a significant cost burden to the Nova Scotian economy, costing \$171.3 million annually in direct health care costs and an additional \$526 million in indirect costs (productivity losses due to long and short-term disability and premature mortality).

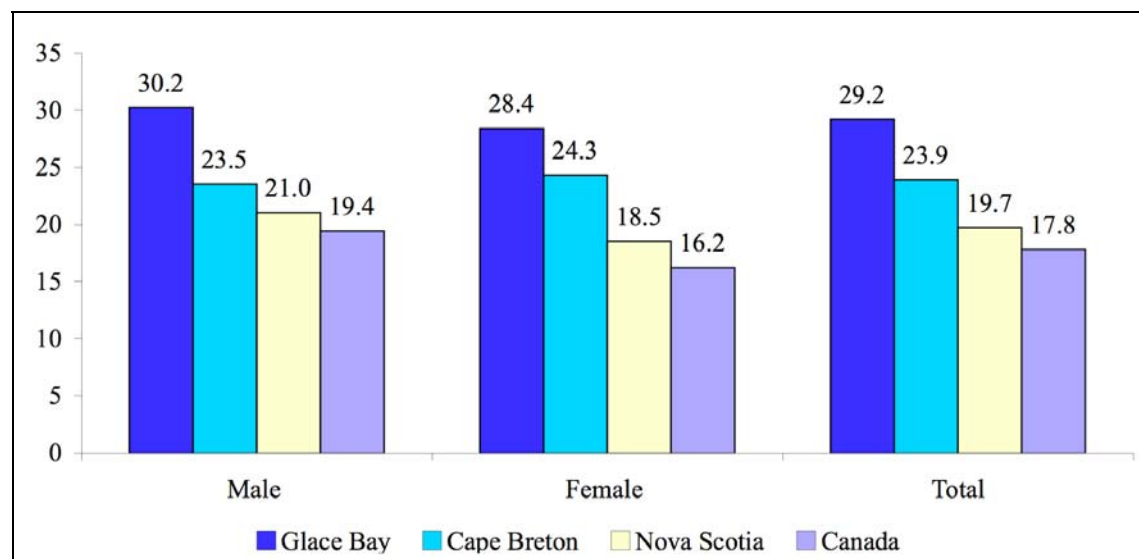
In addition, it costs Nova Scotian employers about \$263.6 million more each year to employ smokers instead of non-smokers, due largely to on-the-job productivity losses incurred in unauthorized smoke breaks. When additional costs such as prevention and research costs and losses due to fires are added, smoking costs the Nova Scotian economy an estimated \$943.8 million a year, or about \$1,000 for every person in the province. Some \$538 million, or 57% of the total cost of tobacco use in Nova Scotia, is paid for by society.⁵³

The continued high costs of tobacco use in Nova Scotia reflect high smoking rates in the past. The recent sharp decline in smoking prevalence in the province will produce significant cost reductions in the future.

Almost three in ten Glace Bay residents smoked cigarettes daily in 2002 (29%), compared to 23.9% in Cape Breton, 19.7% in Nova Scotia, and 17.8% in Canada (Figure 38 below).⁵⁴

Although gender differences were more marked at the provincial and national levels, with males showing higher smoking rates than females, the daily smoking rates for Glace Bay men and women were not significantly different.

Figure 38. Daily smokers (%), by gender, Glace Bay (2002), Cape Breton, Nova Scotia, and Canada (2003)



Source: Data for Cape Breton, Nova Scotia, and Canada are from Statistics Canada, Canadian Community Health Survey, 2003.

Note: All data in Figure 38 above are for 2003, except for Glace Bay, where the data are for 2002. CCHS smoking results are not available for 2002.

Since smoking is the leading preventable cause of illness and death in Canada, and since smoking-related illnesses like lung cancer, heart disease, and chronic obstructive pulmonary disorders generally only manifest many years later, Glace Bay's substantially higher smoking rates in 2002 have had and will continue to have major adverse impacts on the health and longevity of residents for some time to come.

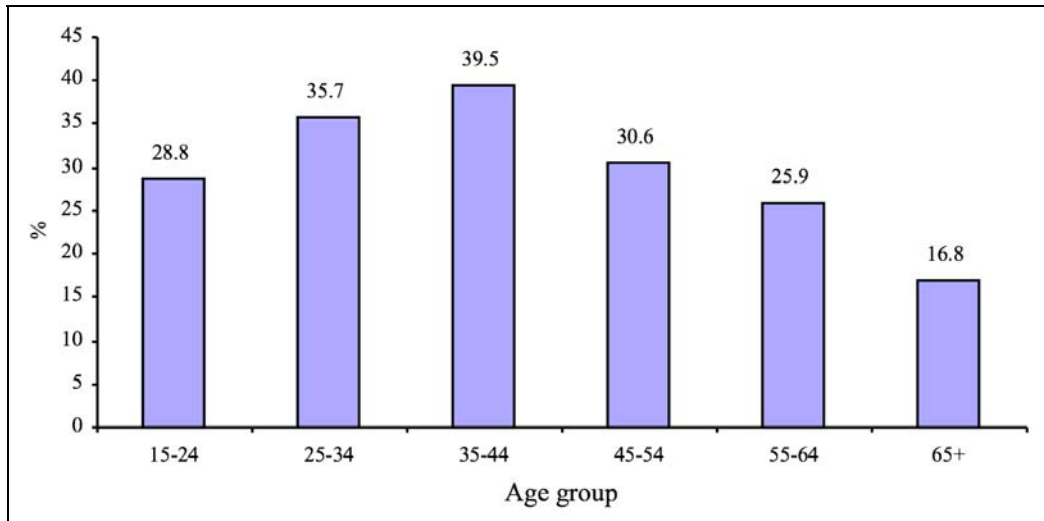
It is important to note that cigarette smoking has declined sharply both nationwide and provincially in recent years. Since these 2002 GPI figures are presently the latest available for Glace Bay, it will be most important to conduct a follow-up survey to assess the degree to which Glace Bay has followed the provincial and national trends, and whether the adverse gap between Glace Bay on the one hand and Nova Scotia and Canada on the other has narrowed. This local information is crucial for local Glace Bay and Cape Breton policy makers, planners, and health officials in order to target smoking prevention initiatives wisely, efficiently, and cost-effectively.

Smoking rates in Glace Bay were lowest among seniors (17%), which may possibly help explain the lower rates of activity limitation, pain, and discomfort among seniors reported above. Daily smoking peaked in the 35–44 year age group, where almost 40% reported smoking daily in 2002. The second highest rate of smoking (36%) was in the 25–34 year age group (see Figure 39 below).

These very high smoking rates among middle-aged and younger adults in Glace Bay may seriously compromise their health as they reach their later middle ages. This phenomenon may help therefore help explain why such an inordinately large proportion of 45–64 year-olds in Glace Bay report pain or discomfort, activity limitations, and less than optimal self-rated health.

Again, such detailed demographic breakdowns of local information are crucial for policy makers to target interventions efficiently and cost-effectively, and thus support the case for community level health and wellbeing indicators.

Figure 39. Daily smokers (%), by age, Glace Bay, 2002



Despite the considerable expense of smoking, which imposes very high personal financial costs on households, lower and middle-income residents of Glace Bay were significantly more likely to smoke daily in 2002 than higher income residents (Figure 40 below).

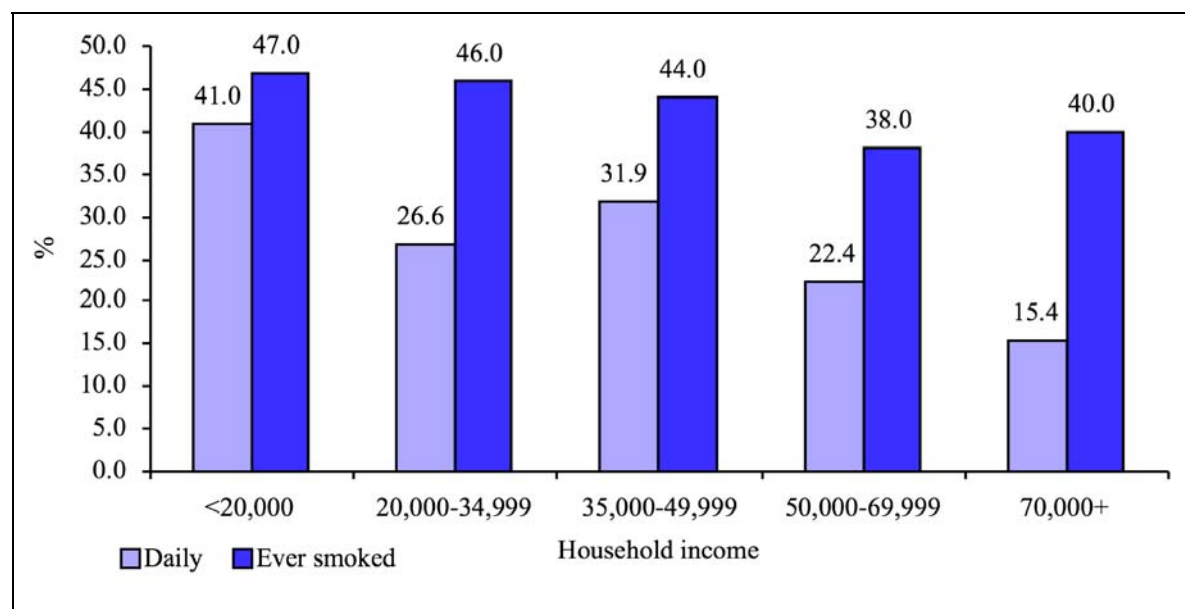
Since poverty produces significant stresses, high smoking rates among low income groups may be related to the proven correlation between stress and smoking. For example, the 1994 National Population Health Survey found that 46% of Canadian men who experienced high levels of chronic stress were smokers, while only 27% of men with a very low level of chronic stress were smokers. The relationship was even more pronounced for women, whose smoking rates ranged from 21% among those with a very low stress level to 45% for those with high stress. As well, the Canadian Tobacco Use Monitoring Survey found that those in the lowest income bracket were two and a half times more likely to smoke than those in the highest income bracket.⁵⁵

The Glace Bay results bear out the national data on these income-related disparities. Thus, those with household incomes of less than \$20,000 per year were 2.7 times as likely to smoke daily in 2002 as those with incomes in excess of \$70,000 per year (41% vs. 15%), while those with incomes in the \$35,000–\$50,000 range were about twice as likely to smoke daily as those with the highest incomes (32% vs. 15%).

As indicated by Figure 40 below, lower and middle-income residents of Glace Bay (with household incomes of \$50,000 a year or less) were also somewhat more likely than higher income residents to report that they had smoked at some time in their lives. However, the income effects in this case were much less pronounced than among daily smokers. Thus, for “ever” smokers, there was less than a 10

percentage point spread between income groups, compared to a 25 percentage point spread for daily smokers.

Figure 40. Daily smokers (%), by household income, Glace Bay, 2002



Taken together, the daily and ever smoker results in Figure 40 above indicate that higher income residents of Glace Bay were significantly more likely to have quit smoking than lower income residents in the years prior to the 2002 GPI survey. This is vitally important information for policy makers at the local level, as it shows that past smoking cessation interventions have been far more effective among higher income groups in Glace Bay, and that future interventions will need to target lower income groups more effectively.

Again, since these 2002 GPI results are the latest available for Glace Bay, a follow-up survey will be required to assess whether more recent provincial-level interventions (like higher tobacco taxes and smoke-free legislation) have been more effective at reducing smoking rates among low income residents of Glace Bay.

The findings pointing to higher quit rates among high income respondents are also in line with a growing body of new evidence showing that lifestyle interventions are generally far more effective among higher income and highly educated groups than among lower income groups with less education.

For example, researchers have found that those who are marginalized do not attend smoking cessation and nutrition classes, do aerobics, join gymnasiums, or shop for healthy foods. A comprehensive \$1.5 million 5-year cardiovascular disease prevention and lifestyle intervention program in St. Henri, a Montreal neighbourhood where 45% of families live below the poverty line, attracted only 2%

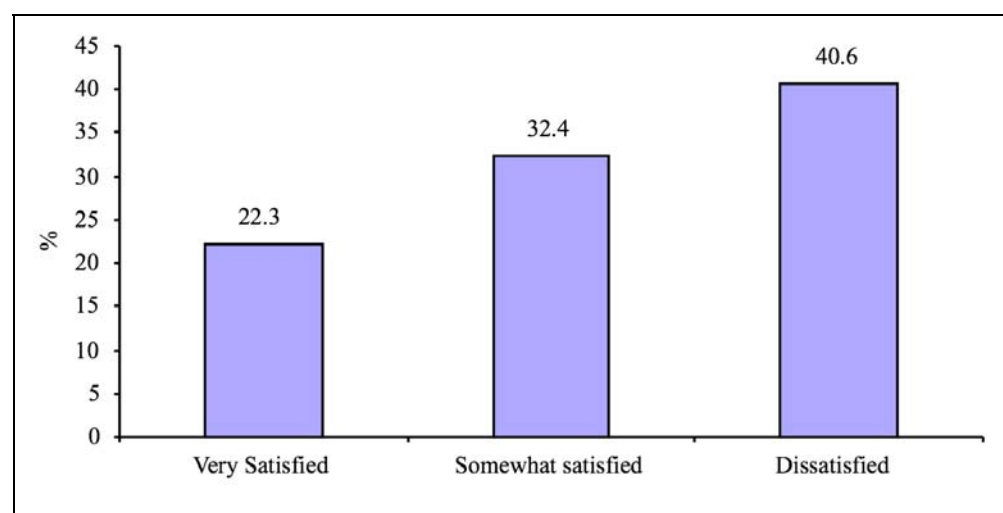
participation. The only significant result, compared to a control group, was that more people had their blood cholesterol levels measured.⁵⁶

Because lifestyle interventions have been most successful in changing the behaviour of those with higher levels of education and income, and least effective for disadvantaged populations who have fewer options and less control over their lives, they have had the unintended effect of deepening health inequalities between socio-economic levels.⁵⁷ These findings challenge health policy planners and economic development agencies to address the deeper underlying socio-economic determinants of health, which, in turn, predict health behaviours, if they wish to help reduce high smoking rates among lower income groups.

In a result that well illustrates the relationship between lifestyle behaviours and overall wellbeing, the GPI Glace Bay survey found a strong inverse correlation between smoking and life satisfaction.

In fact, there was a clear gradient showing increased rates of smoking in direct relation to lower levels of life satisfaction. Thus, Glace Bay residents who reported that they were very satisfied with life were significantly less likely to be daily smokers (22.3%) than respondents who were dissatisfied with their lives (40.6%)—see Figure 41 below.

Figure 41. Daily smokers (%), by level of life satisfaction, Glace Bay, 2002



Obesity

The percentage of respondents with a Body-Mass-Index (BMI) of 30 and above.

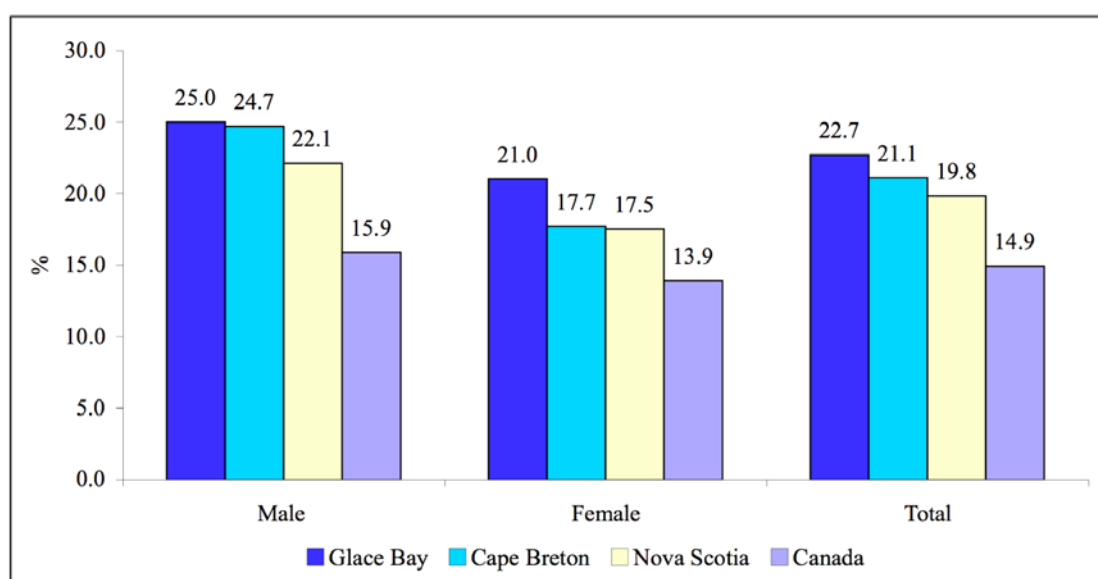
Obesity is the second most preventable and costly cause of illness and premature death after smoking, and has been linked to a wide range of chronic diseases including type 2 diabetes, heart disease, hypertension, and gallbladder disease. Rates of overweight and obesity have more than doubled in Nova Scotia, in Canada, and globally in the last two decades. A previous GPIAtlantic report estimated

that obesity costs Nova Scotia \$120 million a year in direct health care costs and an additional \$140 million a year in indirect productivity losses.⁵⁸

Almost 23% of Glace Bay residents were obese ($\text{BMI} \geq 30$) in 2002, based on their self-reported height and weight, compared to 21% in Cape Breton as a whole, 20% in Nova Scotia, and 15% in Canada.⁵⁹ Glace Bay men were somewhat more likely than women to be obese (25% vs. 21%)—see below.

It must be noted here that the Glace Bay GPI results are for the whole population 15 and older in 2002, while the Cape Breton, Nova Scotia, and Canadian results are for the population aged 18 and over, excluding pregnant women, in 2003. However, these differences do not significantly affect the comparative results, especially since youth generally have lower rates of obesity than those who are older (indicating that the Glace Bay estimate is likely somewhat understated), and since there were only 5 pregnant women in the Glace Bay GPI survey sample.

Figure 42. Percent who are obese ($\text{BMI} \geq 30$), by gender, Glace Bay (2002), Cape Breton, Nova Scotia, and Canada (2003)



Source: Statistics Canada, Canadian Community Health Survey, 2003.

Notes: Glace Bay obesity rates are for 2002 and for the population 15 and older, while rates for Nova Scotia, Cape Breton and Canada are for 2003 for the population aged 18 and over, excluding pregnant women.

Obesity rates in Glace Bay were lowest among youth aged 15–24 (9%) and then rose by age to a peak of 30% among respondents aged 45–54 before falling among the oldest age groups (Figure 43 below).

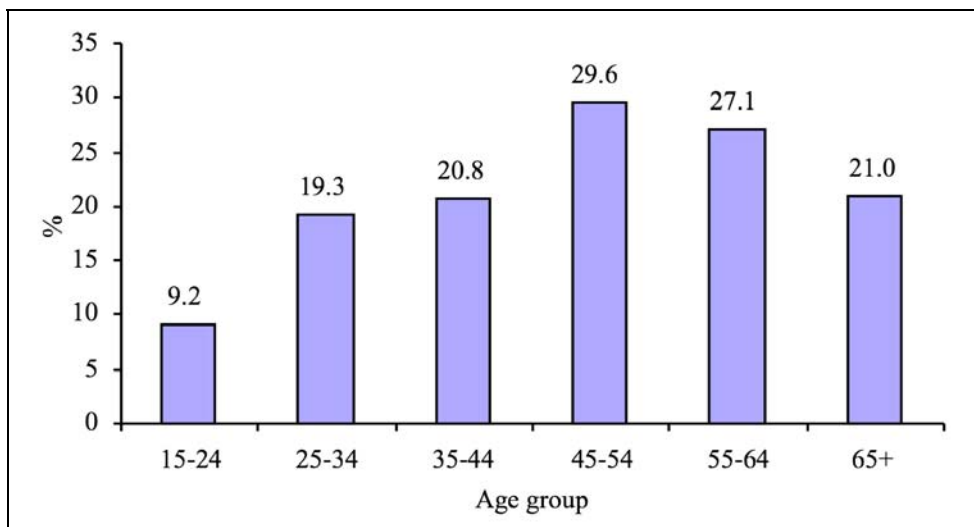
The comparatively lower rate of obesity among seniors (21%—equivalent to the rate among 35–44-year-olds) may further help explain the lower rates of activity limitation, pain, and discomfort among Glace Bay seniors compared to those in their 50s, as reported above. Since Glace Bay seniors have significantly lower rates of both smoking and obesity—the two most important preventable causes of

sickness and premature death—it stands to reason that they will likely have better health and less pain and disability even into old age than residents in their 40s and 50s with higher rates of smoking and obesity. In fact, these results may point to very important evidence on the powerful impact of healthy lifestyles on successful aging.

To repeat an earlier note: further investigation is required to assess the reasons for the more positive (and somewhat counter-intuitive) results among seniors, including careful analysis of the survey sample, and to assess, for example, whether there was a tendency for only healthier seniors to complete the survey. However, as noted above, given the statistically rigorous random sampling that took place, based on the electoral rolls, and the very high overall survey response rate (82%), it is unlikely that there were major age-related distortions in the sample population large enough to explain the degree of apparent anomaly in the results for seniors found above.

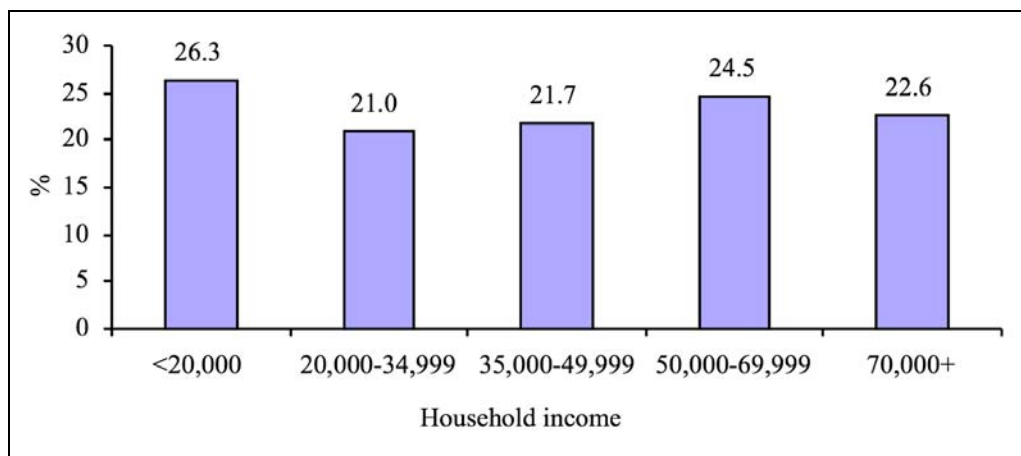
It is more likely that substantive causes, like poorer health profiles, higher risk behaviours, and certain socio-economic circumstances among 45–64 year-olds, and correspondingly healthier lifestyles and particular socio-economic conditions among seniors, may underlie the age-related differences among older Glace Bay residents observed with some consistency throughout this chapter. However, further data cross-tabulations will be required in order to understand the reasons for the age-related disparities observed.

Figure 43. Percent who are obese (BMI \geq 30), by age, Glace Bay, 2002



Unlike almost all other health indicators, which showed a clear relationship between income and health, there was in this case no predictable relationship or clear gradient between obesity and household income, although respondents in the lowest income group did report the highest rate of obesity (26%)—(Figure 44 below).

Figure 44. Percent who are obese (BMI \geq 30), by household income, Glace Bay, 2002



Sedentary Lifestyles

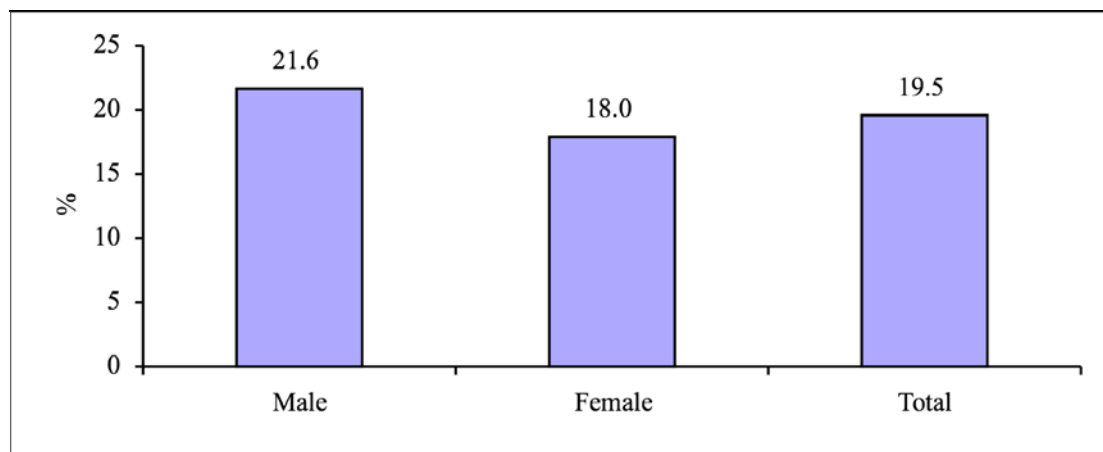
Percentage of respondents who report that they usually sit during the day and do not walk about very much.

Physical activity has proven benefits in preventing disease, improving health, and promoting independence and quality of life in old age.⁶⁰ The most substantial body of evidence for achieving healthy active aging relates to the beneficial effects of regular exercise.⁶¹ Physical activity has been called “the most obvious of variables which might reduce overall lifetime morbidity” and the “cornerstone” of any strategy aimed at prolonging disability-free life expectancy.⁶² Abundant evidence shows that physical activity protects against heart disease, stroke, hypertension, type 2 diabetes, colon cancer, breast cancer, osteoporosis, obesity, depression, anxiety, and stress.⁶³

Conversely, physical inactivity is linked to a wide range of chronic illnesses, including type 2 diabetes, heart disease, hypertension, and colon cancer. Studies have found that physically active adults have lower rates of lifetime illness and are more likely to remain independent into old age. A previous GPIAtlantic report found that physical inactivity cost Nova Scotia \$107 million in direct health care costs and an additional \$247 million in indirect productivity losses due to premature death and disability.⁶⁴

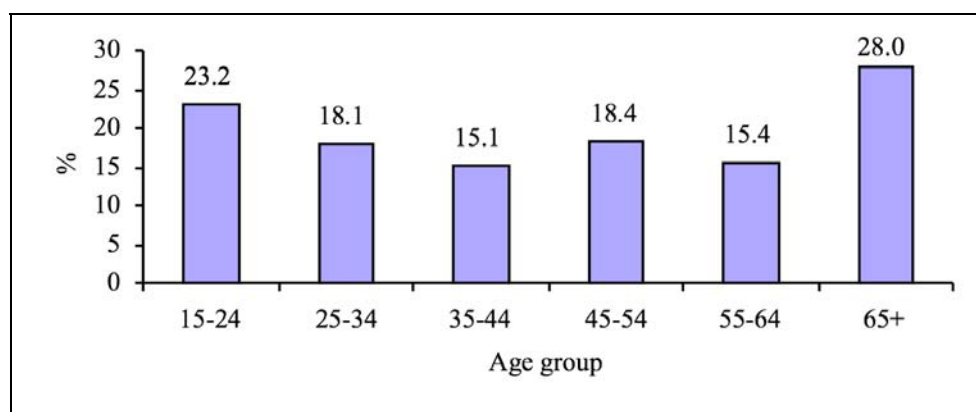
To assess the propensity to live a sedentary rather than active lifestyle, the 2002 GPI Glace Bay survey asked respondents to think back over the past three months to describe their usual level of daily physical activity or work habits. Almost 20% of respondents reported that they usually sat during the day and did not walk about very very much (a sedentary lifestyle) with males reporting a slightly higher rate of inactivity than females (21.6% vs. 18%)—(Figure 45 below).

Figure 45. Percent who are sedentary, by gender, Glace Bay, 2002



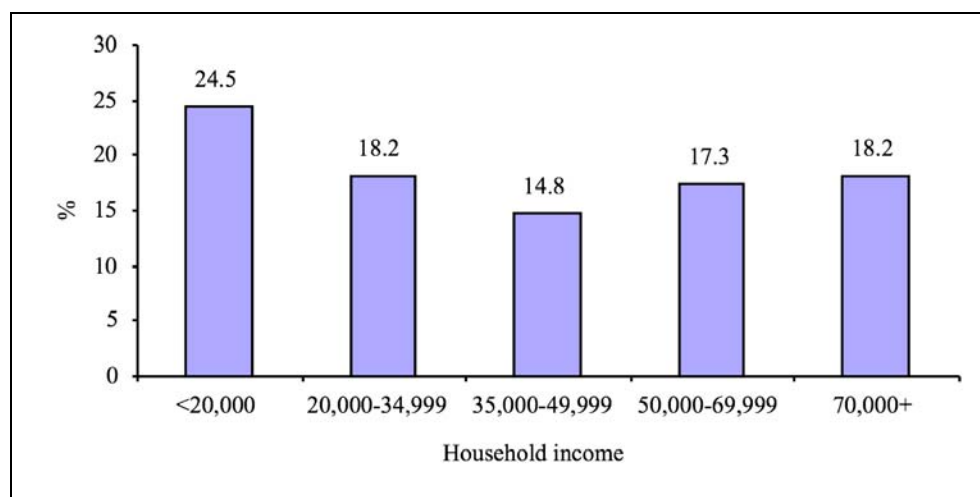
Among age groups, Glace Bay seniors (65+) and youth (aged 15–24) were the most likely to report sedentary lifestyles (28% and 23% respectively), and there was no discernible pattern by age among the other age groups (25–64) (Figure 46 below).

Figure 46. Percent who are sedentary, by age, Glace Bay, 2002



Among income groups, the lowest income Glace Bay residents (household income under \$20,000 per year) were the most likely to be sedentary (25%), with no discernible pattern among higher income groups (Figure 47 below).

Figure 47. Percent who are sedentary, by household income, Glace Bay, 2002



Because activity levels are assessed quite differently in the CCHS, according to kilocalories of energy expended per kilogram of body weight (kcal/kg), the above results are not comparable to provincial and national averages in the CCHS. Four additional questions on physical activity were asked in the Glace Bay GPI survey (another one of which is reported below), but additional work is required to translate the Glace Bay results into kcal/kg for comparability with provincial and national statistics.

Leisure-Time Physical Activities

Percentage of respondents who report that they participate in leisure-time physical activities at least five times a week.

Physical activity provides proven health benefits. As noted above, it protects against heart disease, stroke, hypertension, type 2 diabetes, colon cancer, breast cancer, osteoporosis, obesity, depression, anxiety, and stress. Regular physical activity also protects against obesity and assists weight control; fosters development of healthy muscles, bones, and joints; increases strength and endurance; improves behavioural development in children and adolescents; and helps maintain function and preserve independence in older adults. Studies show that regular exercisers have much less overall lifetime morbidity than those who are sedentary, indicating that avoided medical costs due to physical activity are not simply deferred to older ages.⁶⁵

A 2004 GPIAtlantic report on the cost of physical inactivity in Halifax Regional Municipality found that 30% of heart disease, 22% of osteoporosis, 16% of stroke, hypertension, type 2 diabetes, and colon cancer, and 9% of breast cancer are attributable to physical inactivity.⁶⁶

There are a number of definitions of physical activity and inactivity that produce varying results when assessing trends. The Glace Bay survey asked respondents both about the frequency and duration of their leisure-time physical activities, while other pan-Canadian surveys, such as Statistics Canada's Canadian Community Health Survey (CCHS), calculate whether Canadians are physically active based

on their reporting of the frequency and duration of different types of physical activity, using independently established values for the energy demands of each activity. Since the Glace Bay GPI survey only assessed frequency and duration for “sports or physical exercise” in general, and not for particular types of physical activity, these Glace Bay data are not comparable to the CCHS data.⁶⁷

Forty-six percent of respondents in Glace Bay reported that they were involved in leisure-time physical activities at least five times per week in the past three months—48% of males and 44% of females (Figure 48 below).

The relationship between leisure-time physical activities and age was U-shaped with the highest rates reported among respondents aged 65 and over (57%), 55–64 (49%), and 15–24 (48%). Fewer than 43% of Glace Bay residents aged 25–54 took part in leisure time physical activity five or more times per week, with the lowest rates reported within the 35–44 age group (40%) (Figure 49 below).

Again, the considerably higher rate of leisure-time physical activity among Glace Bay seniors compared to all other age groups, along with their lower rates of smoking and relatively lower rates of obesity (at least compared to 45–64 year-olds), may help explain their relatively lower rates of pain, discomfort, and activity limitation compared to 45–64 year-old Glace Bay residents.

Figure 48. Participation in leisure-time physical activities (percent five or more times per week in past three months), by gender, Glace Bay, 2002

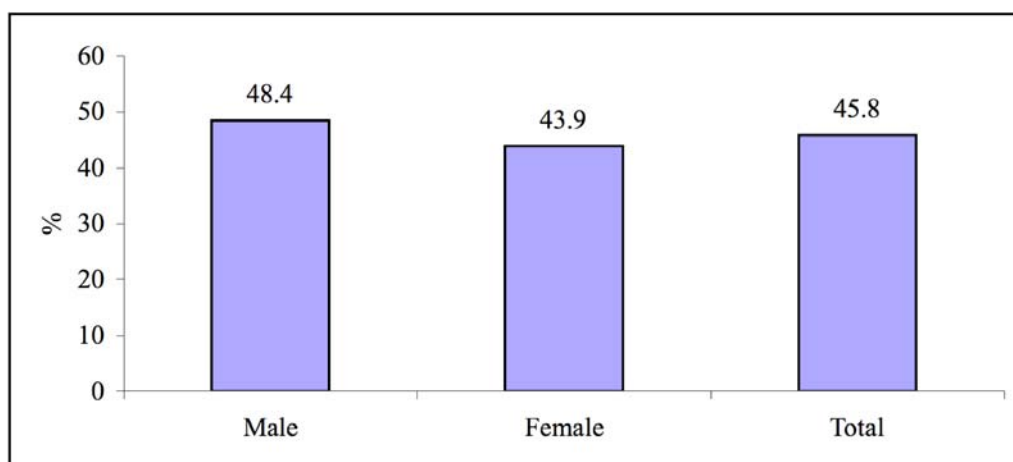
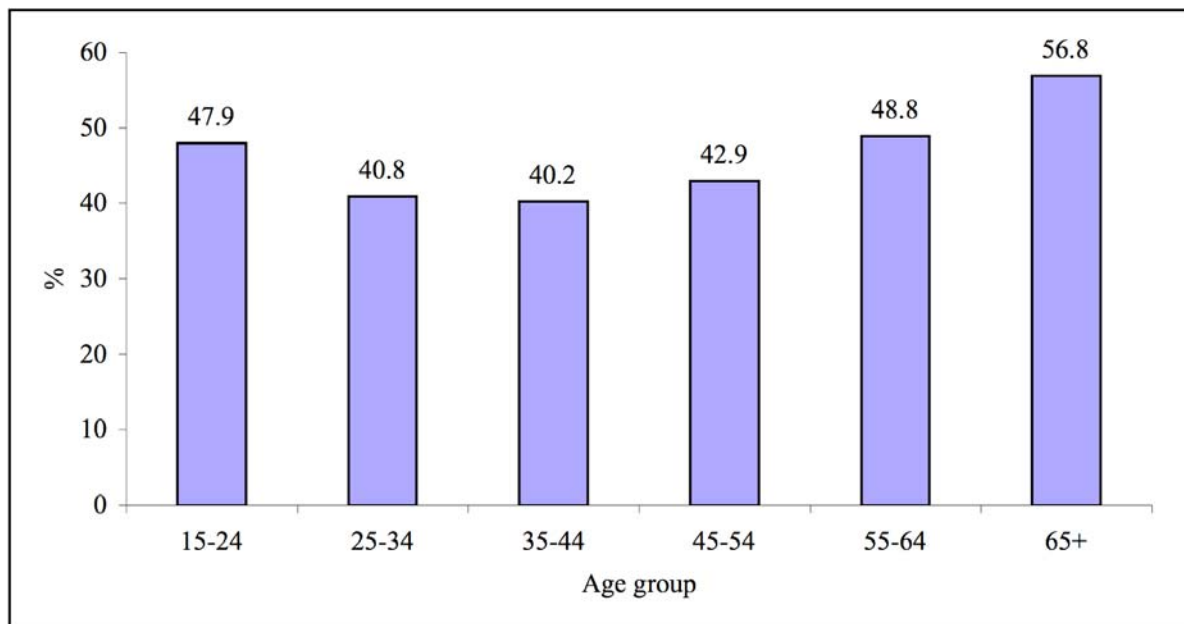
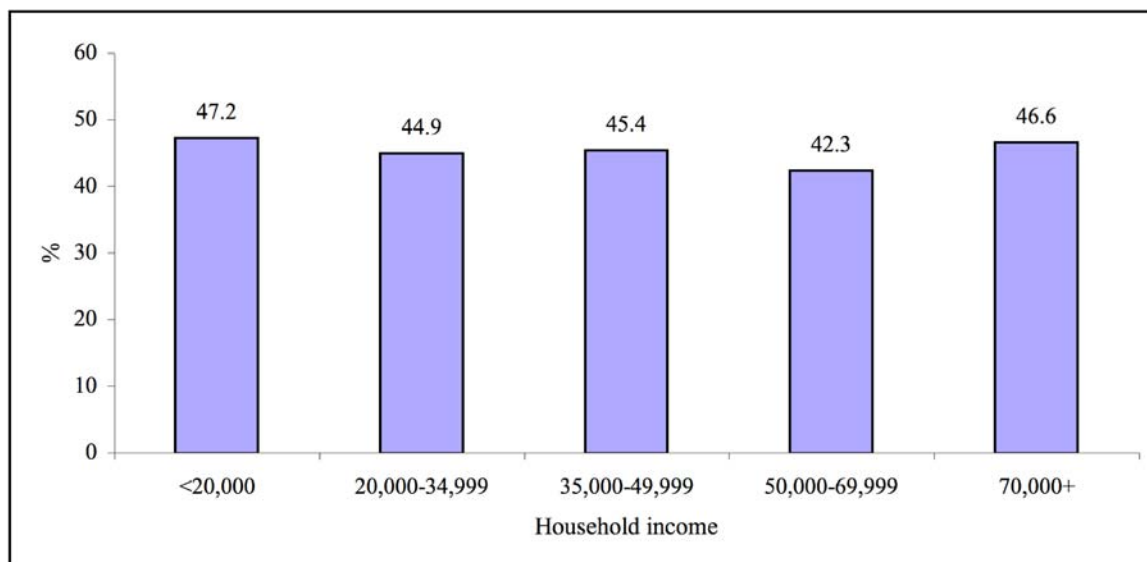


Figure 49. Participation in leisure-time physical activities (percent five or more times per week in past three months), by age, Glace Bay, 2002



There was no significant relationship apparent between household income and reported participation in leisure-time physical activities (Figure 50 below).

Figure 50. Participation in leisure-time physical activities (percent five or more times per week in past three months), by household income, Glace Bay, 2002



4.3 Mental Health

In health promotion efforts, mental illness and its associated costs generally receive far less attention than lifestyle factors. Yet mental illness accounts for some of the highest disease costs. Of seven modifiable risk factors examined in a major study of 46,000 U.S. employees, depression and stress accounted for higher medical costs than any other risk factors. Depressed workers had 70% higher medical costs and highly stressed workers had 46% higher costs than those who did not suffer from depression and high stress.⁶⁸ In addition, mental health problems can lead to a range of causes of premature death, including violence, substance abuse, and suicide.⁶⁹

Substantial research has found that stress negatively affects health, weakens the immune system, and increases susceptibility to a wide range of illnesses.⁷⁰ According to Richard Surwit of Duke University Medical Centre:

Experiencing stress is associated with the release of hormones that lead to energy mobilization—known as the “fight or flight” response. Key to this energy mobilization is the transport of glucose into the bloodstream, resulting in elevated glucose levels, which is a health threat for people with diabetes.⁷¹

A study in Detroit, Michigan, found that those living in dangerous and high-stress neighbourhoods had higher hypertension levels than those living in low-stress neighbourhoods.⁷² In a wide-ranging review of the literature, the *American Journal of Health Promotion* found stress to be the most costly of all modifiable risk factors.⁷³

In addition to depression and stress, certain emotional states and personality types have been identified as risk factors for hypertension, heart disease, and other chronic illnesses. In particular, hostility, aggression, cynicism, and isolation have been related to heart disease risk; suppressed anger has been linked to cancer and high blood pressure; and repressed emotions have been found to predict both cancer and heart disease. Conversely, studies have found that confidence, optimism, self-efficacy, and a sense of coherence and control can buffer and moderate the effects of stress, and protect against illness. Reviewing the evidence, Jon Kabat-Zinn hypothesizes that:

[P]articular patterns of emotional expression (or suppression) can contribute to the development of chronic disease [. . .]. Coping effectively with the full range of emotions we feel as human beings may be of great importance for our health [. . .]. [A] middle path in the self-regulation of emotional expression, at least regarding anger and hostility, may be the avenue of choice in terms of improving health.⁷⁴

Just as mental distress is frequently the precursor of physical illness, a healthy state of mind is also recognized as the most important element in healing and restoring health after illness or injury. There is also strong evidence that mental health is important in coping successfully with stressors in general, and the stress of illness in particular, and for maintaining good physical health and healthy life practices.⁷⁵ The World Health Organization’s definition of health as “a state of complete physical, mental, spiritual, and social well-being, and not merely the absence of disease,” clearly recognizes the centrality of mental health.

Given the importance of mental wellbeing, it is perhaps surprising how few data have been available on the subject until relatively recently, and how hidden the evidence has remains compared to measures of physical health. For this reason, too, the Glace Bay GPI survey asked several questions on mental wellbeing, and key results are reported here as an important element of this Glace Bay Community Profile.

However, Nova Scotia did not participate in some of the key mental health questions in Statistics Canada's Canadian Community Health Survey, so comparative provincial data for some of the Glace Bay results presented here are not available. As well, because only some provinces participated in those survey sections, pan-Canadian comparative data are also unfortunately unavailable.

Cognitive Ability

The percentage of respondents who reported difficulty with thinking clearly and solving day-to-day problems.

The GPI Glace Bay survey asked respondents to describe their usual ability to think clearly and solve day-to-day problems. Here results are combined for those who reported some or a great deal of difficulty, or who said they were “unable” to think clearly and solve problems. Results are not included for those who reported a little or no such difficulty.

About 20% of Glace Bay residents (21% of women and 19% of men) reported at least some degree of difficulty in thinking clearly and solving everyday problems (Figure 51 below). However, nearly one-third of youth aged 15–24 (33%) reported such cognitive difficulties, compared to 22% of young adults (25–34), and about 18% of middle-aged and older residents (Figure 52 below).

Figure 51. Percent who experience difficulty thinking clearly and solving daily problems, by gender, Glace Bay, 2002

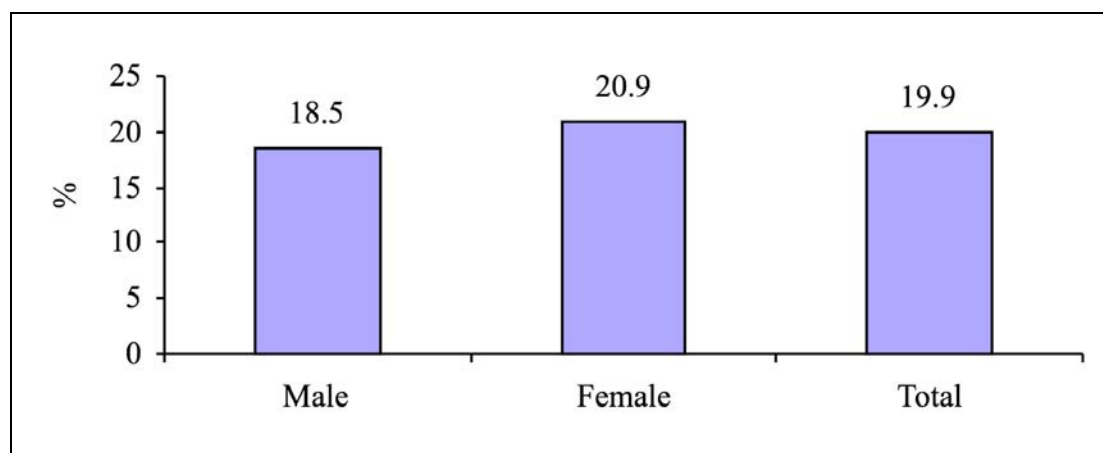
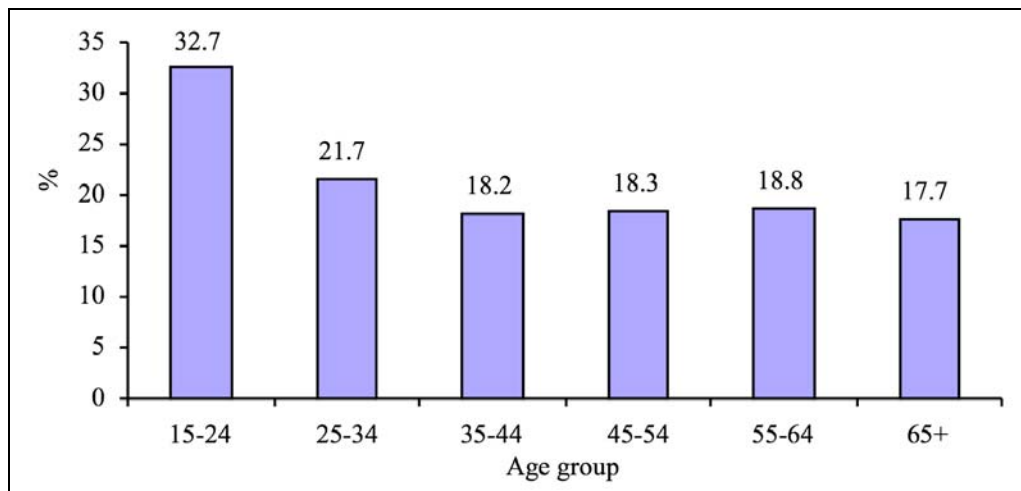


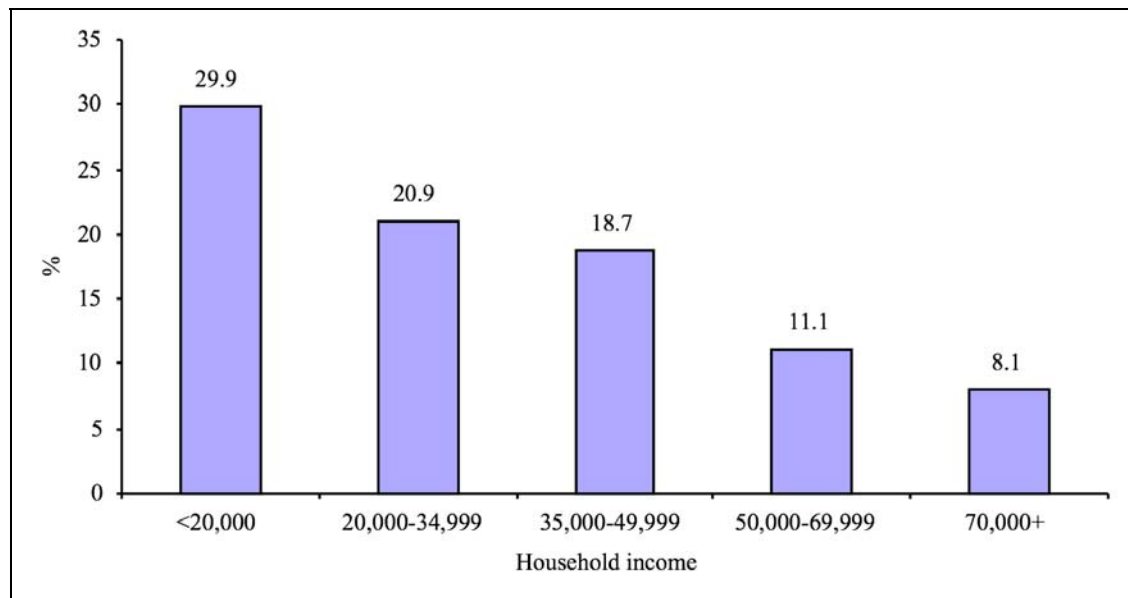
Figure 52. Percent who experience difficulty thinking clearly and solving daily problems, by age, Glace Bay, 2002



There was a strong direct and linear relationship between cognitive ability and household income, with lower income respondents much more likely to reporting difficulty thinking clearly and solving problems than higher income respondents. The results once again point to income as the most reliable predictor of health status and health outcomes—mental as well as physical.

Thus, 30% of the lowest income Glace Bay residents (with household incomes under \$20,000 per year) and 21% of those with incomes between \$20,000 and \$35,000 per year had such difficulties. These cognitive difficulty rates were 3.7 and 2.6 times higher, respectively, than for the highest income residents (\$70,000+), of whom only 8% reported such difficulties. They were also 2.7 and 1.9 times higher, respectively, than for residents with household incomes between \$50,000 and \$70,000 per year, of whom just 11% reported such difficulties (Figure 53 below).

Figure 53. Percent who experience difficulty thinking clearly and solving daily problems, by household income, Glace Bay, 2002



Emotional Distress

Percentage of respondents who reported specific symptoms of emotional distress at least some of the time during the previous month.

Glace Bay residents reported a range of symptoms of emotional distress. Results are here combined for those who reported such symptoms some, most, or all of the time, but not for those who reported them “a little of the time.”

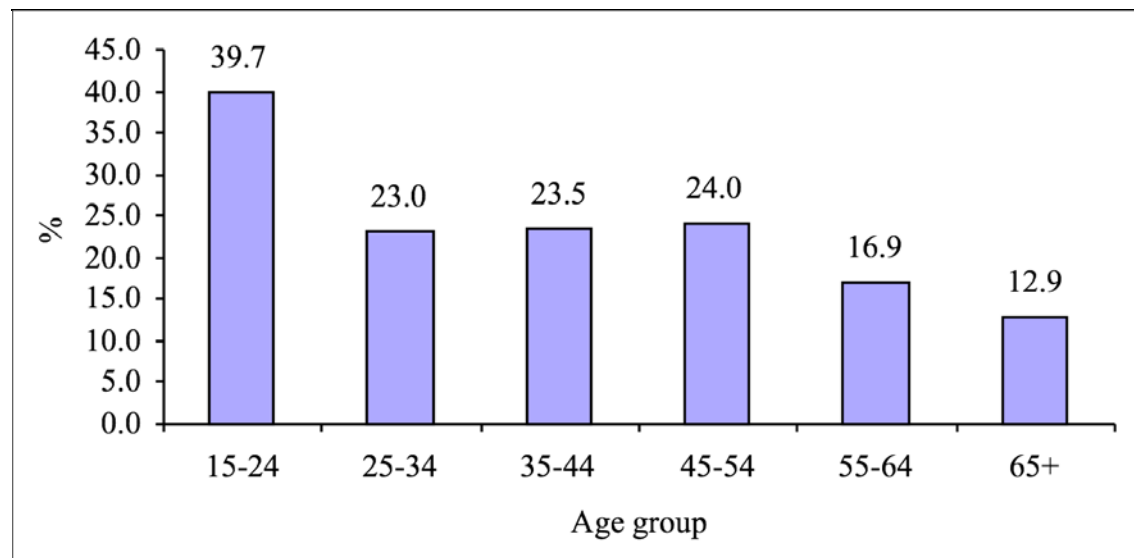
One in four respondents was restless and fidgety at least some of the time, one in five was nervous, one in six felt everything was an effort, and 22% reported two or more symptoms. For all symptoms reported in Table 8 below except “restless and fidgety,” where men reported higher rates, Glace Bay women reported somewhat higher rates of emotional distress than men.

Table 8. Percent experiencing symptoms of emotional distress, by gender, Glace Bay, 2002

Symptoms	Male (%)	Female (%)	Total (%)
So sad that nothing could cheer you up	11.5	14.3	13.1
Nervous	19.1	21.1	20.3
Restless and fidgety	27.5	23.2	25.1
Hopeless	7.6	8.0	7.9
Worthless	5.9	6.8	6.4
Everything was an effort	15.3	16.8	16.2
Two or more of the above	21.0	22.7	22.0

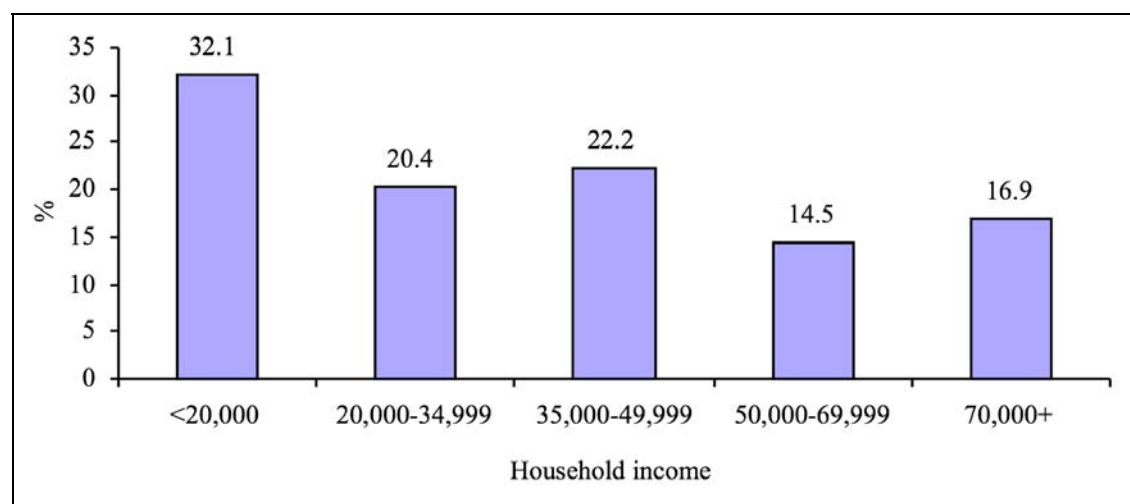
There was a strong relationship between age and emotional distress—with Glace Bay youth (aged 15–24) more than three times as likely to report two or more symptoms of distress as seniors (40% vs. 13%), and more than twice as likely to do so as those aged 55–64 (Figure 54 below). This is in line with earlier results showing higher levels of life satisfaction and happiness among older respondents.

Figure 54. Percent experiencing symptoms of emotional distress, by age, Glace Bay, 2002



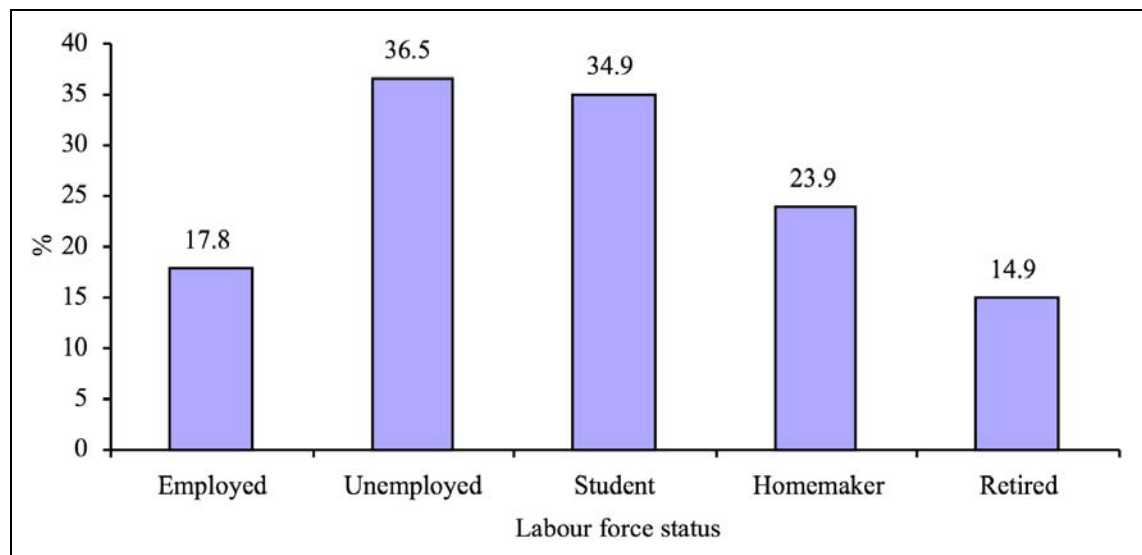
There was a significant correlation between income and emotional distress, with the lowest income Glace Bay residents (with household incomes under \$20,000 per year) twice as likely to report two or more symptoms of emotional distress as those with incomes of \$50,000 or more (Figure 55 below).

Figure 55. Percent experiencing symptoms of emotional distress, by household income, Glace Bay, 2002



Unemployed residents of Glace Bay were more than twice as likely to report two or more symptoms of emotional distress as those who were employed (37% vs. 18%), again confirming abundant other evidence relating unemployment to stress and poor health (both physical and mental). More than one-third of students (35%) were also likely to report two or more symptoms of emotional distress, while retired Glace Bay residents were least likely to report such distress (15%) (see Figure 56 below).

Figure 56. Percent experiencing symptoms of emotional distress, by labour force status, Glace Bay, 2002



Depression

The percentage of respondents who reported feeling sad, blue, or depressed for at least two weeks in a row during the previous twelve months.

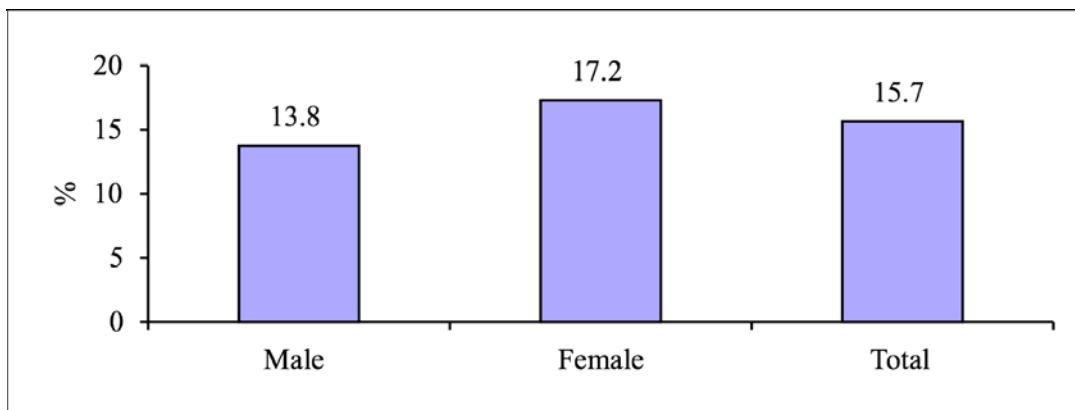
The World Health Organization (WHO) definition of health as “a state of complete physical, mental, spiritual, and social well-being, and not merely the absence of disease,” ranks mental and spiritual wellbeing as vital components of human health, and explicitly defines wellbeing and health in positive terms rather than as the absence of disease.⁷⁶ The WHO has predicted that, in the next decade, depression will surpass many other chronic conditions as a major disease burden worldwide. In 2000, the WHO estimated that depression was the leading cause of disability and the 4th leading contributor to the global burden of disease. By the year 2020, depression is projected to become the second leading contributor to the global burden of disease for all ages, and both sexes.⁷⁷

In the last decade, the prevalence of depression in Canada has increased for all age groups.⁷⁸ The direct and indirect costs associated with mental health problems (including depression) in Canada were estimated to be \$15.8 billion per year (\$2002).⁷⁹ According to the 2002 GPIAtlantic study, *Cost of*

Chronic Disease in Nova Scotia, mental illnesses, including depression, cost Nova Scotia \$249.2 million in direct health care expenditures.⁸⁰

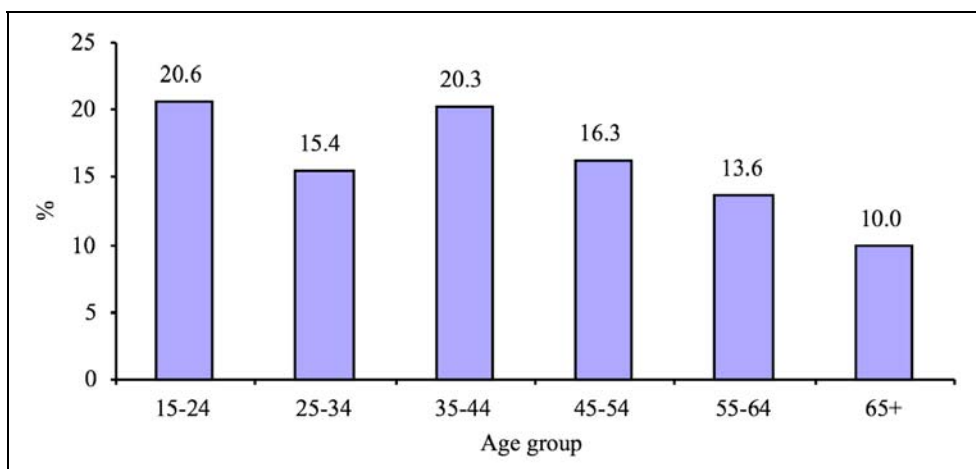
Almost 16% of Glace Bay residents said they'd felt sad, blue, or depressed for at least two weeks in a row during the previous twelve months. The rate for females (17%) was significantly higher than for males (14%) (Figure 57 below).

Figure 57. Percent who were sad, blue, or depressed for two or more weeks in the last twelve months, by gender, Glace Bay, 2002



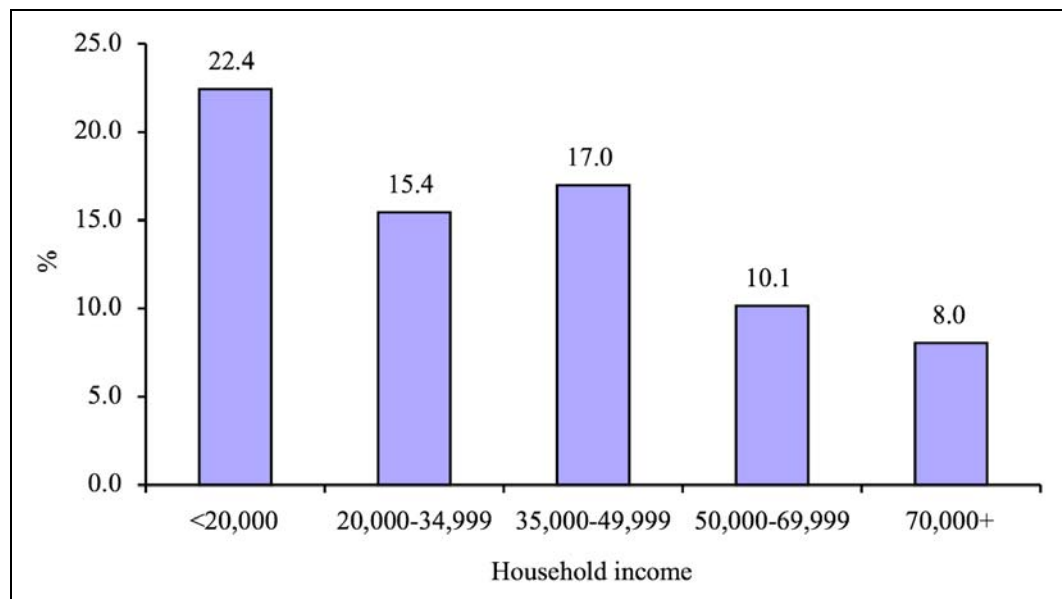
Glace Bay youth (aged 15–24) and those aged 35–44 were more than twice as likely to feel sad, blue, or depressed for two or more weeks in the last twelve months as seniors (20–21% vs. 10%). From the mid-40s age range, rates of depression fell with increasing age (Figure 58 below).

Figure 58. Percent who were sad, blue, or depressed for two or more weeks in the last twelve months, by age, Glace Bay, 2002



The prevalence of depressed mood was strongly and inversely related to income, with higher rates reported among lower income groups. Thus, the lowest income residents of Glace Bay (with household incomes of less than \$20,000 per year) were nearly three times as likely as those with the highest incomes (\$70,000+) and more than twice as likely as those with incomes of \$50,000–\$70,000 per year to feel sad, blue, or depressed for two or more weeks in a row (Figure 59 below).

Figure 59. Percent who were sad, blue, or depressed for two or more weeks in the last twelve months, by household income, Glace Bay, 2002



Childhood Risk Factors

The percentage of respondents who reported specific risk factors during childhood—parental unemployment, parental drug or alcohol-related problems, or physical abuse.

In order to assess the potential influence of adverse childhood conditions and circumstances on mental health and wellbeing, the GPI Glace Bay survey asked whether, as children or teenagers, their parents had been unemployed for long periods or had drunk or used drugs so often as to cause family problems, and whether they had been physically abused by someone close to them.

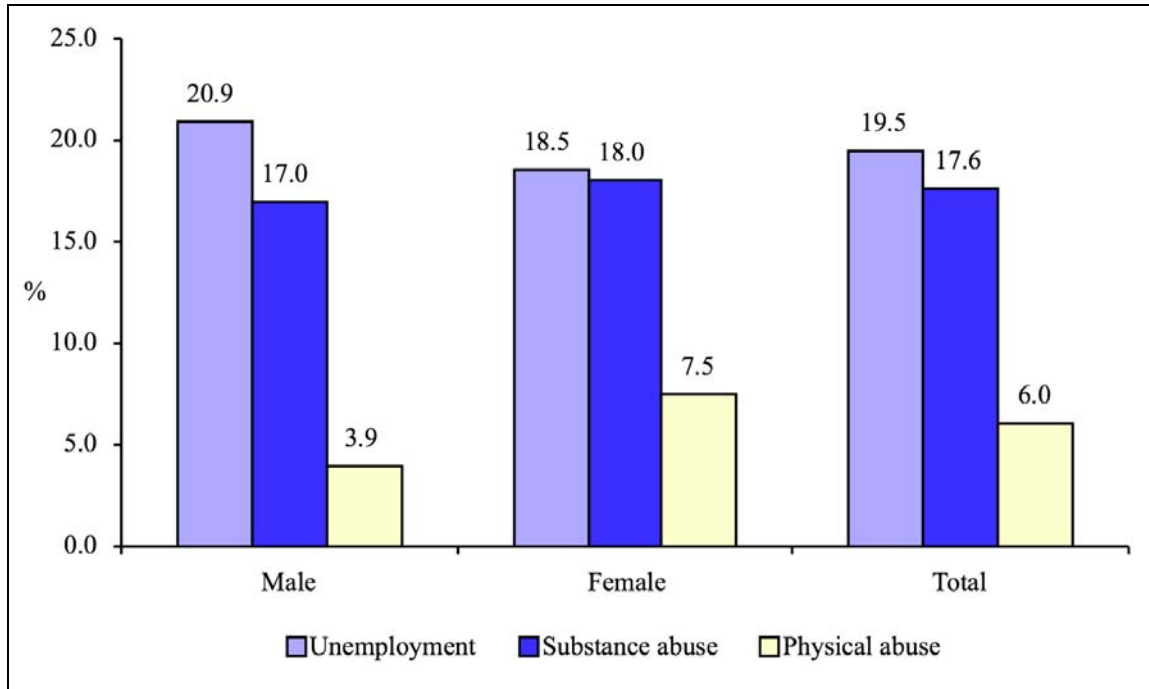
Here we relate these childhood risk conditions to only one outcome—propensity to feel sad, blue, or depressed for two or more weeks in a row. However, the GPI Glace Bay and Kings County survey results, based on a random sample of 3,600, could be used as the basis for a far more wide-ranging analysis of the influence of childhood risk factors on physical and mental health.

Twenty percent of Glace Bay residents experienced long-term parental unemployment during their childhood, with no significant difference between males and females. A somewhat smaller percent

(17.6%) reported parental substance abuse, again with no significant difference between males and females.

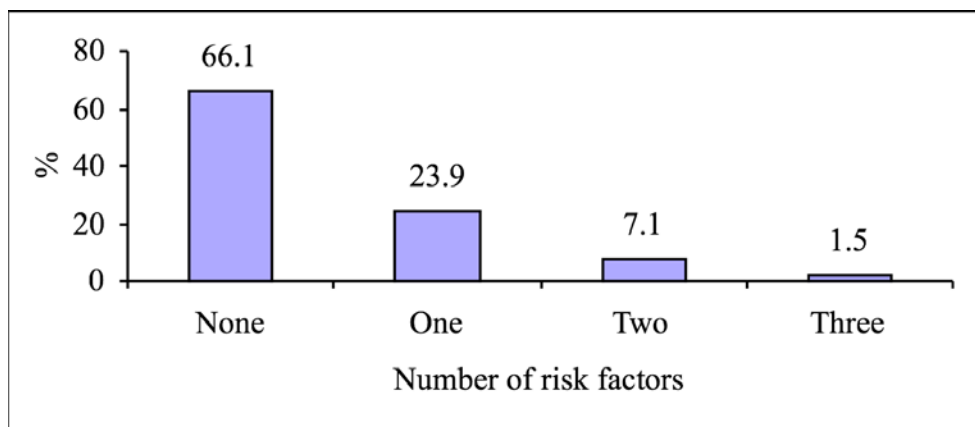
Six percent reported that, as children or teenagers, they had been the victims of physical abuse by someone close to them. Female rates were nearly twice as high as male rates (7.5% vs. 3.9%) (Figure 60 below).

Figure 60. Prevalence of childhood risk factors (%), by gender, Glace Bay, 2002



Two-thirds of Glace Bay residents (66%) did not report experiencing any of these three childhood risk factors. Almost a quarter reported one risk factor, and 8.6% reported two or more factors (Figure 61 below).

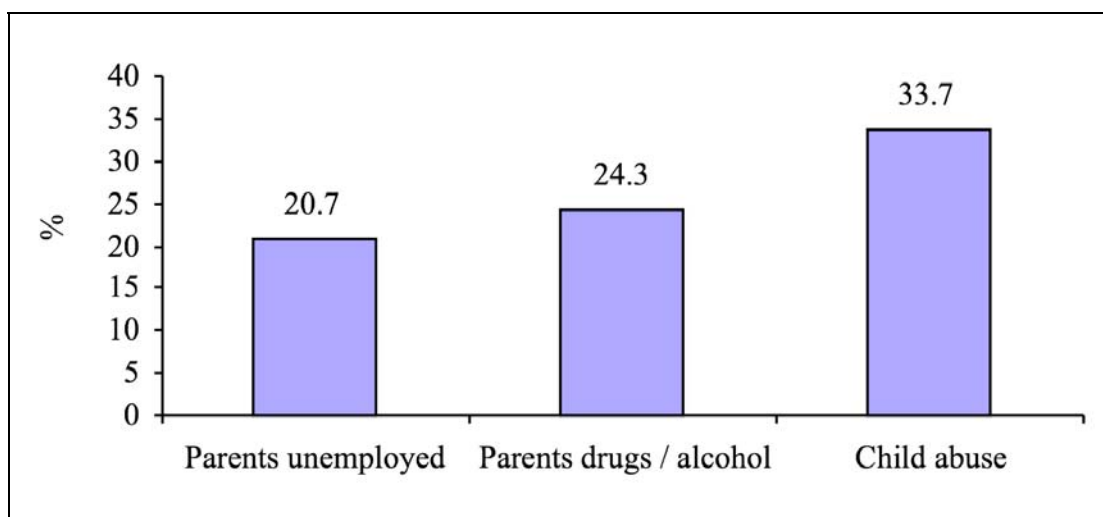
Figure 61. Prevalence of childhood risk factors (%), by number of risk factors, Glace Bay, 2002



Higher rates of depressed mood during adulthood were associated most strongly with child abuse. One-third of Glace Bay residents who had been physically abused as children or teenagers reported feeling sad, blue, or depressed for more than two weeks in a row, as did nearly one-quarter of those whose parents had drunk or used drugs so often as to cause family problems, and more than one in five of those whose parents had been unemployed for long periods during their childhood (Figure 62 below).

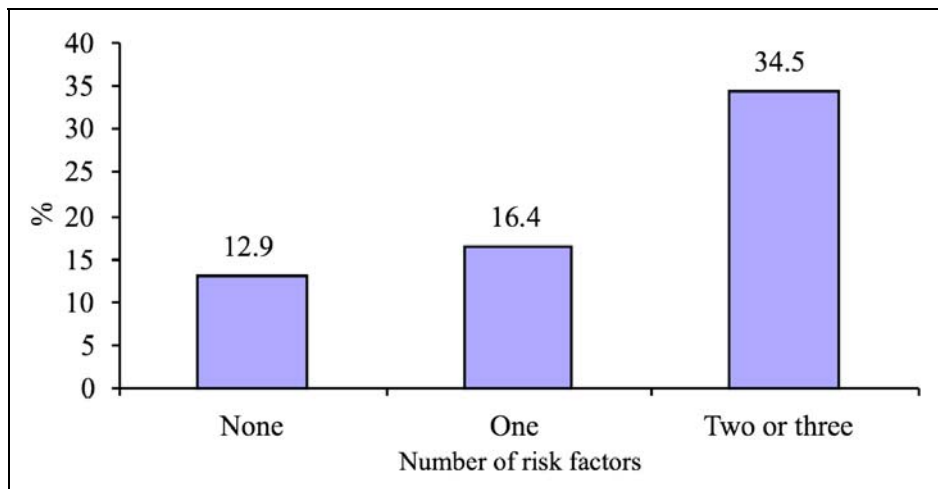
Compared to the depressed mood rate of 15.7% in the population as a whole, the results in Figure 62 show significant associations between all three childhood risk factors and the propensity to feel depressed in adulthood.

Figure 62. Relation of childhood risk factors to propensity to feel sad, blue, or depressed for two or more weeks (%), Glace Bay, 2002



The propensity to feel sad, blue, or depressed for an extended period was also strongly associated with the *number* of childhood risk factors experienced by respondents. Only 13% of respondents with none of these childhood risk factors reported depressed mood while the rate climbed to almost 35% among those experiencing two or more of these risk factors (Figure 63 below).

Figure 63. Propensity to feel sad, blue, or depressed for two or more weeks (%), by number of childhood risk factors, Glace Bay, 2002



Life Stress, Time Stress, and Job Stress

Percentage of respondents rating their lives as somewhat or very stressful, and percentages time-stressed and job-stressed.

Stress is described here as a separate social-psychological determinant of health, but it can clearly flow from any of the economic and social determinants of health and from several major risk conditions—poverty, unemployment, job insecurity, overwork, lack of control at work, family violence, lack of social support, and so on. As with all determinants of health, the issue is not to identify a separate causal link to health or illness for any one determinant, but to indicate the dynamic interplay and synergy of multiple health determinants, and to identify intervening processes that may exacerbate or ameliorate particular health outcomes.

Stress is both an outcome of other health determinants and a key influence on mental and physical health in its own right. To give one example, gender has long been recognized by Health Canada as a key determinant of health, since women's health outcomes differ from those of men in several important ways. In this case, stress is a particularly important indicator of women's health, since women report higher levels than men of both chronic stress in general and time stress in particular.

Stress has been shown to have adverse physical outcomes for both men and women, but in many cases key stressors have particular origins in women's social-structural roles. For example, stress can be

occasioned by the financial pressures of both gender pay inequity and single parenthood, and by the double burden of paid and unpaid work that is generally borne more intensely by women.

Time stress, or the intense struggle to juggle domestic and work schedules, and to balance work, family, and life responsibilities, may also lead to adverse health outcomes by fostering unhealthy lifestyle behaviours. One Statistics Canada study found that women working longer hours had higher rates of smoking, physical inactivity, depression, and unhealthy weight gain.⁸¹

Indeed, Statistics Canada's time use survey data indicate that time stress rates are rising across the country, with full-time working mothers consistently recording significantly higher rates than men of life stress in general and time stress in particular. In fact, full-time working mothers are the most highly time-stressed demographic group in Canada, when both paid and unpaid work are counted, with full-time working lone mothers experiencing the most time stress of all demographic groups.⁸²

Ground-breaking research in the last ten years has identified several of the biological mechanisms by which stress has an impact on health. Abundant evidence has existed for some time that stress is an independent risk factor for several chronic illnesses. However, more recent research has uncovered evidence on the physiological pathways between psychosocial stress, emotional arousal, and disease. Thus, it has been found that two stress-related neuro-endocrine pathways can adversely affect the heart—the pituitary adrenal system, activated when there is depression, withdrawal, or loss of control, and the sympathetic adrenal medullary system, activated in response to the “fight or flight” syndrome.⁸³

Work is also a significant source of stress for many Canadians. Statistics Canada's 1994/1995 Population Health Survey found that key factors which played a significant role in producing and exacerbating work stress were job strain—defined as the “measure of the balance between the psychological demands of a job and the amount of control or decision-making power it affords”—job insecurity; high physical demands; and lack of supervisor and co-worker support.⁸⁴

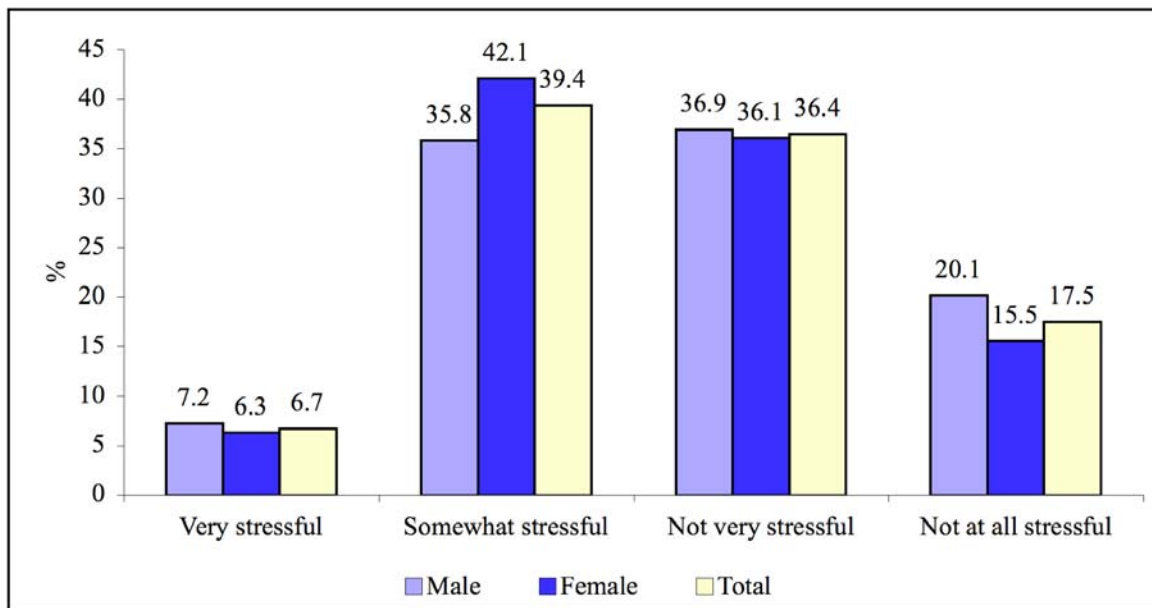
While long work hours, increased time pressure, and even burnout are the experience of a growing number of workers today, they are clearly not the only cause of work stress. Work “underload,” and lack of stimulus, challenge, and variety of work are also causes for concern that have been related to job stress. Inadequate work, demand, and hours may be associated with a perceived threat of layoff, with income loss, and with the economic stress of not being able to make ends meet.⁸⁵

Here we examine in turn three types of stress that have been well-documented in the literature and that have all be shown to have an adverse impact on health and wellbeing—chronic life stress, time stress, and job stress.

Chronic life stress

Forty-six percent of Glace Bay residents described their lives as somewhat or very stressful. Rates of self-reported life stress were significantly higher among Glace Bay females than among males (48.4% vs. 43%) (Figure 64 below).

Figure 64. Life stress (%), by gender, Glace Bay, 2002



The CCHS asked respondents 18 and over if they felt that “most days” were “extremely stressful,” “quite a bit stressful,” “a bit stressful,” “not very stressful,” or “not at all stressful.” Some of the categories were then combined and reported as “quite a lot” of stress, “some” stress, “not at all” stressed, or “not stated.” The Glace Bay GPI survey asked respondents 15 and older whether their lives were “very stressful,” “somewhat stressful,” “not very stressful,” or “not at all stressful.”

In the CCHS reporting on stress levels, the category “not very stressful” was combined with “a bit stressful” to come up with the “some” life stress category, while “quite a bit stressful” and “extremely stressful” were combined to form the “quite a lot” of stress category. Then these two broader categories were further combined to indicate whether respondents experienced at least some degree of stress on most days.

If we were to combine the Glace Bay figures in this way—combining “very stressful,” “somewhat stressful” and “not very stressful”—we would find that, overall, 83% of Glace Bay respondents reported at least some degree of stress in their lives, compared with 84% of Cape Bretoners, 87% of Nova Scotians, and 88% of Canadians reporting at least some stress on most days.⁸⁶

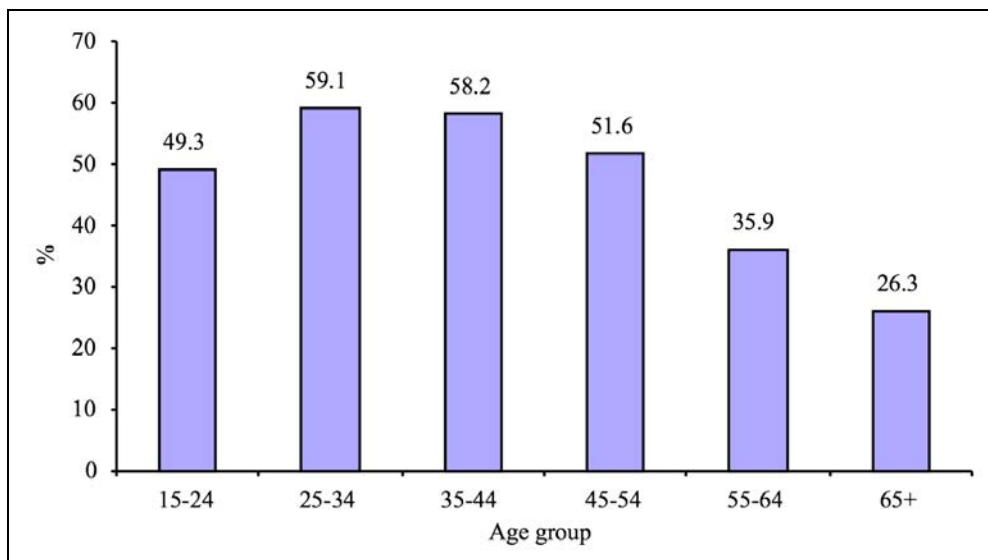
However, the questions were sufficiently different (particularly since the CCHS asked about stress on “most days,” while the Glace Bay survey asked about “life” stress in general), and the combination of

categories too broad (particularly in folding in the “not very stressful” category) to use such comparisons in any meaningful way. Rather, the explanation is provided here simply to make transparent the differences in the way the questions were posed and reported in the different surveys.

For our purposes, and for any future updates of these data, what matters is simply to know that 46% of Glace Bay residents in 2002 considered their lives at least somewhat stressful, with Glace Bay women significantly more likely to experience life stress than men (48.4% vs. 43%).

In Glace Bay, rates of life stress were highest among respondents between the ages of 25 and 44, and then fell across age groups. Thus, Glace Bay seniors (aged 65+) were less than half as likely to experience their lives as somewhat or very stressful as those aged 25–44 (Figure 65 below). These results are likely related to employment, income, and demographic realities—with younger adults struggling to support families, while seniors generally have fewer time, income, and family responsibility pressures.

Figure 65. Percent of respondents reporting life as very or somewhat stressful, by age, Glace Bay, 2002

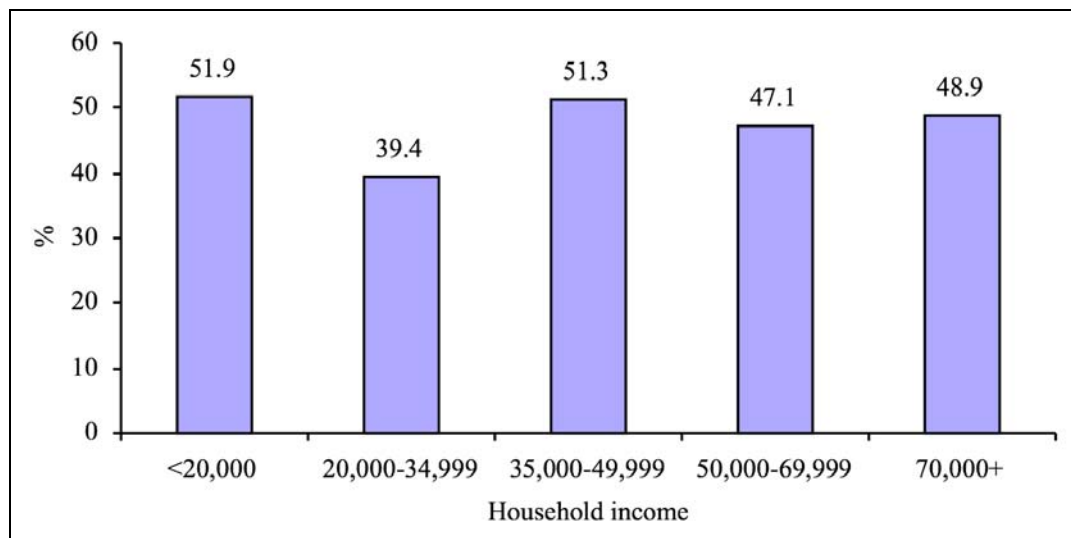


Interestingly, and in sharp contrast to other variables examined above, there was no predictable relationship between stress and income. In fact, respondents with household incomes between \$20,000 and \$35,000 reported the lowest levels of stress among income groups while all other groups showed relatively little variation (Figure 66 below).

Other evidence shows that poverty is a major stressor for the lowest income groups, while time pressures are major stressors for middle- and high-income groups. For example, in the GPIAtlantic Work Hours study, evidence was cited that Japanese men in relatively high paying jobs were at risk of sudden death caused by overwork—a phenomenon that has become so common an occurrence that it has been given the name “karoshi,” which can loosely be translated as death by overwork. Since it was

first legally recognized in the 1980s, 30,000 Japanese have been diagnosed as victims of *karoshi*—their deaths attributed directly to overwork—and today there is even a national pension system in Japan for surviving members of *karoshi* victims’ families.⁸⁷ However, the Glace Bay results reported here provide no evidence that stress among Glace Bay residents is particularly attributable to such a phenomenon.

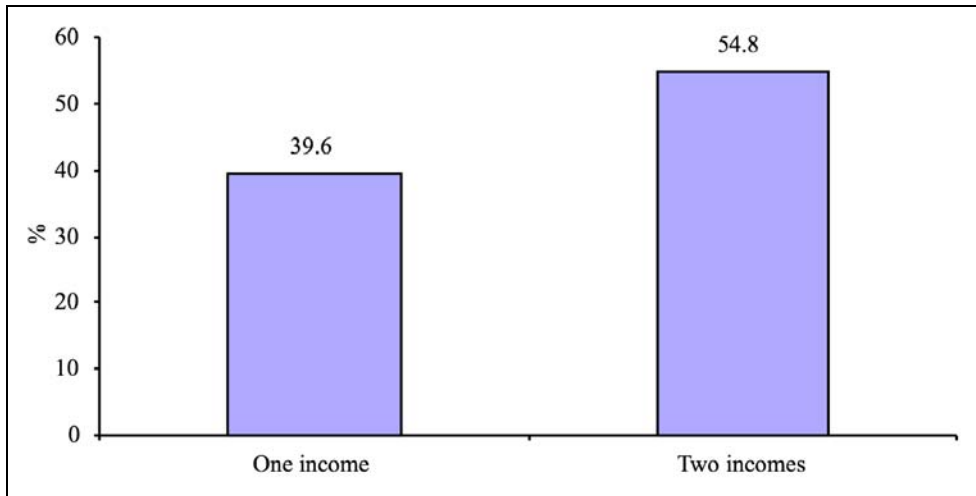
Figure 66. Percent of respondents reporting life as very or somewhat stressful, by household income, Glace Bay, 2002



While we noted that the Glace Bay income-related results alone show no direct or clear evidence of excess stress due to overwork, that picture changes significantly when the additional burden of unpaid work is taken into account and added to paid work. Thus, rates of life stress were found to be particularly high among Glace Bay residents who lived in two-income families, among whom more than half (55%) described their lives as somewhat or very stressful—compared to 40% of those in one-income families (Figure 67 below).

As noted below and in several other GPIAtlantic reports, the demands of juggling paid and unpaid work responsibilities have created major time stresses for dual earner families. GPIAtlantic’s major Work Hours report (available at www.gpiatlantic.org) records that the average dual earner household today puts in about 26 hours a week *more* work, when paid and unpaid work are combined, than the average household 100 years ago.⁸⁸

Figure 67. Percent of respondents reporting life as very or somewhat stressful, by single and dual earner families, Glace Bay, 2002



Time stress

As previously noted, time stress results from the struggle to juggle domestic and work schedules, and to balance work, family, and life responsibilities. Also as noted, Statistics Canada's time use survey data indicate that time stress rates are rising across the country, with full-time working mothers consistently recording significantly higher rates than men of life stress in general and time stress in particular.

In fact, we saw that full-time working mothers are the most highly time-stressed demographic group in Canada when both paid and unpaid work are counted. As they try to juggle the demands of both paid employment and unpaid household work, they put in an average of 75 hours or work a week when paid and unpaid work are combined. Working single mothers have a particularly daunting challenge, as they shoulder the entire burden of unpaid household work alone, coming home from their paid jobs to face the full demands of child care, cooking, cleaning, shopping, and laundry largely by themselves. As a result, full-time employed lone mothers are classified by Statistics Canada as the most time-stressed group in Canada.⁸⁹

In 1992, 1998, and 2005, Statistics Canada administered a 10-question time stress survey as part of its General Social Survey Time Use Survey. That 10-question survey was replicated exactly in the Glace Bay GPI survey for the sake of comparability, with both questions and results presented in Table 9 below. Respondents who answered affirmatively to at least 7 out of 10 questions in this survey were classified by Statistics Canada as "severely time stressed." Those who answered affirmatively to between 4 and 6 out of 10 questions were classified as "moderately time stressed," and those who answered affirmatively to fewer than 4 out of 10 questions were considered not to be time stressed.

Based on this classification, Table 9 below indicates that Glace Bay residents are considerably less time stressed than most other Nova Scotians and Canadians. Fifteen percent of Glace Bay residents can be considered severely time stressed, compared to 18.3% of Nova Scotians and 16.4% of Canadians in

Statistics Canada's 2005 Time Use Survey. Another 27% of Glace Bay residents can be classified as moderately time stressed, compared to 28.1% of Nova Scotians and 30.5% of Canadians. A total of 42% of Glace Bay residents can be counted as at least moderately time stressed, compared to 46.3% of Nova Scotians and 46.9% of Canadians—indicating that Glace Bay residents are generally less likely to be time stressed than other Nova Scotians and Canadians.

Among the various specific questions asked to assess overall time stress, it is notable that almost half of Glace Bay residents reported that they often felt at the end of a day that they had not accomplished what they had set out to do and that they felt stressed when they did not have enough time. As well, nearly 40% worried that they did not spend enough time with family and friends. Despite these time pressures, only 18.5% said they planned to slow down in the coming year (see Table 9 below).

There were some notable gender differences in the results. Female respondents were significantly more likely to report a number of time-related stresses. They were more likely than men to report that they were under stress to accomplish more than they could handle, that they accomplished less than they wanted, that they felt stressed by a lack of time, that they sacrificed sleep, that they felt trapped in a daily routine, and that they lacked fun in their lives. They were also more likely to report that they would like to have more time alone.

Males did not report a significantly higher prevalence of any of the actual symptoms of time stress. The only two questions that males were more likely than females to answer affirmatively were labelling themselves workaholics and planning to slow down in the coming year, though these two questions were in any case answered affirmatively by fewer than one in five respondents (Table 9 below).

Table 9. Time stress (%), by gender, Glace Bay, 2002

Dimensions of time stress	Male	Female	Total
Do you plan to slow down in the coming year	19.4	17.8	18.5
Do you consider yourself a workaholic	17.0	13.9	15.3
When you need more time, do you tend to cut back on your sleep	39.0	44.3	42.1
At the end of the day, do you often feel that you have not accomplished what you set out to do	44.8	49.6	47.5
Do you worry that you don't spend enough time with your friends and family	37.0	38.2	37.7
Do you feel that you're constantly under stress trying to accomplish more than you can handle	30.3	39.7	35.7
Do you feel trapped in a daily routine	27.5	36.7	32.7
Do you feel that you just don't have fun anymore	21.8	27.8	25.2
Do you often feel under stress when you don't have enough time	39.1	54.3	47.8
Would you like to spend more time alone	16.9	25.1	21.6

Job stress

While unemployment and underemployment create their own major stresses, paid work can also create significant stresses on employees as a result of excess demands and hours, personnel conflicts, job insecurity, lack of decision-making latitude, and other job-related pressures.

As previously noted, Statistics Canada found that key factors which played a significant role in producing and exacerbating work stress were job strain—defined as the “measure of the balance between the psychological demands of a job and the amount of control or decision-making power it affords”; job insecurity; high physical demands; and lack of supervisor support and co-worker support.⁹⁰

In addition, as noted above, work “underload,” and lack of stimulus, challenge, and variety of work, can also cause work stress. Inadequate work, demand, and hours may be associated with a perceived threat of layoff, with income loss, and with the economic stress of not being able to make ends meet.⁹¹

Among employed residents of Glace Bay, the most frequent source of job stress was “too many demands” (reported by 28% of employees) followed by a threat of job loss or layoffs (20%), too few hours (14%) and the risk of accidents and injuries (12%)(Table 10 below). There were some significant gender differences in these results. Females were significantly more likely to report too many demands (31% vs. 24%) while males were significantly more likely to report a threat of job loss or layoffs (27% vs. 14%).

Table 10. Job stress (%), by gender, Glace Bay, 2002

Dimensions of job stress	Male	Female	Total
Too many demands	23.7	30.9	27.5
Too many hours	10.1	9.6	9.8
Too few hours	12.3	15.3	13.9
Lack of autonomy / control	9.8	9.1	9.4
Risk of accident / injury	13.4	11.4	12.3
Interpersonal relations	8.4	9.1	8.8
Threat of layoff / job loss	26.8	14.1	20.1
Other	6.7	7.9	7.3

Decision Control

The percentage of respondents who report feeling control over most or all of the decisions that affect their everyday lives.

Abundant evidence now points to a strong correlation between the degree of control that individuals feel over the decisions that affect their daily lives on the one hand and their overall mental wellbeing on the other hand. For example, one study found that women forced to relocate involuntarily had

significantly higher levels of stress and diminished satisfaction and wellbeing than those who had relocated voluntarily.⁹² Another study found that differences in perceived control over life events significantly affected socioeconomic differences in self-rated health status.⁹³

Because Glace Bay, in the last two decades, has seen the decline or loss of key industries like fishing, coal, and steel (in nearby Sydney), which, in turn, has adversely affected the livelihoods of residents, it might be expected that such circumstances beyond their individual control would affect their overall sense of control over life events and thus their wellbeing. However, this does not appear to be the case for the vast majority of Glace Bay residents.

Only about 14% of Glace Bay respondents reported that they felt little or no control over decisions that affect their everyday activities. A majority (54%) reported that they felt control over *most* decisions, while 32% felt control over *all* decisions that affected their daily lives. There were no significant differences between males and females (Figure 68 below).

There was, however, a significant relationship between age and decision-control, with the sense of control over decisions affecting everyday activities increasing with age. The respondents most likely to experience control over most or all decisions affecting their lives were seniors aged 65 and over (94%), followed by those aged 55–64 (92%). Substantially lower percentages were apparent among younger Glace Bay residents aged 15–44 (79–81%) (Figure 69 below).

There was also a significant relationship between decision-control and household income. Respondents in the lowest income group reported the lowest levels of control (80%) while those in the highest income group reported the highest levels of control (93%) (Figure 70 below).

A significant relationship was also apparent between decision-control and labour force activity. This was primarily due to high reported rates of control among retired persons (93%) and lower rates among unemployed persons (79%). Between 83% and 85% of students, homemakers, and employed residents of Glace Bay said they felt control over most or all decisions affecting their everyday activities (Figure 71 below).

Figure 68. Self-reported control over decisions that affect respondent's life (%), by gender, Glace Bay, 2002

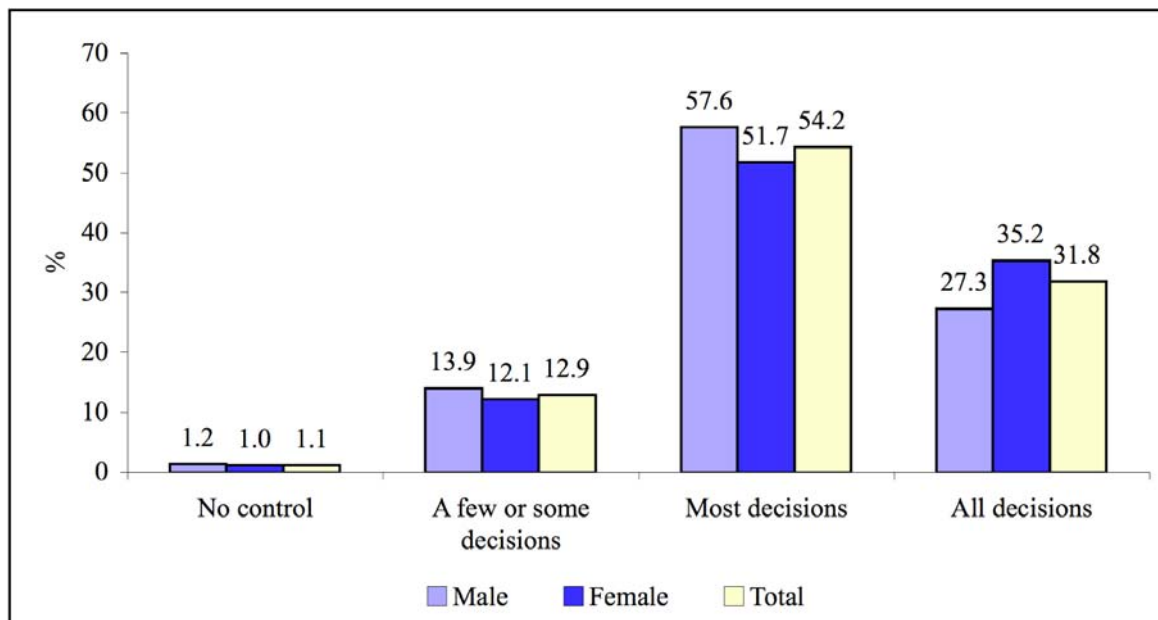


Figure 69. Percent of respondents reporting that they had control over most or all of the decisions affecting their lives, by age, Glace Bay, 2002

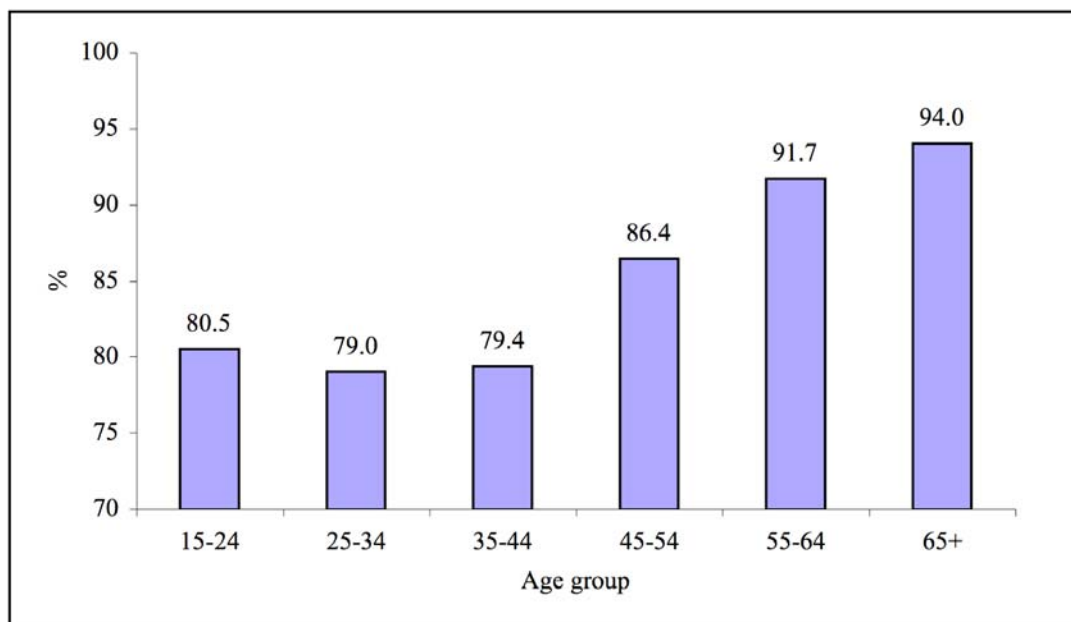


Figure 70. Percent of respondents reporting that they had control over most or all of the decisions affecting their lives, by household income, Glace Bay, 2002

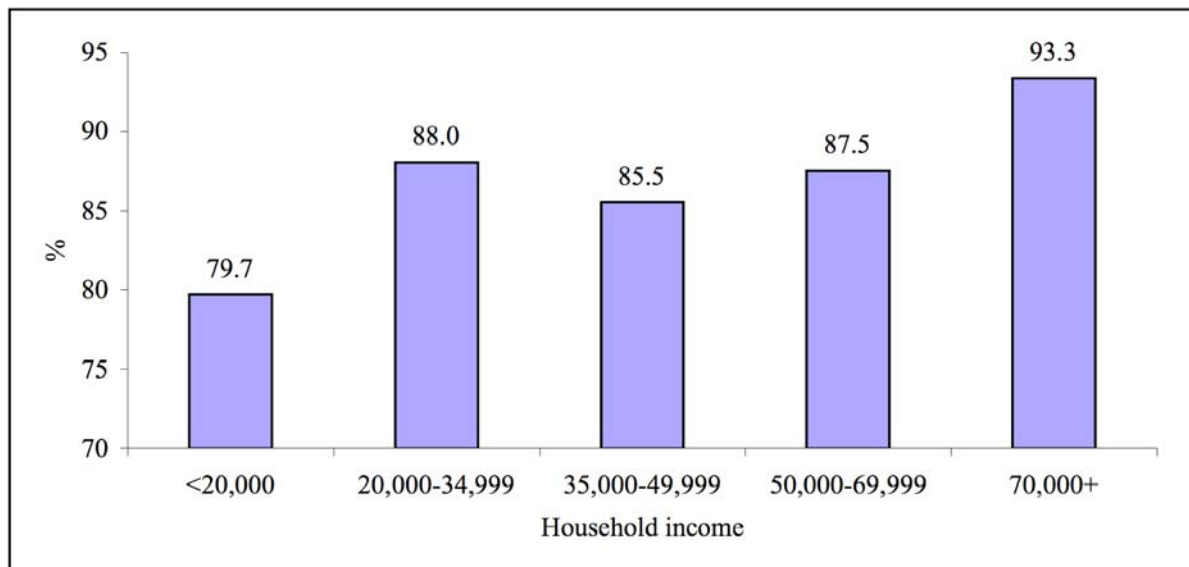
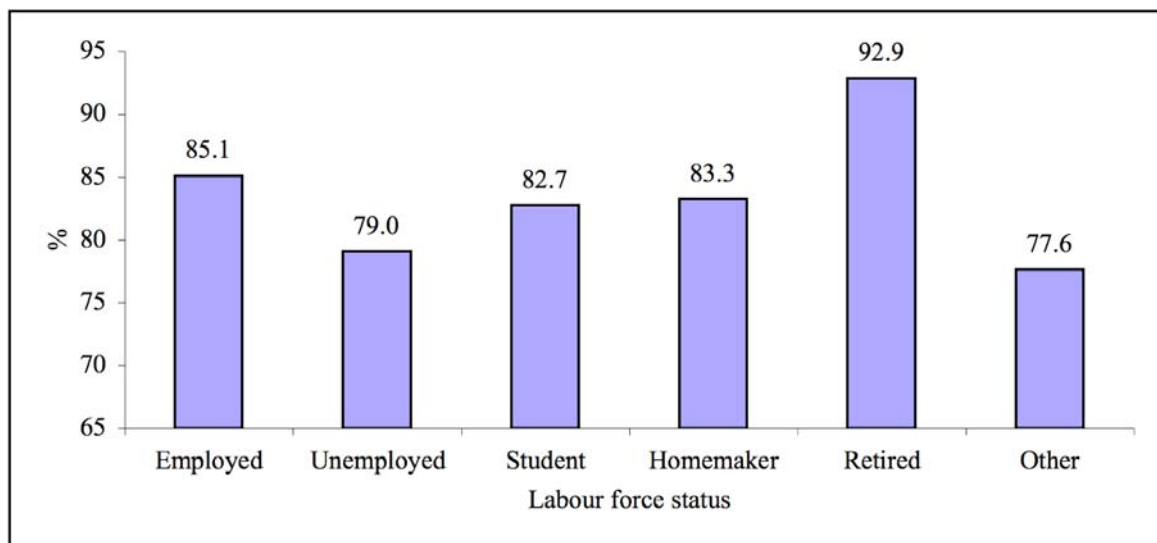


Figure 71. Percent of respondents reporting that they had control over most or all of the decisions affecting their lives, by labour force status, Glace Bay, 2002



A note on the mental health of youth and seniors in Glace Bay

A very clear age-related pattern emerges in this chapter, with youth not faring nearly as well as older residents of Glace Bay on every indicator. Since younger Glace Bay residents are seen to have significantly higher rates of emotional distress, feeling depressed, cognitive difficulties, stress, and lack of decision-control than older residents, one may conclude that older Glace Bay residents (and seniors in particular) are mentally healthier than younger ones.

Indeed, results in other chapters confirm that—virtually across the board—there is a real pattern in which youth are doing worst on a wide range of wellbeing indicators and older folk best. For example, youth in Glace Bay were also seen to have significantly lower rates of life satisfaction and happiness than older residents. Since sustainability measures intend to assess, in large part, whether future generations will be as well off as the present one, these results are of considerable concern, particularly since they appear to mirror national trends that point to a decline in wellbeing among the young.

A recent report prepared for the Canadian Index of Wellbeing, for example, noted “a worrisome downward trend in the health outcomes for Canada’s youth, 12–19 years [. . .] a trend that augurs poorly for their health as this generation advances in age.”⁹⁴ Based on data from the Canadian Community Health Surveys and National Population Health Surveys, the report pointed to a marked decline in the share of young Canadians reporting excellent or very good health, a steadily increasing share reporting problems with everyday functions, and notably higher rates of depression than among older Canadians.

There is some evidence that these adverse health and wellbeing outcomes may be related to increased economic stresses—including higher rates of youth unemployment, job insecurity, low-wage income, and student debt than two or three decades ago. Conversely, seniors are doing much better economically than two or three decades ago, with Old Age Security, Guaranteed Income Supplement, and other reforms in the late 1970s and early 1980s almost halving the rate of poverty among seniors nationwide. Given the weight of research evidence linking health and subjective wellbeing with economic security, the age-related mental health and wellbeing disparities observed in this chapter and elsewhere may well have economic roots.

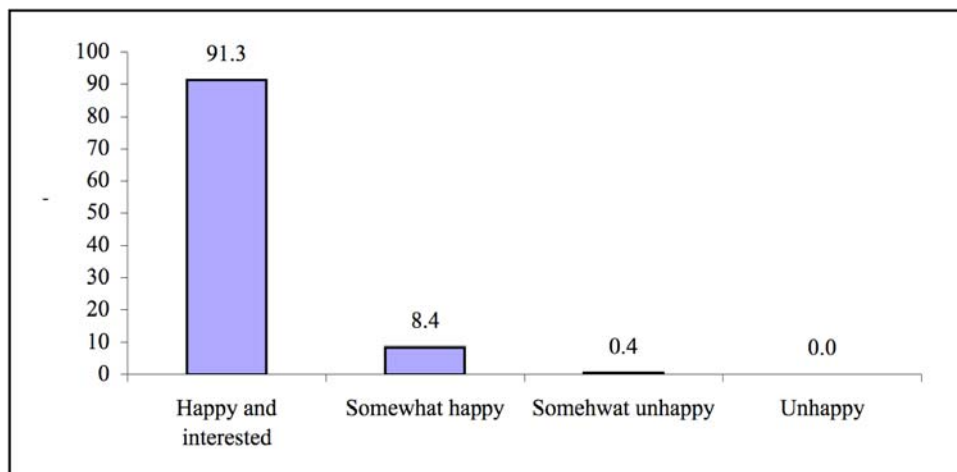
4.4 Child Health

Child Happiness

Respondents with children aged 0 to 11 were asked to rate the usual level of happiness of their child or children on a five point scale—happy and interested in life, somewhat happy, somewhat unhappy, unhappy with little interest in life, so unhappy that life is not worthwhile.

The vast majority (91%) of Glace Bay residents rated their children as happy and interested in life while a further 8% rated them as somewhat happy. Less than half of one percent of respondents rated their children as somewhat unhappy and none rated their children as unhappy (Figure 72 below).

Figure 72. Proportion of respondents reporting their children aged 0–11 as happy (%), Glace Bay, 2002



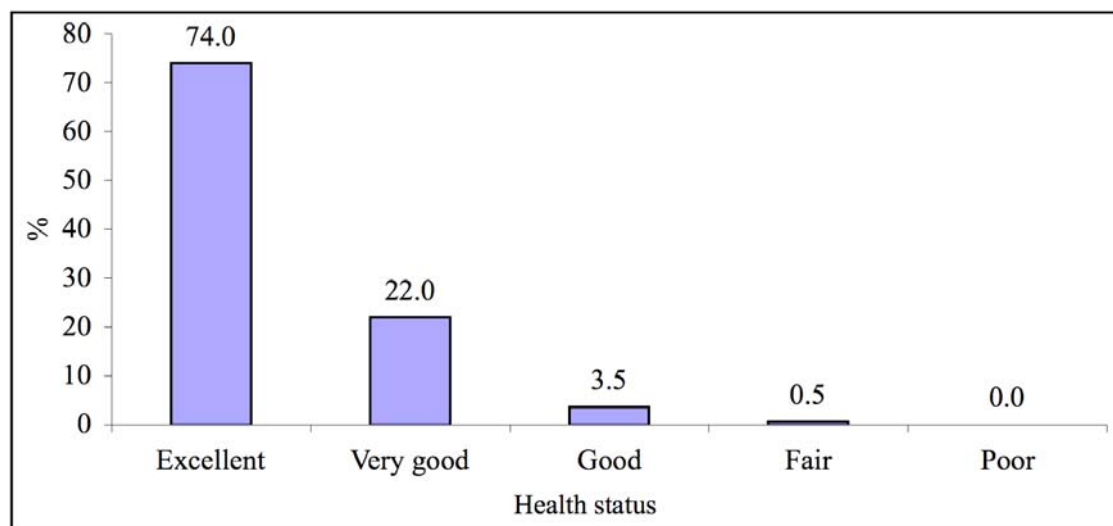
Child Health Status

Respondents with children aged 0 to 11 were asked to rate the health status of each child on a five-point scale—excellent, very good, good, fair, or poor.

Nearly three-quarters (74%) of Glace Bay residents with children aged 0–11 reported their children's health to be excellent, while a further 22% rated it as very good, and 3.5% as good. Thus, 96% of respondents rated their children's health as very good or excellent, and nearly everyone (99.5%) rated it as good, very good, or excellent (Figure 73 below). If their parents are to be believed, Glace Bay children are clearly healthy.

Comparative provincial and national data from the National Longitudinal Survey of Children and Youth (NLSCY) are available for purchase from Statistics Canada for about \$200. Unfortunately, limited resources did not permit the purchase of this material at this time.

Figure 73. Health status of children aged 0–11 as reported by parents (%), Glace Bay, 2002



Child Chronic Conditions

Respondents with children aged 0 to 11 were asked to indicate whether any of their children have been diagnosed with a chronic condition (i.e., a long-term condition expected to last six months or more).

The most common chronic condition among Glace Bay children aged 0 to 11 is asthma (11%). A chronic inflammatory disorder of the airways, asthma can cause wheezing, difficulty in breathing, and chest pain, and is the most common chronic disease among children in North America.⁹⁵ It is a major cause of hospitalization for young children in Canada, contributing to 12% of all hospital admissions in the birth to 4 years age group.⁹⁶

A British study also found asthma to be the leading cause of absenteeism from school.⁹⁷ A 2006 report by the Commission for Environmental Co-operation found that asthma rates among children in some parts of North America are four times higher than they were 20 years ago, and that poor urban children are at greater risk.⁹⁸ Exposure to second-hand smoke and air pollution have been found to contribute to asthma incidence and severity.⁹⁹

At first glance, childhood asthma rates in Glace Bay appear to be lower than provincial, regional, and national rates, although considerable caution must be exercised in this comparison, as the Glace Bay GPI question was worded slightly differently than the comparable question in Statistics Canada's National Longitudinal Survey of Children and Youth (NLSCY), and was for a younger age group (0–

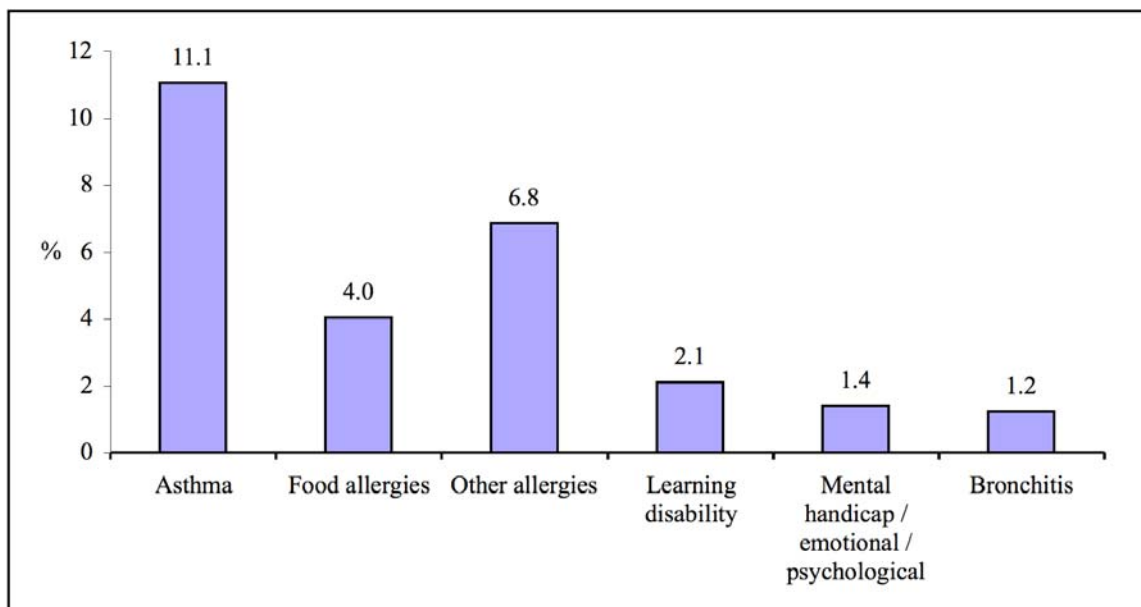
11 vs. 0–15). The Glace Bay GPI only asked parents to report on chronic (long-term) conditions of 6 or more months, while the NLSCY simply asked whether the child had ever been diagnosed with asthma. This would help explain why the Glace Bay results are lower than those in the NLSCY.

Thus, while the Glace Bay GPI found that 11% of children 0–11 in the town had chronic asthma lasting 6 or more months, the NLSCY found that 16% of children 0–15 in Nova Scotia have ever been diagnosed with asthma (18.9% among boys and 12.9% among girls), compared to 15.5% in the Atlantic provinces—the region with the highest rates in the country—and 13% in Canada overall (16% for boys and 11% for girls).¹⁰⁰

In terms of prevalence of childhood chronic conditions in Glace Bay, asthma is followed by non-food allergies (6.8%) and food allergies (4%). As well, 2.1% of Glace Bay children aged 0–11 have been diagnosed with a learning disability, 1.4% have been diagnosed with a mental handicap or emotional / psychological condition, and 1.2% with chronic bronchitis (Figure 74 below).

Other chronic conditions (diabetes, heart conditions, epilepsy, cerebral palsy, kidney disease) were each diagnosed in fewer than 1% of Glace Bay children. In total, fewer than 4% of children were diagnosed with one of those conditions.

Figure 74. Incidence of chronic conditions among children aged 0–11 as reported by parents (%), Glace Bay, 2002

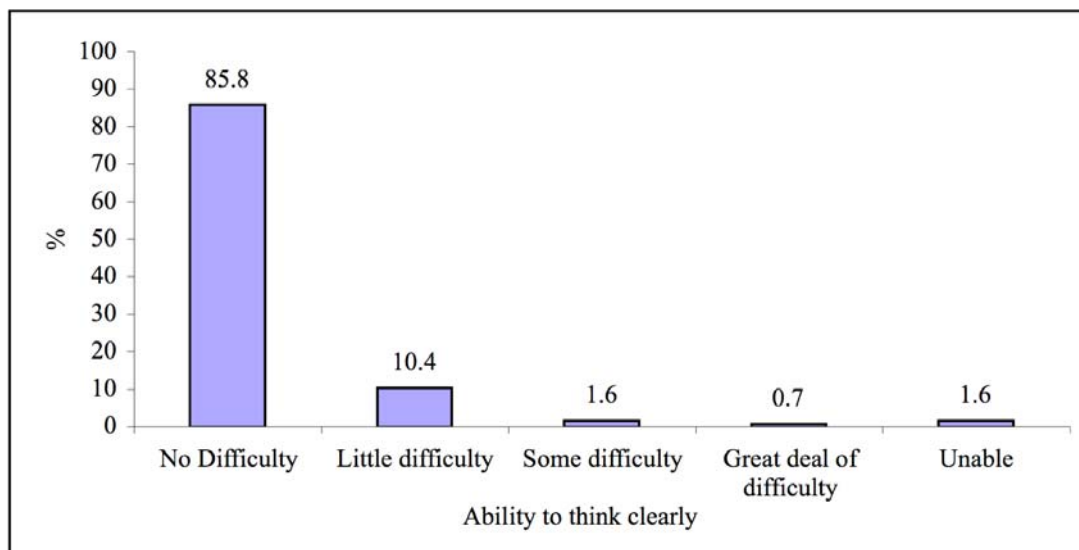


Child Cognitive Functioning

Respondents with children aged 0 to 11 were asked to rate their children's ability to think and solve day-to-day problems on a five-point scale—able to think clearly and solve problems, having a little difficulty, having some difficulty, having a great deal of difficulty, and unable to think or solve problems.

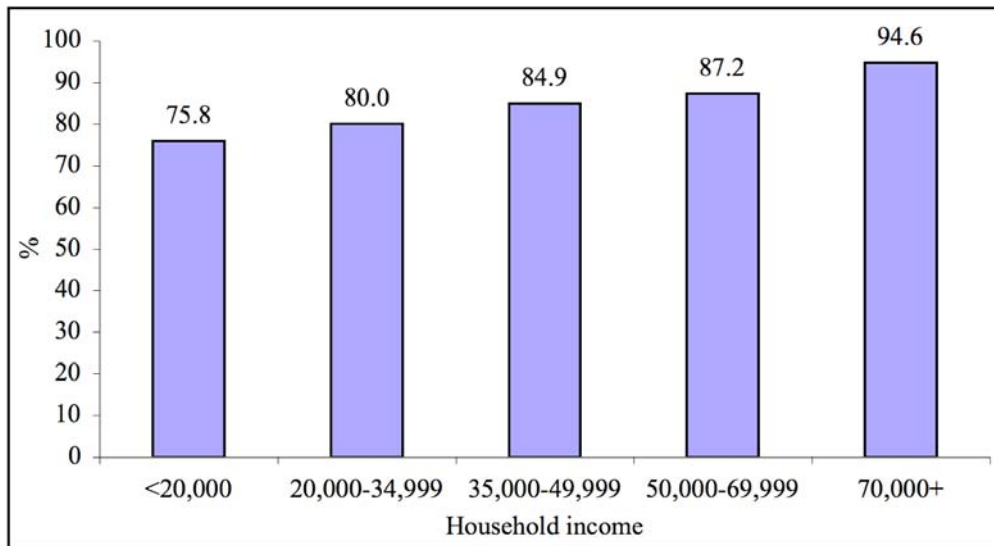
The vast majority of respondents (86%) indicated that their children had no difficulty in thinking clearly and solving daily problems, while a further 10% indicated that their child experienced only a little difficulty (Figure 75 below). In other words, nearly all Glace Bay children aged 0–11 seem to have good cognition. The tiny proportion (1.6%) reported as unable to think or solve problems may have more to do with age of child (i.e., babies) than with cognitive problems.

Figure 75. Ability of children aged 0–11 to think clearly and solve problems as reported by parents (%), Glace Bay, 2002



There was a significant income gradient in children's cognitive functioning. While nearly one in four Glace Bay children (0–11) in the lowest income group were reported to have at least a little difficulty in cognitive functioning, this was true of only 5% of children in the highest income households (Figure 76 below).

Figure 76. Child's cognitive ability as reported by parents (percent reporting no difficulty), by household income, Glace Bay, 2002



4.5 Preventive Health Care

Screening allows early detection, and thus more effective treatment, of several chronic illnesses. Lack of screening can therefore be considered a risk factor in the progression of chronic diseases and in the likelihood of avoidable, premature death. Early detection and treatment of hypertension, for example, can also avoid the onset of related cardiovascular diseases like heart disease and stroke.

Mammogram
Percentage of women aged 45–64 years reporting that they had received a screening mammogram within the previous two years.

Canadian women have a one in nine lifetime risk of breast cancer—the most common cancer to affect women. One in 25 Canadian women will die from breast cancer, and incidence of breast cancer has been rising steadily. Because of the relatively young age at which women die from breast cancer, it results in 98,000 potential years of life lost each year in Canada. The three Maritime provinces have among the highest rates of breast cancer incidence in the country.¹⁰¹

According to Health Canada, early detection of breast cancer through mammograms has been shown to reduce mortality in women age 50–69, and the breast cancer mortality rate is now at its lowest since 1950.¹⁰² The Advisory Group on Population Health reports that: “The dramatic increase in mammography use is a positive example of how public education combined with efficient screening practices can make a dramatic difference in the use of proven preventive measures.”¹⁰³

Currently, mammograms are recommended every two years for women in this age group. It is also recommended that mammogram screening be combined with physical breast examination by a health care professional and with teaching and monitoring of breast self-examination.¹⁰⁴

In Glace Bay, 40% of women aged 45–64 years reported that they had received a screening mammogram within the previous two years. This rate was substantially higher than the 2003 rate of 31% that was reported in the Canadian Community Health Survey for women in Cape Breton aged 50–69 years. Though the somewhat different age categories in these surveys do not allow for proper comparisons, it appears that the Glace Bay rate of mammogram screening for women aged 45–64 (40%) was relatively close to the provincial rate of 43% for women aged 50–69, and below the national rate of 49% for 50–69 year-old women.¹⁰⁵

Blood Pressure Monitoring

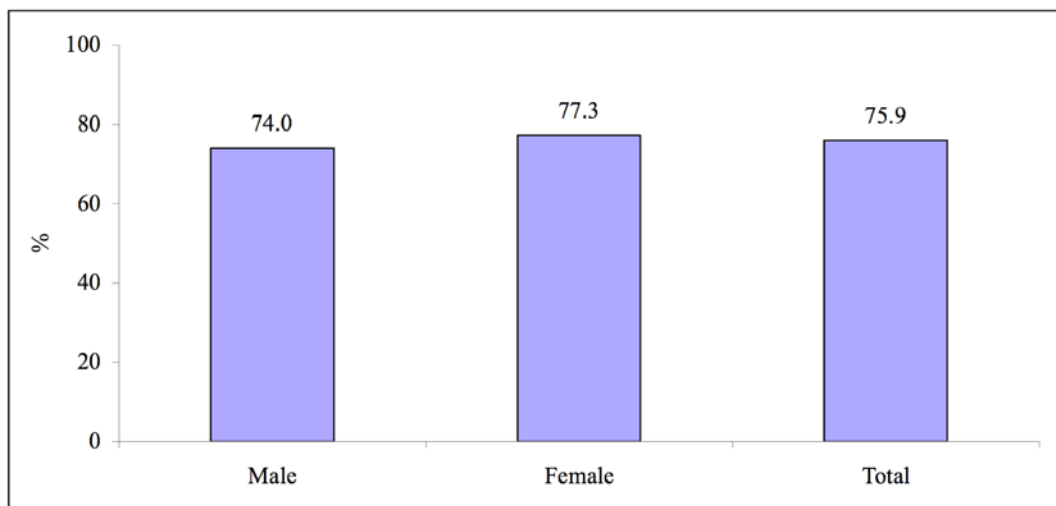
Percentage of respondents reporting that their blood pressure had been monitored within the past year.

High blood pressure is a principal risk factor for coronary heart disease and stroke, and has been estimated to account for 15% of all deaths and 24% of premature deaths.¹⁰⁶ Fortunately, it can be detected with a simple test, and successfully controlled when diagnosed. Blood pressure checkups are recommended at least once a year, yet nearly one-quarter of Glace Bay residents and nearly 30% of Canadians do not heed that advice.

Thus, the Glace Bay GPI survey found that 76% of respondents in Glace Bay reported that their blood pressure had been monitored within the past year. Females (77%) were slightly more likely than males (74%) to have monitored their blood pressure within the previous year (Figure 77 below).

The rate of monitoring in Glace Bay is actually better than in the country as a whole. Among Canadians 15 and older, only 71% indicated in 2000/2001 that they had their blood pressure checked within the past year, a percentage that has actually gone down since 1985. As well, 7% of Canadians aged 12 and up have never had a blood pressure checkup. Provincially, British Columbia had the lowest proportion with a blood pressure checkup in the last year (66%) while Ontario and Nova Scotia had the highest (75%).¹⁰⁷

Figure 77. Percent of respondents reporting their blood pressure had been monitored within previous twelve months, Glace Bay, 2002



Pap Smears

Percentage of women reporting that they had received a Pap smear within the previous year.

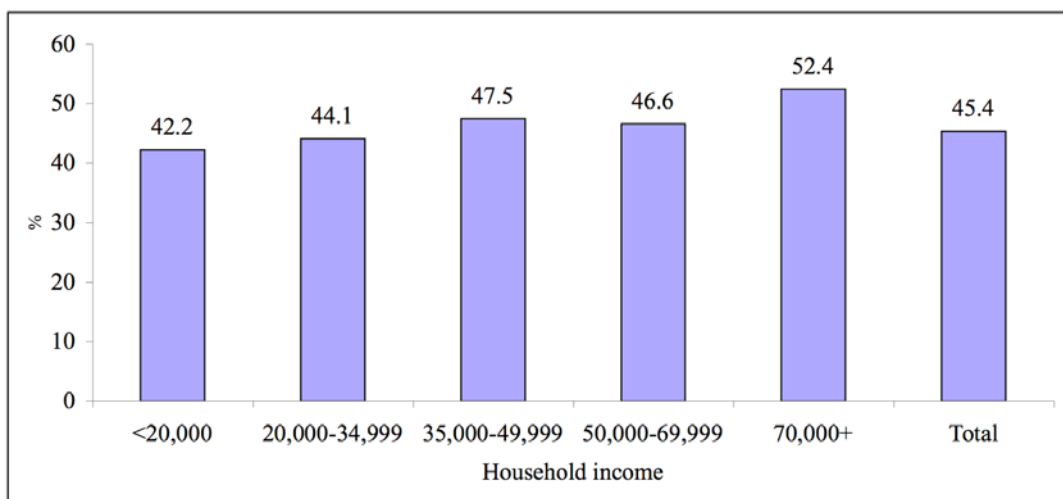
Cervical cytology screening with a Pap smear reduces the incidence of and mortality from cervical cancer. As a result of the widespread adoption of this simple screening procedure, cervical cancer incidence and mortality rates have fallen dramatically across the country. Between 1969 and 1998, the age-standardized incidence rate fell from 21.8 to 8.3 cases per 100,000, and the mortality rate from 7.4 to 2.2 deaths per 100,000. Indeed, most cases of invasive cervical cancer today occur in women not previously screened or not screened recently. Pap smears are recommended every three years for women aged 18 and over.¹⁰⁸

Approximately 45% of Glace Bay women reported that they had received a Pap smear within the previous year. Although precisely comparable rates are not available because the Glace Bay survey asked the question of women 15 and older, whereas the national and provincial data are provided for women aged 18–69, the Glace Bay Pap smear rates still appear to be slightly lower than regional, provincial, and national rates.

According to the 2003 results of the Canadian Community Health Survey, Cycle 2.1, the proportion of women aged 18–69 years who had received a Pap smear within the last year was 53% in Cape Breton, 63% in Nova Scotia as a whole, and 51% nationwide.¹⁰⁹

It is noteworthy that Pap smear rates illustrated below in Figure 78 below show a relationship with household income. Glace Bay residents in the highest income group were 24% more likely to report having had a Pap smear within the last year than Glace Bay respondents in the lowest income group.

Figure 78. Percent of women who received a pap smear within the past twelve months, by household income, Glace Bay, 2002



Breast Examinations by a Health Professional

Percentage of female respondents reporting that they had received a breast examination by a health professional within the past twelve months

The American Cancer Society recommends that women in their 20s and 30s should have a clinical breast examination (CBE) by a health professional every three years, and that, after age 40, they should have such an examination every year. Early detection of breast cancer through professional breast examinations has been found to reduce breast cancer mortality and sharply improve the prospects for successful treatment.¹¹⁰

Approximately 35% of female respondents in Glace Bay reported that they had received a breast examination by a health professional within the past twelve months. Again, there was a sharp disparity in the rate of clinical breast examinations between high and low income women in Glace Bay, with women in the highest income group almost 75% more likely to report an examination than women in the lowest income group (Figure 79 below).

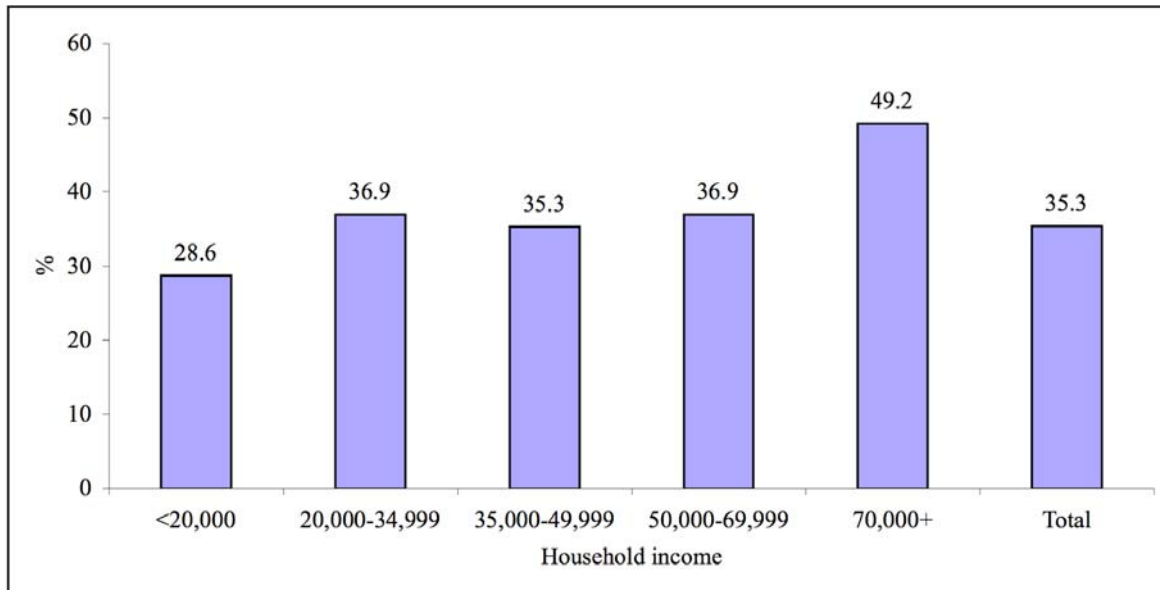
Although the Glace Bay results are again not entirely comparable with provincial and national averages, since the question on professional breast exams was asked to women 15 and older in Glace Bay, while provincial and national results are reported for women over 18, it is still clear that Glace Bay women were considerably less likely to have had a clinical breast exam in the last year than women in Nova Scotia as a whole and in Canada.

According to Statistics Canada, in 1996/1997 (the latest year for which provincial and national data are available), 67% of Canadian women and 72% of Nova Scotian women over the age of 18 had a breast exam in the last year, compared to just 35% reported in the Glace Bay GPI survey.¹¹¹

Further investigation is required to correlate these results with age and other socio-demographic factors, and to assess the reasons for the considerably lower than average rate of clinical breast examination in Glace Bay. This analysis should also include an assessment of existing policy guidelines and educational advice provided to women, cultural factors including the availability of female physicians, and the possible relationship of these results to the mammogram screening results reported above. Thus, the Glace Bay GPI survey question on this subject asked women: “Other than a mammogram, have you ever had your breasts examined for lumps [. . .] by a [. . .] health professional?” Those who answered “yes” were then asked how long ago they had their most recent CBE. It is therefore possible that Glace Bay women who rely on mammogram testing for early detection of breast cancer are less likely to consult a health professional for a separate clinical breast exam.

If such further analysis cannot adequately explain the considerable disparity in CBE rates indicated above, the results may warrant greater attention to CBEs in Glace Bay that could potentially save lives through improved rates of early detection of breast cancer. Local health authorities, including the East Cape Breton County Community Health Board, might wish to set a doubling of current CBE rates in Glace Bay as a target. To that end, they may wish to undertake a dedicated educational program, particularly among low income Glace Bay women who have the lowest CBE rates (Figure 79 below).

Figure 79. Breast exam by health professional during previous twelve months (%), by household income, Glace Bay, 2002



Chapter 5. Social Capital

Selected Indicators:	Social Support:	Social Support
	Volunteerism:	Rate of Formal Volunteerism Rate of Informal Volunteerism Volunteer Willingness to Give More Time
	Caregiving:	Caregiving

5.1 Social Support

Evidence from many studies indicates that social networks play an important role in protecting health, buffering against disease, and aiding recovery from illness. Conversely, lack of social support is linked to higher rates of cardiovascular disease, premature death, depression, and chronic disability.¹¹² For this reason, social support was identified and confirmed as a key non-medical determinant of health by CIHI's National Consensus Conference on Population Health Indicators.¹¹³

According to Health Canada, too, social supports play a vital role both in preventing illness and aiding quick recovery from illness:

Families and friends provide needed emotional support in times of stress, and help provide the basic prerequisites of health such as food, housing and clothing. The caring and respect that occur in social networks, as well as the resulting sense of well-being, seem to act as a buffer against social problems. Indeed, some experts in the field believe that the health effect of social relationships may be as important as established risk factors such as smoking and high blood pressure.¹¹⁴

Therefore the Glace Bay GPI survey asked respondents three key questions in this area, taken from Statistics Canada's population health surveys to assess levels of social support. The three questions were:

Do you have someone in your life you can really count on to help you out in a crisis situation?

Do you have someone you can you really count on to give you advice when you are making important personal decisions?

Do you have someone who makes you feel loved and cared for?

These three questions were chosen because we felt they were most indicative of the level of social support available. However, Statistics Canada calculates its social support index based on 24 questions in the CCHS, and reports the results not as separate responses to these individual questions but as a composite index of social support (according to whether levels are low, medium, or high).¹¹⁵ Therefore, further investigation of the micro data would be necessary to establish comparisons between these Statistics Canada data and the Glace Bay data.

As well, it must be noted that the Glace Bay GPI survey was administered to residents 15 years and older, while Statistics Canada's Canadian Community Health Surveys and National Population Health Surveys are administered to Canadians 12 and older. Also, because Nova Scotia did not participate in the social supports section of the 2003 and 2005 Canadian Community Health Surveys, the Kings County and Glace Bay data gathered by GPIAtlantic actually constitute the latest available Nova Scotian data on this subject.

Social Support	
The percentage of respondents who indicated that they had three important types of social support:	
Crisis support	
Decision-making support	
Feeling loved and cared for	

The vast majority of Glace Bay respondents reported very high levels of social support, with women expressing slightly higher levels of support than men, though the male–female gap was not statistically significant. In all, 96% of Glace Bay residents say they have someone they can count in a crisis, 95% have someone to give them advice when making important decisions, and 97% have someone who makes them feel loved and cared for (see Table 11 below).

In Nova Scotia overall, in 2000/2001—the latest year for which provincial data are available—only 2% of the population 12 and older reported low social support, 9.8% report medium social support, 85% reported high social supports, and 3% did not state an answer. In Canada, in 1996/1997—the latest year for which pan-Canadian data are available—results were similar: 1% reporting low social support, 11.6% medium, 83.4% high, and 4% not answering.¹¹⁶

Table 11. Percent who report social supports in crisis, decision-making, and love and care, Glace Bay, 2002

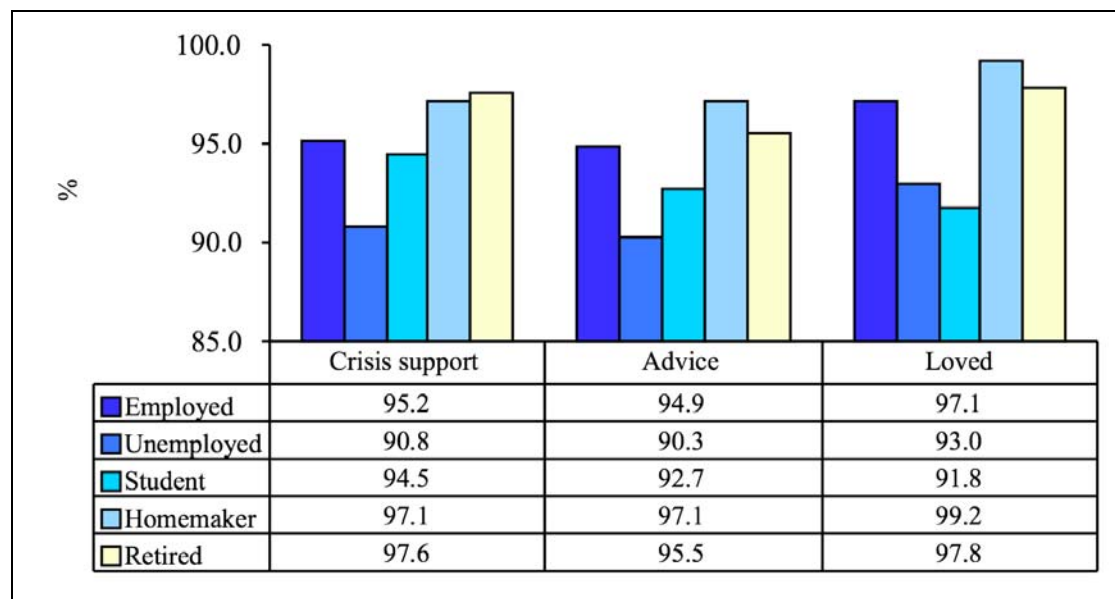
Type of social support	Male (%)	Female (%)	Total (%)
Someone you can count on in times of crisis	94.8	96.1	95.5
Someone to give you advice when making important decisions	93.3	95.6	94.6
Someone who makes you feel loved and cared for	96.4	97.1	96.8

The results clearly indicate that Glace Bay residents have very strong social networks.

However, there were significant differences in levels of social support according to respondents' socioeconomic and demographic status.

For example, unemployed residents and students in Glace Bay reported significantly lower levels of social support than other respondents, with homemakers and retired Glace Bay residents reporting the highest levels of support. Thus, 99% of Glace Bay homemakers (compared to 92% of students) said they had someone who made them feel loved and cared for, while 98% of retired residents, but just 91% of the unemployed, had someone they could turn to in a time of crisis.

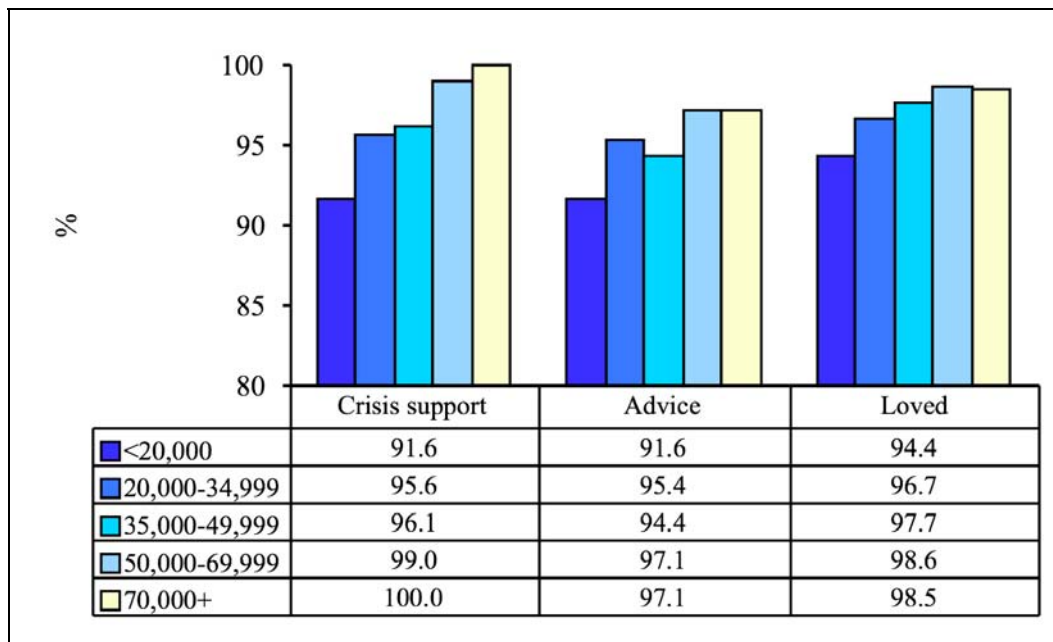
Figure 80. Percent who report social supports, by labour force status, Glace Bay, 2002



Social support was also related to income, with higher income groups reporting higher rates of all three forms of social support than lower income respondents. The poorest Glace Bay residents had significantly lower levels of all three forms of social support than others.

For example, almost every respondent with a household income of \$50,000 or more, but just 92% of those with incomes under \$20,000, said they had someone they could count on in a time of crisis.

Figure 81. Percent who report social supports, by household income, Glace Bay, 2002



5.2 Volunteerism

The network of community and voluntary organizations is widely regarded as the backbone of “civil society,” and their active strength as a critical indicator of healthy democracy. This “social economy” is the arena in which we participate most fully as citizens, freely choosing our interests and associations, and expressing our deepest aspirations to help others. The strength of a society’s commitment to voluntary work is, for many social scientists, a touchstone of social health, stability, and harmony, and thus a key indicator of wellbeing.¹¹⁷

Though motivated by generosity and care, civic and voluntary work also has a direct economic value. If it were suddenly withdrawn, either our standard of living and quality of life would deteriorate markedly, or else government and the private sector would have to provide the lost services for pay. Particularly in an era of government fiscal restraint, we depend even more directly on the work of volunteers.¹¹⁸

In addition, research has found that social networks may play as important a role in protecting health, buffering against disease, and aiding recovery from illness as behavioural and lifestyle choices such as quitting smoking, losing weight, and exercising.^{119, 120}

According to Health Canada, social support networks extend from close family and friends to the broader community, and are “reflected in the institutions, organizations and informal giving practices that people create to share resources and build attachments with others.”¹²¹ For this reason, Health Canada uses volunteerism as a key indicator of a “supportive social environment” that can improve health.¹²²

Rate of Formal Volunteerism

Percentage of respondents who had performed unpaid work for a group or organization during the past twelve months

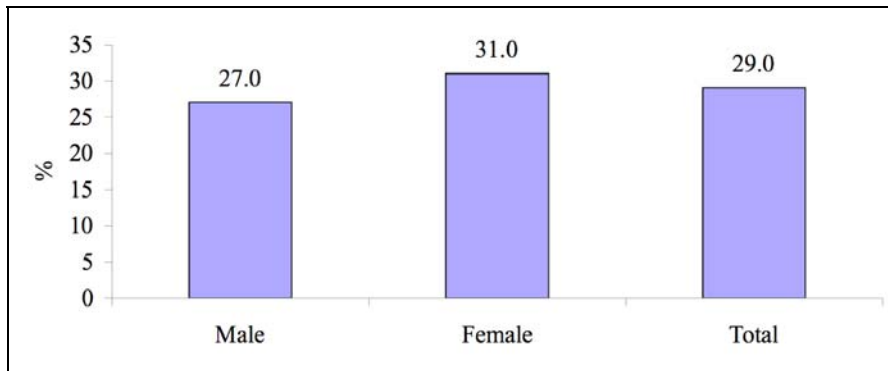
“Formal” voluntary activity describes unpaid work undertaken for charitable, non-profit, and community organizations. “Informal” voluntary work is assistance given directly to individuals, not through any organization, such as shopping, cleaning, and doing yard work for a disabled, sick, or elderly neighbour.

Whether voluntary work is formal or informal, it is widely accepted as making a major contribution to wellbeing. Indeed, Statistics Canada’s National Survey on Volunteer Activity, which asked volunteers why they volunteer, found that “helping others” was by far the most important motivation for volunteering (68% of Nova Scotian volunteers and 63% of Canadian volunteers), while 66% of Nova Scotian volunteers and 60% of Canadian volunteers also cited “helping a cause you believe in” as a “very important” reason for volunteering. The reason most often cited as “not important at all” was “making contacts useful for employment.”¹²³

Glace Bay has a particularly highly developed formal volunteer sector organized through the 40-year-old Citizen's Service League, whose five full-time staff members supervise and provide support services for 200 volunteers in a wide range of service areas including a nursery school, summer day camps, meals on wheels, and literacy programs.¹²⁴

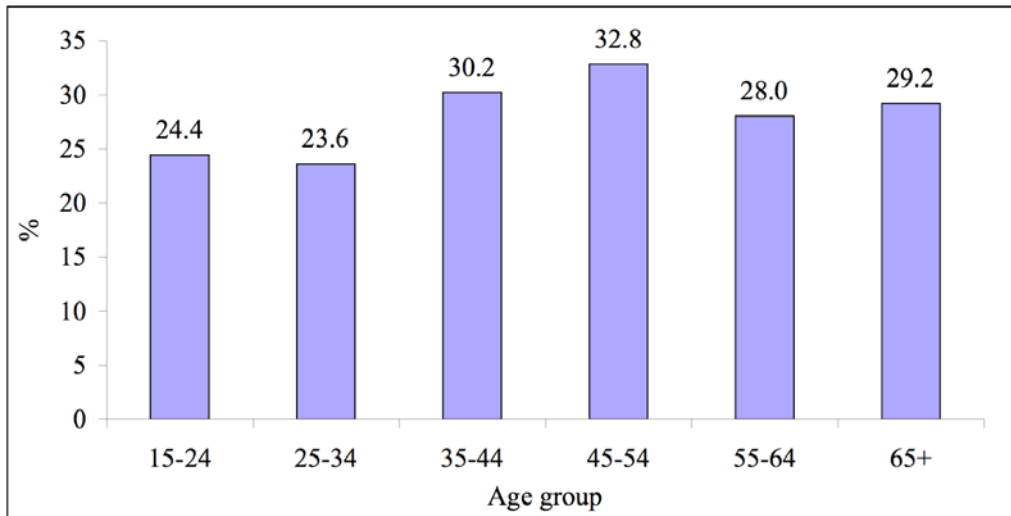
In 2002, 29% of Glace Bay residents—31% of women and 27% of men—reported that they had performed unpaid work for a group or organization during the past twelve months (Figure 82 below). According to Statistics Canada's National Survey of Giving, Volunteering, and Participating (CSGVP), in 2000, 27% of Canadians volunteered in the formal sector—28% of women and 25% of men. In Nova Scotia, 35% of women and 32% of men volunteered in the formal sector—considerably higher than the Canadian rates.¹²⁵

Figure 82. Percent of respondents who had performed unpaid work for a group or organization during the past twelve months, by gender, Glace Bay, 2002



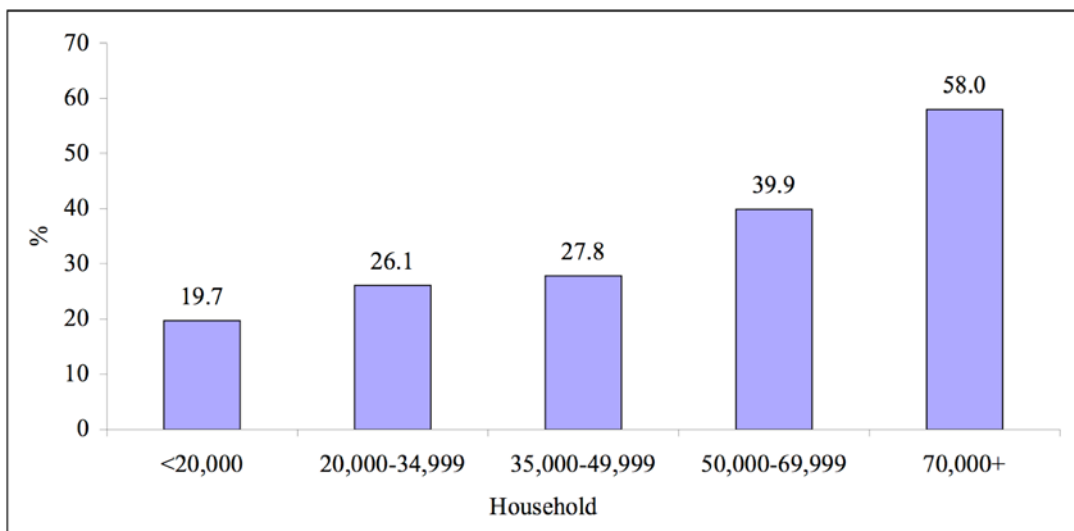
Rates of volunteerism were somewhat higher among middle-aged groups, and lowest among the younger respondents. The highest rate was reported among respondents aged 45–54 (33%), compared to 24% among those under 35, and 28–29% among those 55 and older (Figure 83 below).

Figure 83. Percent of respondents who had performed unpaid work for a group or organization during the past twelve months, by age, Glace Bay, 2002



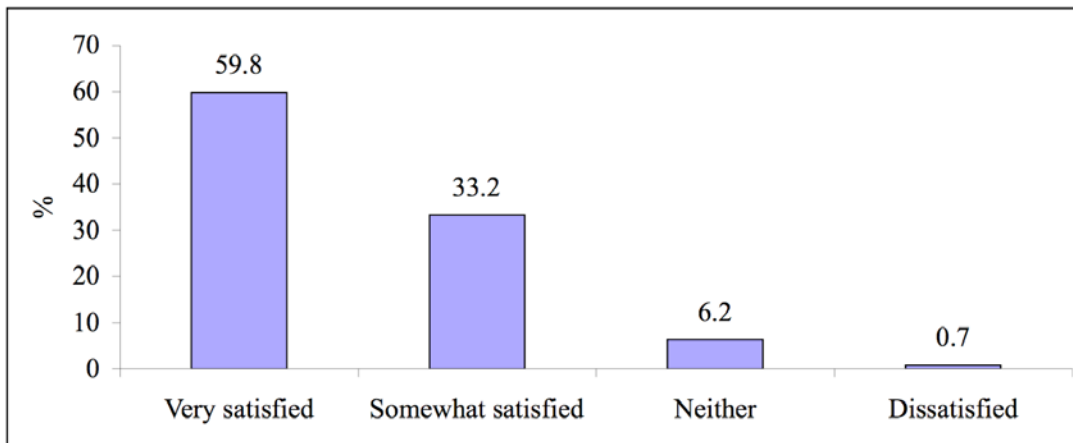
There was a strong and significant linear relationship between household income and volunteerism through groups and organizations, with higher income groups significantly more likely to volunteer than middle and lower income groups. Indeed, the highest income residents of Glace Bay (household incomes of \$70,000+) were more than twice as likely to volunteer as those with incomes between \$20,000 and \$50,000, and nearly three times as likely to volunteer as those with annual household incomes under \$20,000. Thus, 58% of those in the highest income group and 40% of those with incomes between \$50,000 and \$70,000 reported volunteer activities, compared to only 20% of those in the lowest income group (Figure 84 below).

Figure 84. Percent of respondents who had performed unpaid work for a group or organization during the past twelve months, by household income, Glace Bay, 2002



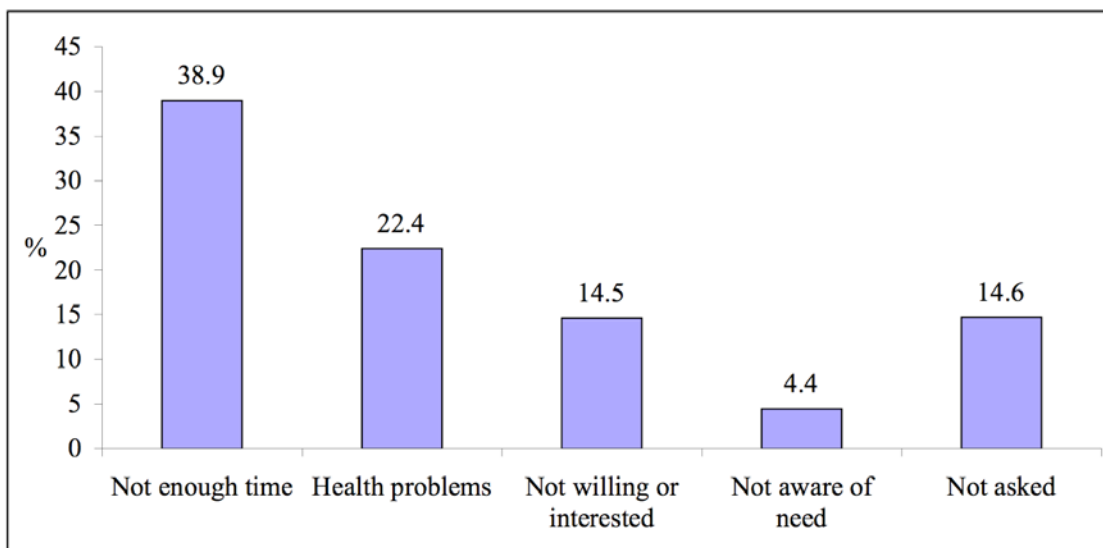
In several studies, volunteer work has been shown to be satisfying and rewarding to those who undertake it, giving meaning to their lives, and this is confirmed by the Glace Bay results. Thus, the overwhelming majority of Glace Bay volunteers (93%) said they were either very or somewhat satisfied with their voluntary activities, with 60% saying they were very satisfied and less than 1% saying they were dissatisfied (Figure 85 below).

Figure 85. Level of satisfaction with voluntary activities (%), Glace Bay, 2002



Among Glace Bay residents who did not volunteer in the last year, lack of time was the most frequently cited reason for not volunteering (39%), followed by health problems (22%). Only 15% said they were not willing or interested and an equal number said that they had not been asked to volunteer (Figure 86 below).

Figure 86. Reasons for not volunteering during past twelve months (%), Glace Bay, 2002



By implication, those who say they did not volunteer because they were not asked constitute a potential additional source of volunteers for the Glace Bay Citizens Service League. As well, the dominance of time constraints as the principle reason for not volunteering points to the value of policies such as those of the Netherlands, which create more time and space for community activities by encouraging shorter work hours.

Rate of Informal Volunteerism

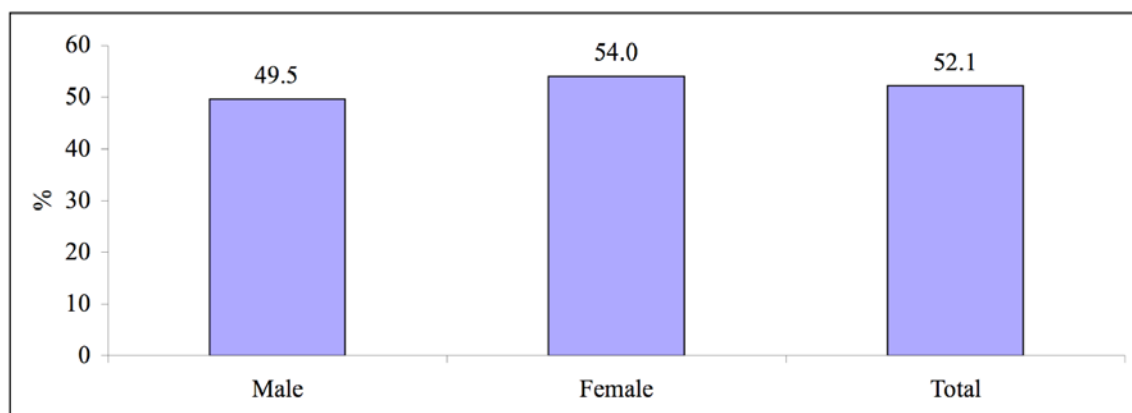
Percentage of respondents who had provided volunteer help to individuals during the past twelve months (not through an organization).

As previously stated, “informal” voluntary work is assistance given directly to individuals, not through any organization, such as shopping, cleaning and doing yard work for a disabled, sick, or elderly neighbour. Given Atlantic Canada’s disproportionately large rural population (more than double the Canadian rate), informal voluntary work is particularly prevalent and important in this region, since many charities and formal service organizations do not have a presence in rural communities.

According to Statistics Canada’s definitions, “voluntary work” is always performed outside one’s own home, while unpaid household work refers to work done within one’s own home. So washing dishes for a sick neighbour is classified by Statistics Canada as informal voluntary work, washing dishes at a church soup kitchen is classified as formal voluntary work, and washing one’s own dishes at home is classified as unpaid household work.

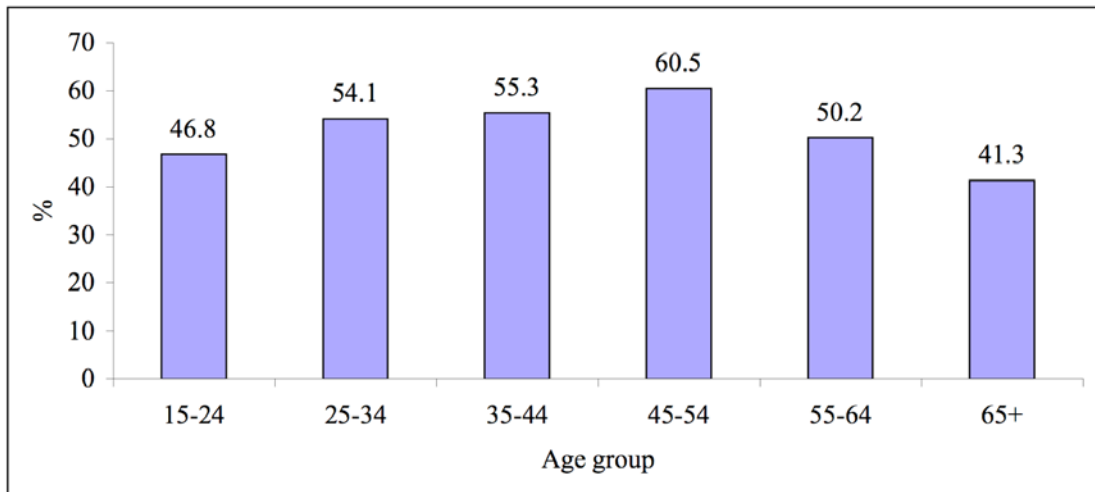
More than half of Glace Bay residents (52%) reported informal voluntary activities during the previous twelve months. As with formal volunteerism, the rate was slightly higher for females (54%) than males (50%) (Figure 87 below).

Figure 87. Percent of respondents who had provided volunteer help to an individual during the past twelve months (not through an organization), by gender, Glace Bay, 2002



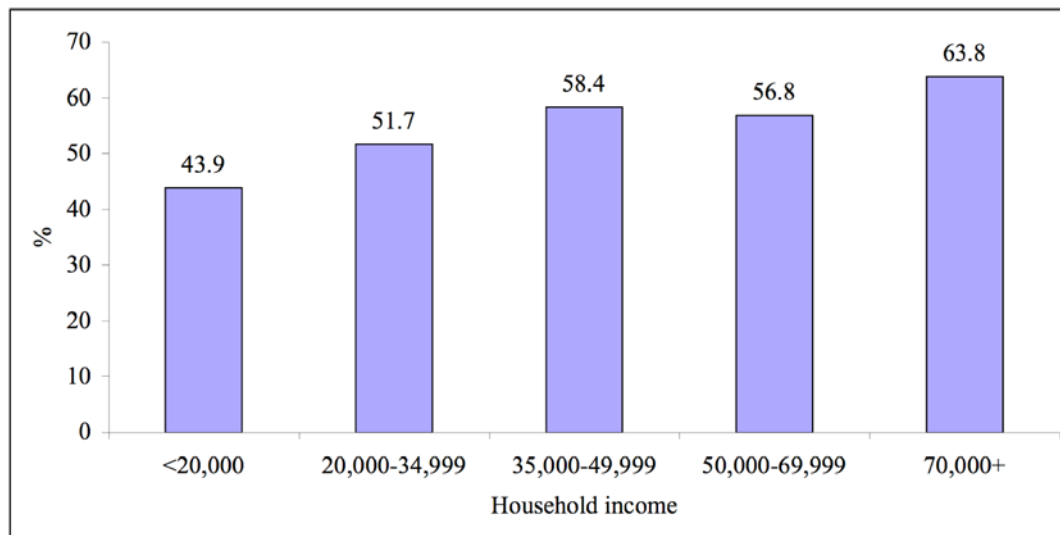
Rates of informal volunteering were higher among the middle-aged groups and lowest at the youngest and oldest ends of the age spectrum. Thus, 60% of respondents aged 45–54 reported informal voluntary activities, compared to 47% of 15–24 year olds and only 41% of seniors (Figure 88 below). The lower rate of informal volunteering among seniors may be due partly to health problems and physical limitations, and partly to the responsibilities they already have of caring for infirm or disabled partners within their own households (which is not classified by Statistics Canada as voluntary work since it occurs within the household).

Figure 88. Percent of respondents who had provided volunteer help to an individual during the past twelve months (not through an organization), by age, Glace Bay, 2002



Informal volunteering also showed a linear relationship with income, although the differences were not as pronounced as in formal volunteer work. The highest rates of informal voluntary work in Glace Bay were among those in the highest income group (64%) and the lowest rates were among those in the lowest income group (44%) (Figure 89 below).

Figure 89. Percent of respondents who had provided volunteer help to an individual during the past twelve months (not through an organization), by household income, Glace Bay, 2002

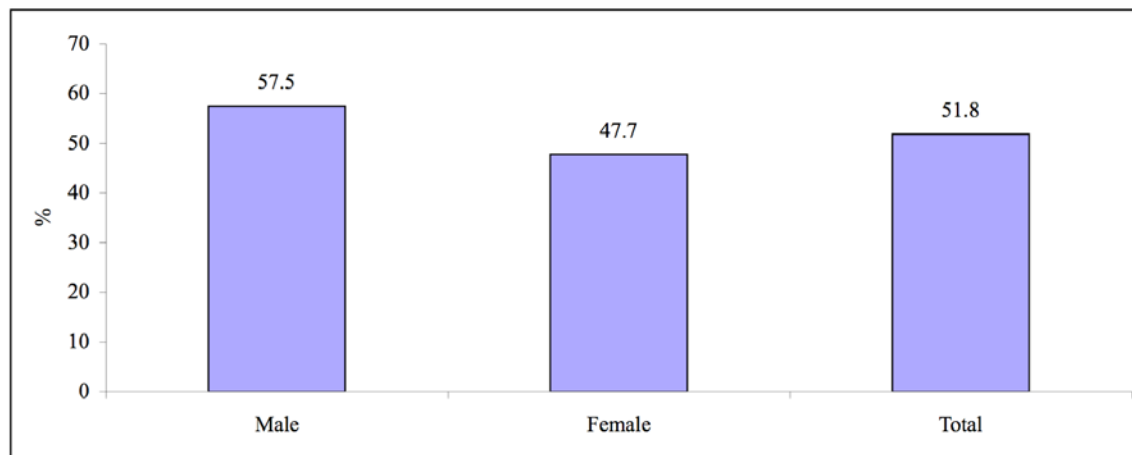


Volunteer Willingness to Give More Time

Percentage of respondents who would have been willing to give more time to volunteering if they had been asked.

Interestingly, more than half of Glace Bay residents (52%) said they would have given more time to voluntary activities if asked, with males more likely than females to express such willingness (58% vs. 48%) (Figure 90 below).

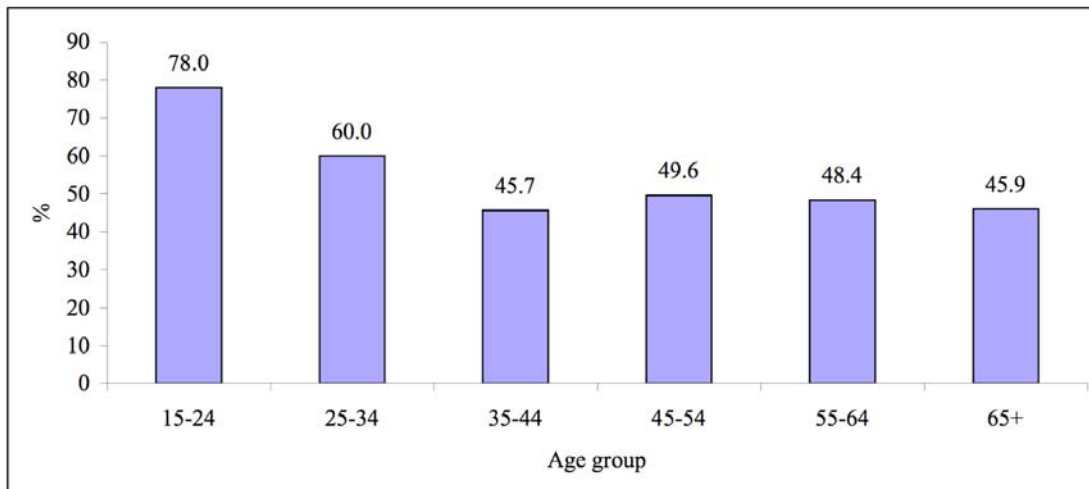
Figure 90. Percent of respondents who would have been willing to give more time to volunteering if they had been asked, by gender, Glace Bay, 2002



Since men have a lower rate of volunteering than women, as noted above, the results in Figure 90 above indicate that this difference may be due, at least in part, to men being less frequently asked to volunteer their time. Such information is important for communities that seek to increase the scope and reach of their voluntary activity. Thus, it is apparent in this case that Glace Bay men, in particular, constitute a partially untapped source of volunteer work, and that community-based organizations like Glace Bay's Citizens Service League might effectively make special appeals to male residents at times that they are looking for more volunteers for particular activities.

Young Glace Bay residents were significantly more likely than middle-aged and older ones to report a willingness to volunteer more time. Thus, 78% of those aged 15–24 and 60% of those aged 25–34 said they were willing to give more time to volunteering if asked, compared to 45–50% of those in older age groups (Figure 91 below).

Figure 91. Percent of respondents who would have been willing to give more time to volunteering if they had been asked, by age, Glace Bay, 2002



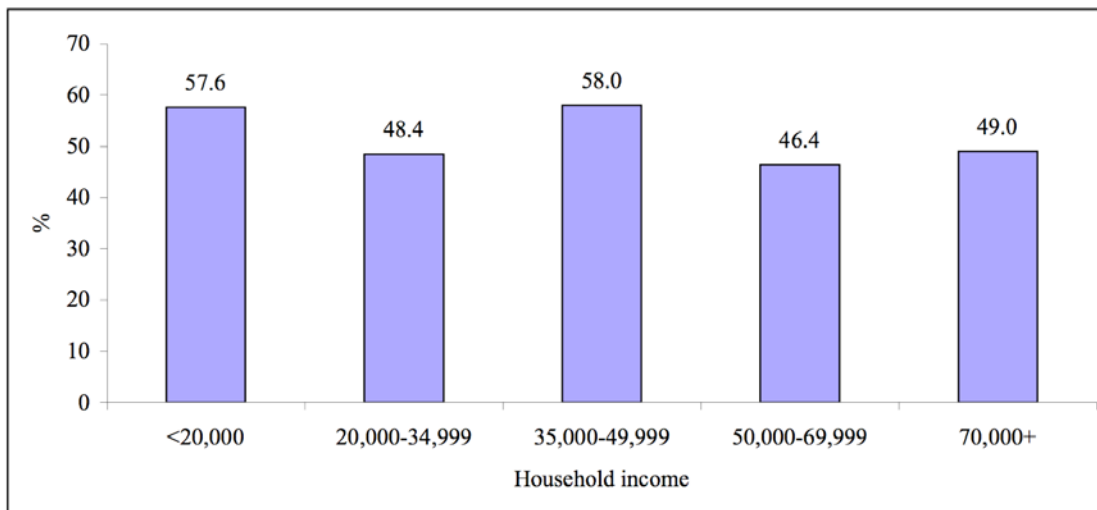
Since younger Glace Bay residents have lower rates of volunteering than middle-aged residents, these results again seem to point to a largely untapped source of volunteer work in Glace Bay. As with the male results referenced above, this again indicates that the Citizens Service League and other volunteer-based organizations in Glace Bay could effectively make special appeals to younger residents for projects and activities for which they wish to recruit more volunteers.

While such demographic breakdowns are common in market and other economic analyses, and are regularly used by advertisers, for example, to design, promote, and target their products, they are rarely used by communities to enhance wellbeing. This is no fault of communities, but is largely due to the fact that such data have not been available at the community level. These two sets of results, however, demonstrate the practical value of detailed community-level demographic analyses of non-market activity in providing important information that can be used by communities to increase the reach and scope of their activities and improve their effectiveness.

Given the substantial economic value of voluntary work, governments also have a direct interest in such information, since the valuable economic services provided by volunteers potentially save governments money. A previous GPIAtlantic study found that volunteers contribute the equivalent of nearly \$2 billion worth of services annually to the Nova Scotia economy—more than the combined value of all government services (federal, provincial, and municipal) combined. Thus, governments need to know which sectors of society constitute potential additional sources of voluntary services.

As indicated in Figure 92 below, there was no significant relationship between household income and a willingness to volunteer more time.

Figure 92. Percent of respondents who would have been willing to give more time to volunteering if they had been asked, by household income, Glace Bay, 2002



5.3 Caregiving

Caring for a sick or disabled adult or child can produce substantial time and financial stress on a household—particularly when the person (usually a close relative or loved one) requires considerable care and lives inside the home, and if the household has insufficient time, money, social supports, and other resources to handle the additional burden of care. As well, some illnesses, like Alzheimer’s and those that carry severe pain, can also produce significant emotional stress for household members, particularly if they are lacking in the social supports that they themselves may require to perform their caregiving functions effectively.

The burden associated with caregiving responsibilities has been reported in the literature to have a potentially significant impact on physical and psychological health, and on general wellbeing and quality of life. Generally, most studies report that caregivers suffer increased risks to physical and psychological health, although such risk may be confounded by other factors such as type and duration of caregiving, age, income, and level of supports available to the caregiver. One study has referred to caregivers as “hidden patients,” since many of their health problems go unnoticed or untreated until after their caregiving responsibilities have ended.¹²⁶

In an earlier 2004 analysis of the GPI Glace Bay and Kings County data on caregivers, it was found that adverse psychological and physical outcomes can arise due to caregiving responsibilities—supporting and confirming findings in other studies. The Glace Bay and Kings County results indicated that caregivers have significantly lower perceived health status than non-caregivers, even after adjustment for age and other factors.¹²⁷

In general, the importance of understanding the dynamics of caregiving and the extent to which it constitutes a major unpaid work contribution by Canadians is increasingly well recognized. According to Statistics Canada, “This information can be used to evaluate the capacity of the unpaid sector to absorb care-giving responsibilities no longer provided by the paid sector.”¹²⁸

As the population ages and as the trend towards de-institutionalization and home care continues, the need for proper financial and social supports for caregivers has increasingly been recognized. Thus, the 2002 Romanow Royal Commission on Health Care specifically recommended that a new national program be established through Employment Insurance (EI) to provide direct financial support to informal caregivers and thereby allow them to spend the necessary time caring for their family members.¹²⁹ Since this recommendation was made, an EI-based “Compassionate Care Benefits” program has been established to pay EI benefits to persons away from work temporarily to provide care and support to a family member who is “gravely ill with a significant risk of death.”¹³⁰

Government interest in supporting caregivers does not stem from compassion alone, but is also based on hard financial considerations. Cost-benefit studies have demonstrated that it is far more cost-effective for governments to provide adequate income and other supports (including respite services) to home caregivers than to pay the costs of hospital and other institutional care for aging and disabled seniors no longer able to care for themselves.

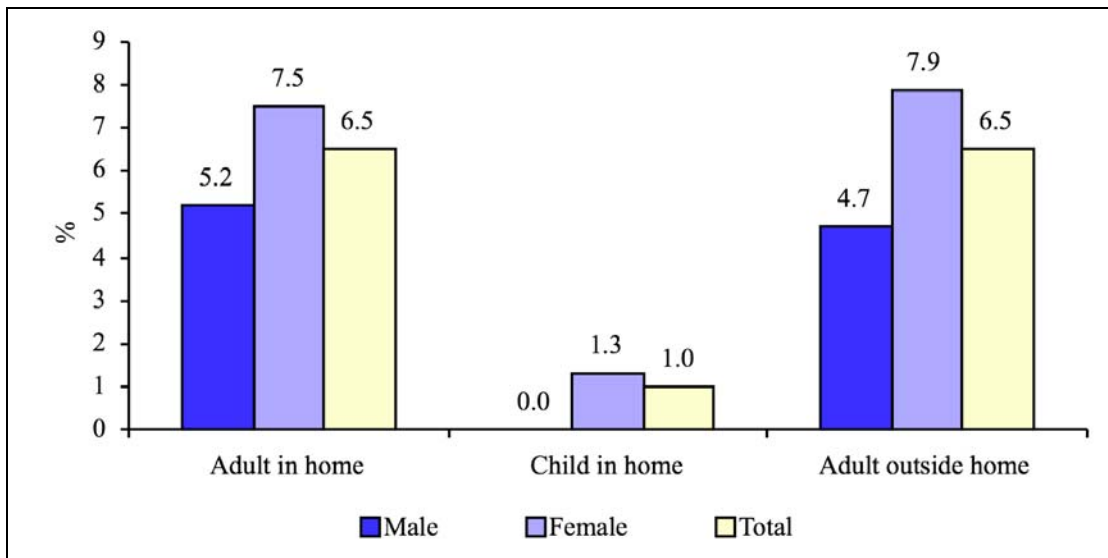
The case for such support is also strengthened by evidence that home care by loved ones within familiar household surroundings can be more conducive to the mental health and emotional wellbeing—and in some cases recovery—of the sick or disabled person than institutional care. As stated in the Romanow Report, home care has been found to be cost-effective, result in accelerated healing times, and improve quality of life.¹³¹

Caregiving

The percentage of respondents who provide unpaid care for others.

Six and a half percent of Glace Bay residents reported that they were providing care to an adult living within their home and an equal percentage provided care to an adult outside of their home. A very small percentage of residents were providing care to a sick or disabled child within their home. Females were substantially more likely than males to be caregivers (Figure 93 below).

Figure 93. Percent of respondents providing unpaid care for sick or disabled adults or children, by gender, Glace Bay, 2002

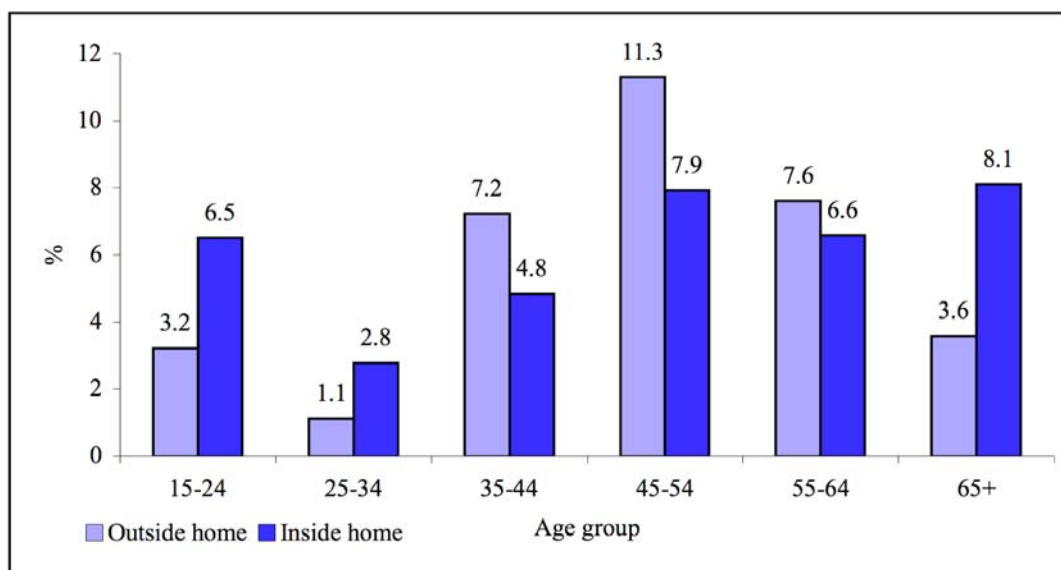


Among different age groups, middle-aged respondents aged 45–54 were most likely to be providing care to a sick or disabled adult or child outside of their home (11%), compared to 7–8% of those aged 35–44 and 55–64, and substantially fewer among those under 35 (1–3%) and over 64 (4%). The distribution was somewhat different for the provision of care within the home, with seniors (65+) and those aged 45–54 providing the highest rates of care (8%) and those aged 25–34 having the lowest rate (3%) (Figure 94 below).

It is not surprising to find the highest rate of care outside the home (11%) among those aged 45–54, since this group is very likely to have aging parents still living in their own homes. Similarly, it makes sense that the highest rate of in-home care is found among seniors, as one still relatively healthy partner cares for an aging partner who may be ailing or disabled. As well, relatively high rates of in-home care among those aged 45–64 are likely explained by children taking into their own homes aging parents no longer able to care for themselves.

In general, such demographic breakdowns are helpful for policy makers to identify where support may be most effectively targeted in this increasingly important area of health care.

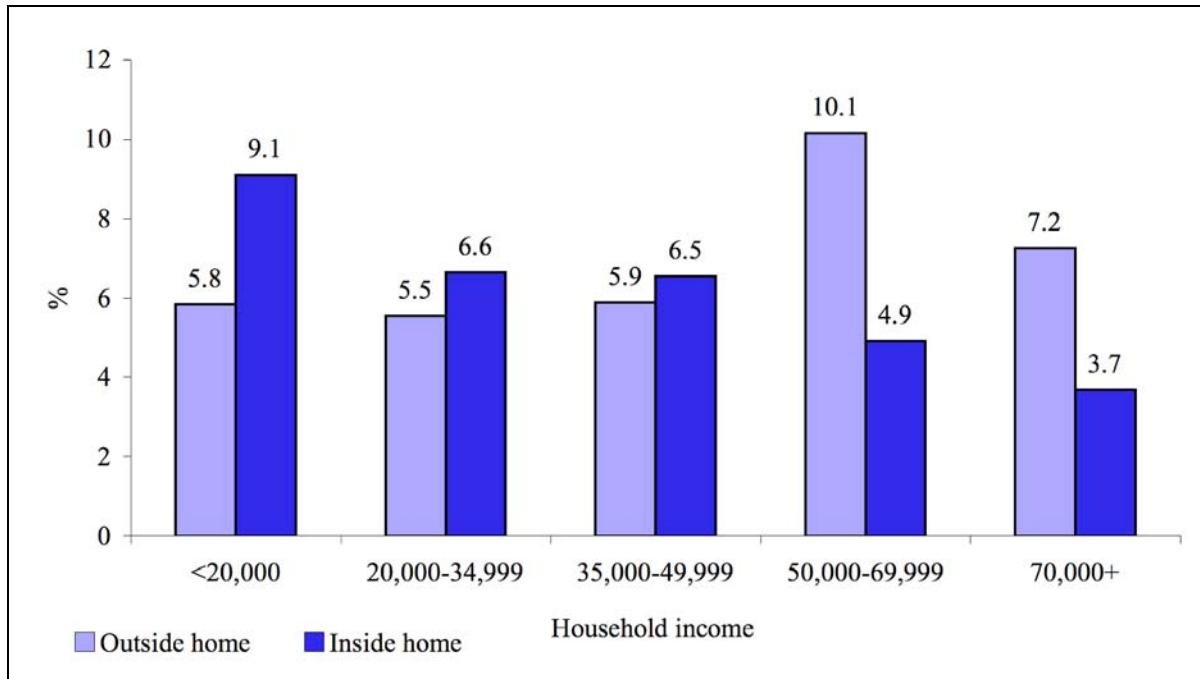
Figure 94. Percent of respondents providing unpaid care for sick or disabled adults or children, by age, Glace Bay, 2002



There was also a significant relationship between caregiving and household income, with higher income Glace Bay residents generally reporting higher rates of caregiving outside of the home and lower income groups providing higher rates of care for sick and disabled adults or children inside their homes. Again, this disparity is not surprising. Since the recipients of care are almost always family members, lower income households are less likely to be able to maintain the costs of a separate household and are more likely to accommodate ailing family members within their own homes.

Thus, 10% of those with household incomes between \$50,000 and \$70,000 provided care outside the home, compared to 6% of those with incomes under \$50,000 and 7% of those in the highest income group (\$70,000+). By comparison, 9% of those with incomes under \$20,000 provided care inside their homes, compared to 7% of those with incomes between \$20,000 and \$50,000, 5% of those with incomes between \$50,000 and \$70,000, and only 4% of those in the highest income group (Figure 95 below).

Figure 95. Percent of respondents providing unpaid care for sick or disabled adults or children, by household income, Glace Bay, 2002



Chapter 6. Safety and Security

Selected Indicators: Crime Victimization: Self Crime Victimization: Others Satisfaction with Safety from Crime Neighbourhood Security

The Canadian Institute for Health Information (CIHI) and Statistics Canada both acknowledge that physical safety and security is 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.¹³²

It is now widely recognized that safety and security are themselves outcomes of a wide range of social and economic conditions and circumstances, and are linked to income, employment, social supports, and other key variables that constitute components of this Glace Bay Community Profile. For example, regression analyses conducted by the Canadian Centre for Justice Statistics (CCJS) demonstrate a strong statistical link between crime and unemployment.¹³³ A CCJS survey of inmates in Nova Scotia prisons found that more than two-thirds of inmates were unemployed at the time of admission to the correctional facility.¹³⁴

From that perspective, it might be expected that Glace Bay, with its higher than average unemployment rates, might have higher than average crime and victimization rates. However, results from the GPI Glace Bay survey found this not to be the case. Further investigation is required to determine whether other factors, like strong social supports, may mitigate some of the impacts of unemployment and contribute to Glace Bay residents' relatively high levels of safety and security.

Crime Victimization: Self

Percentage of respondents who had been victimized by crime during past five years.

The Glace Bay GPI survey found that less than 8% of Glace Bay residents had been victims of crime during the previous five years. The rate was slightly higher for males (8.6%) than for females (7.2%), but this difference was not statistically significant (Figure 96 below).

Time and resources did not permit a proper comparison of these victimization rates with provincial and national statistics, since adjustments will need to be made for time period, population sample surveyed, respondent age, different categories of victimization, and reporting conventions (e.g., rate per 1,000 vs. percentages). It is recommended that such detailed comparative work be undertaken for future updates of these data and of this Community Profile. However, an initial analysis indicates that Glace Bay victimization rates appear to be well below provincial and national averages.

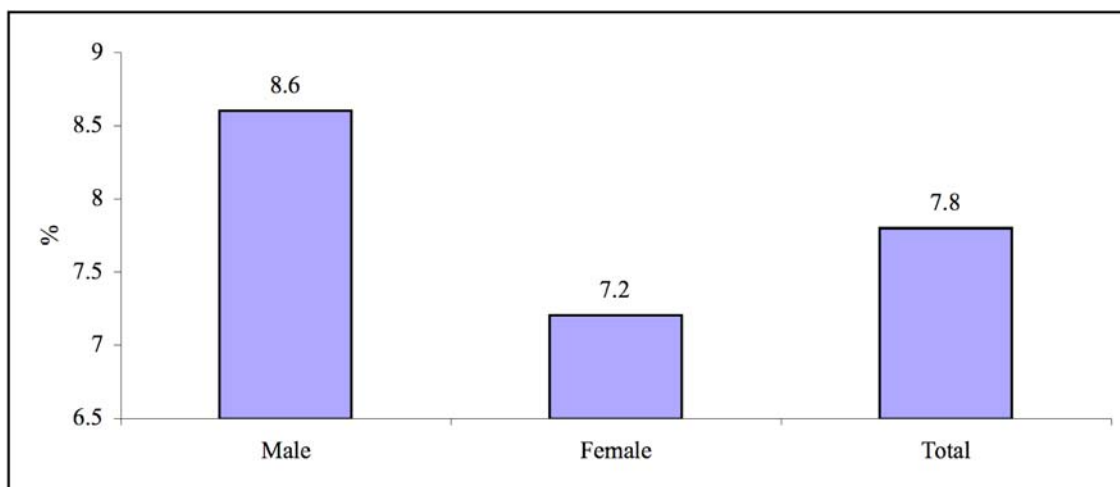
Statistics Canada's General Social Survey (GSS) collected data on victimization in Canada and the provinces in 1988, 1993, 1999, and 2004. In 2004, respondents were asked about their experiences with criminal victimization. Anyone who reported they had been the victim of one of eight offences in the previous twelve months was asked for detailed information including where the incident occurred; whether the incident was reported to police; and the level of injury, use or presence of a weapon, and financial loss.

According to the 2004 GSS, rates of self-reported violent victimization—which includes physical assault, robbery, and sexual assault—among the population 15 years and older were highest in Alberta (160 per 1,000 population), with Nova Scotia a close second at 157 incidents per 1,000 population. The lowest rate was found in Quebec (59 per 1,000). The Canadian average was 106 per 1,000. Halifax reported the highest rate of violent incidents per 1,000 population of any major city in Canada. According to the GSS, a total of 2,109,000 self-reported violent victimization incidents occurred nationwide in 2004. Of these, only 33% or 687,000 incidents were reported to the police.¹³⁵

Statistics Canada data also indicate no significant change nationwide in self-reported rates of violent victimization between the 1999 and 2004 surveys. However, rates of personal property theft across the country increased by 24%, theft of household property rose by 42%, and rates of vandalism increased by 17%.¹³⁶ Future updates of the Glace Bay GPI would allow an assessment of such trends over time for Glace Bay.

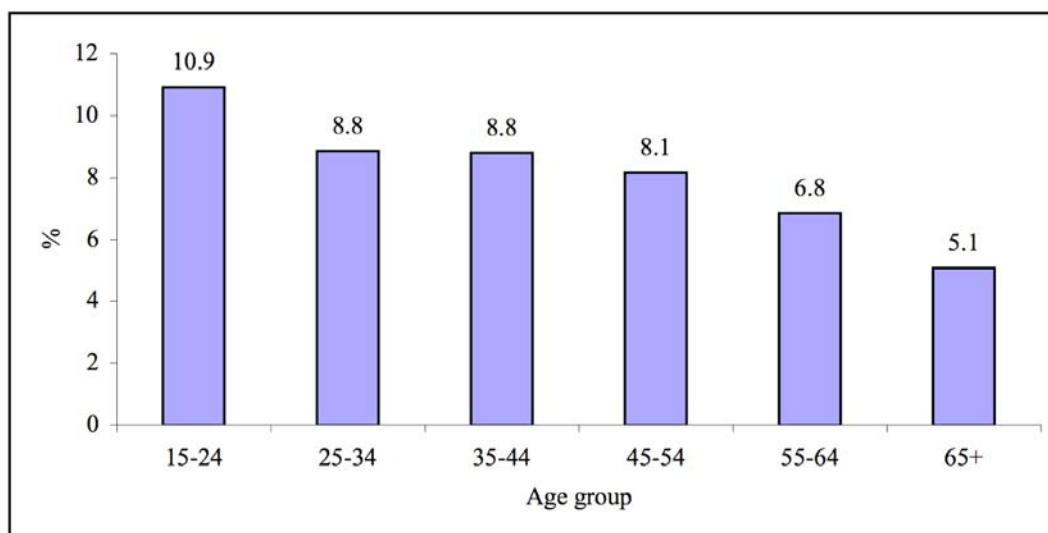
It is noteworthy that the Statistics Canada victimization data per 1,000 population reported above are only for violent incidents that occurred within the previous twelve months, whereas the Glace Bay data reported in Figure 96 below are for all categories of crime in the previous five-year period. For the moment, and based on even the most superficial initial comparison, it can be concluded with some confidence that Glace Bay residents are significantly less likely to be victims of crime than other Nova Scotians and Canadians.

Figure 96. Percent of respondents who had been a victim of crime during the past five years, by gender, Glace Bay, 2002



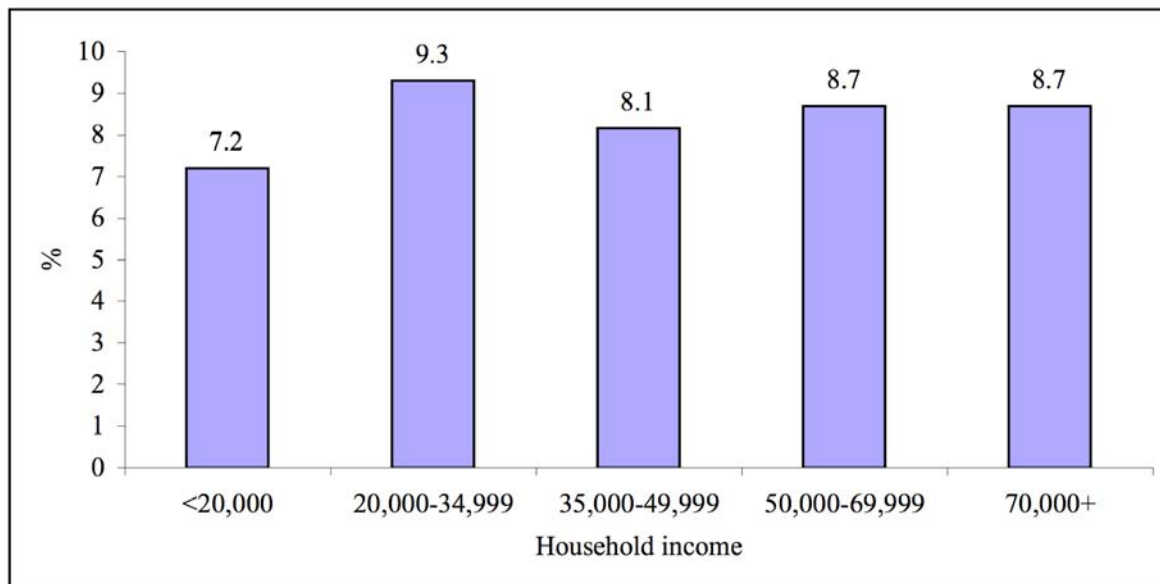
Crime victimization showed a strong relationship with age, with the rate of victimization falling with each age group, and the youngest Glace Bay residents more than twice as likely to be victims of crime as seniors. Thus, almost 11% of those aged 15–24 reported that they had been a victim of crime during the previous five years, compared to 9% of those 25–44, 8% of those 45–54, 7% of those 55–64, and only 5% of those 65 and older (Figure 97 below). This age dimension is confirmed by nationwide Statistics Canada victimization data on violent incidents, which found that “the risk of self-reported violent victimization was highest among young people aged 15 to 24.”¹³⁷

Figure 97. Percent of respondents who had been a victim of crime during the past five years, by age, Glace Bay, 2002



There was, however, no significant relationship apparent between household income and crime victimization, with wealthier Glace Bay residents about as likely to be victims of crime as middle and lower income residents (Figure 98 below).

Figure 98. Percent of respondents who had been a victim of crime during the past five years, by household income, Glace Bay, 2002

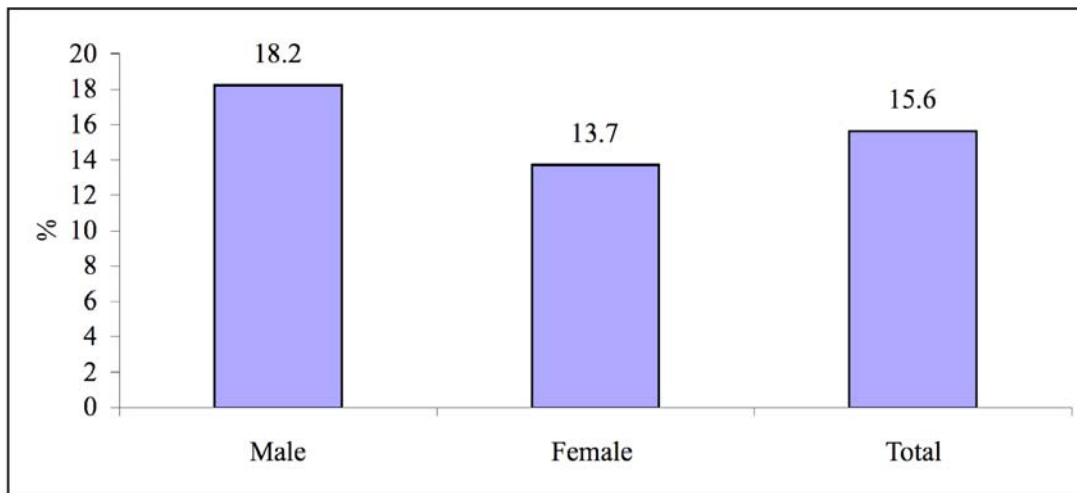


Crime Victimization: Others

Percentage of respondents who knew someone who had victimized by crime during past twelve months.

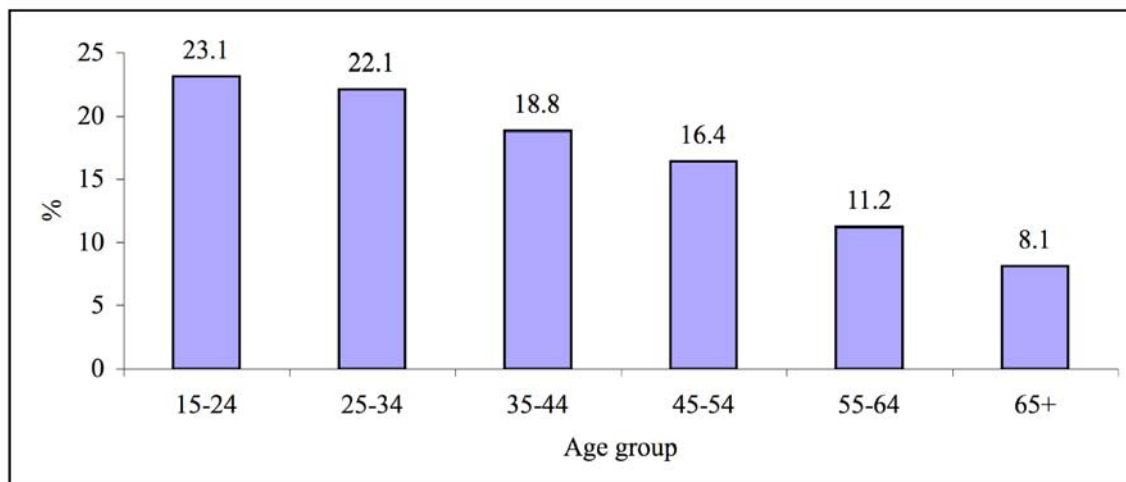
Sixteen percent of Glace Bay respondents reported that they knew someone who had been victimized by crime during the previous twelve months. The rate for males (18.2%) was significantly higher than the rate for females (13.7%) (Figure 99 below). It should be noted that, unlike the previous indicator, which assessed personal victimization in the last five years, this indicator assesses knowledge of people victimized within the last twelve months. It can therefore be surmised that the percentage would be considerably higher if this question also assessed victimization over a five-year period.

Figure 99. Percent of respondents who knew someone who had been victimized by crime during the previous twelve months, by gender, Glace Bay, 2002



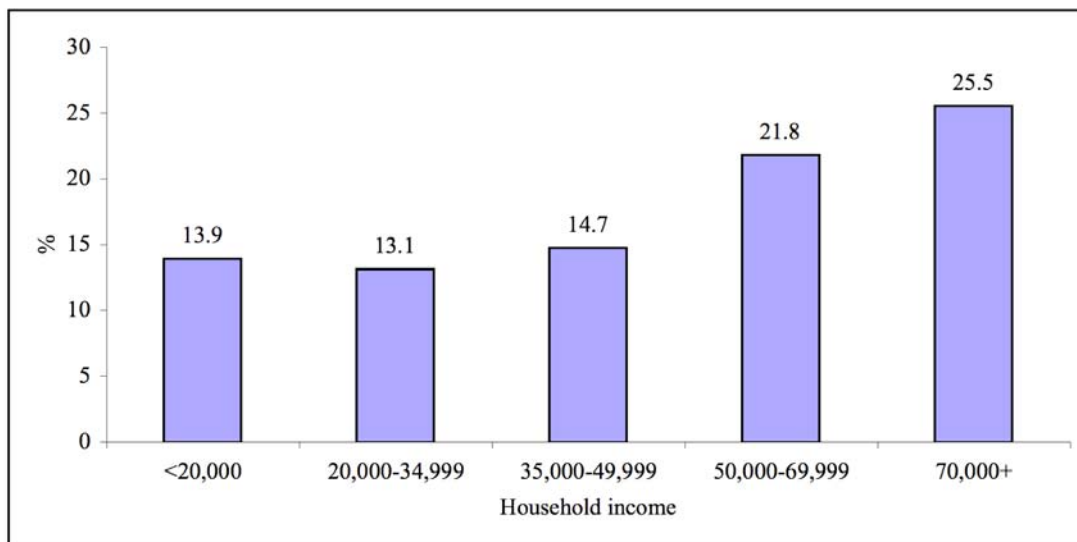
There was again a significant linear relationship with age. Younger residents of Glace Bay were substantially more likely to know someone who had been victimized by crime than middle-aged and older respondents. Those aged 15–34 were about twice as likely as those aged 55–64 and nearly three times as likely as seniors to know someone who had been victimized by crime; while 23% of Glace Bay residents aged 15–24 knew a crime victim, this was only true of 8% of those aged 65 and over (Figure 100 below).

Figure 100. Percent of respondents who knew someone who had been victimized by crime during the previous twelve months, by age, Glace Bay, 2002



There was also a significant (and surprising) relationship between income and familiarity with crime victims. Higher income residents of Glace Bay were significantly more likely to know crime victims than lower income residents—with the highest income respondents nearly twice as likely to know crime victims as those with household incomes under \$35,000. Thus, more than one-quarter of respondents with household incomes of \$70,000 or more and 22% of those in the next highest bracket (\$50,000–\$70,000) reported that they knew someone who had been victimized by crime during the previous twelve months, compared to only 13–14% of those with household incomes under \$35,000 (Figure 101 below).

Figure 101. Percent of respondents who knew someone who had been victimized by crime during the previous twelve months, by household income, Glace Bay, 2002



Satisfaction with Safety from Crime

Percentage of respondents reporting that they were satisfied with their sense of safety from crime.

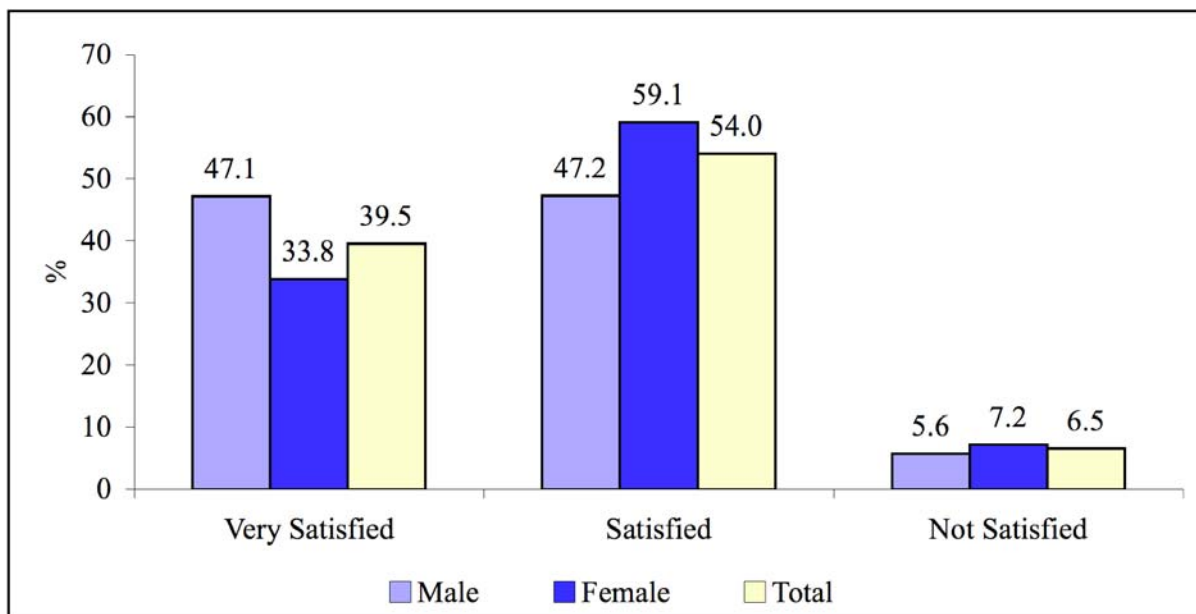
Wellbeing is dependent on both objective and subjective factors, and this Glace Bay Community Profile therefore examines both types of data. In this case, a high crime neighbourhood is less conducive to wellbeing than a low-crime neighbourhood, and that indicator can fairly reliably be assessed using objective police-reported statistics and victimization rates (which include unreported crimes). However, wellbeing can also be enhanced by a subjective feeling of safety and security, and it can be diminished by fear of crime. While the previous indicators assessed objective victimization rates, the next two indicators explore subjective feelings of safety and fear from crime in Glace Bay.

The overwhelming majority (94%) of Glace Bay residents were satisfied with their safety from crime, with 40% reporting themselves very satisfied and 54% reporting themselves as satisfied. A significantly higher proportion of Glace Bay men (47%) than women (34%) felt *very* satisfied, while 59% of women compared to 47% of men said they felt satisfied. There was relatively little difference

between the sexes among those who reported themselves dissatisfied with their sense of safety from crime (Figure 102 below).

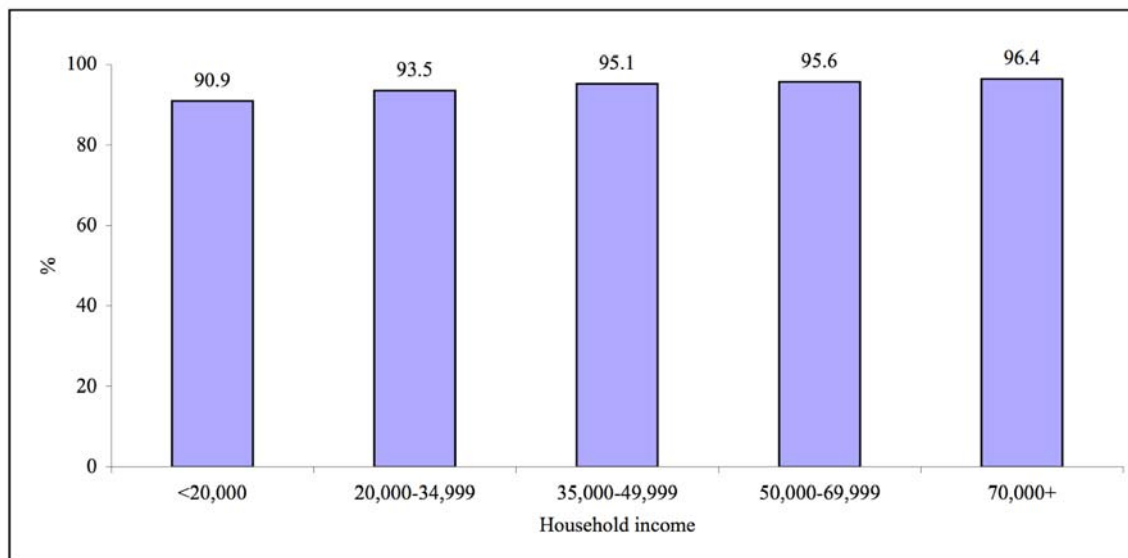
According to Statistics Canada's 2004 General Social Survey, satisfaction with personal safety has increased since 1993 and now stands at 94% of the Canadian population aged 15 years and over. In Nova Scotia, 95% reported they were satisfied with their safety in 2004, with the Atlantic provinces generally reporting higher levels of satisfaction with safety than other provinces.¹³⁸ The Glace Bay results in Figure 102 below are therefore in line with provincial and national averages.

Figure 102. Satisfaction of respondents with their sense of safety from crime (%), by gender, Glace Bay, 2002



Higher income Glace Bay residents were somewhat more likely to express satisfaction with their safety from crime than lower income residents, but the relationship was not statistically significant (Figure 103 below).

Figure 103. Percent of respondents reporting that they are very satisfied or satisfied with their sense of safety from crime, by household income, Glace Bay, 2002



Neighbourhood Safety

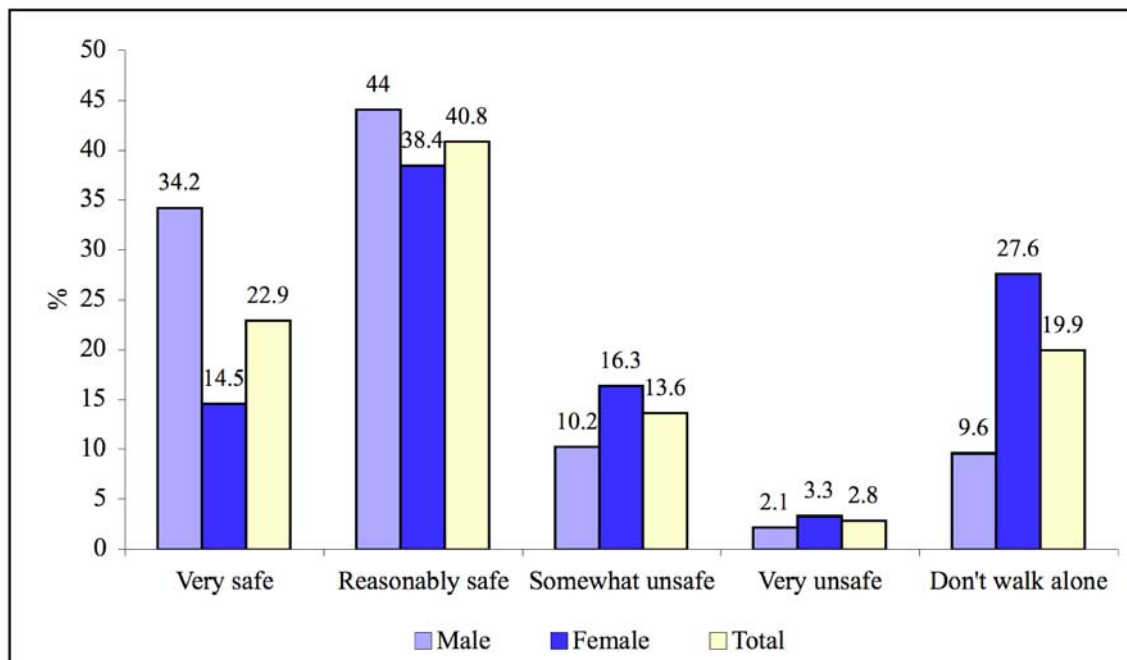
Percentage of respondents reporting that they felt safe when walking alone at night in their neighbourhoods.

Almost 20% of Glace Bay residents do not walk alone at night in their neighbourhoods, with that rate nearly three times higher among females (27.6%) than among males (9.6%). Only 2.8% reported feeling very unsafe walking alone at night in their neighbourhood and another 13.6% felt “somewhat unsafe” (16.3% of females and 10.2% of males). Males (34.2%) were more than twice as likely as females (14.5%) to report feeling “very safe” walking alone in their neighbourhoods at night (Figure 104 below).

According to Statistics Canada’s 2004 General Social Survey (GSS), 92% of Nova Scotians who do walk alone in their neighbourhoods at night feel safe doing so, compared to 90% of Canadians overall (46% felt “reasonably safe” and 44% felt “very safe”). In Canada overall, among those who do walk alone in their neighbourhoods at night, 94% of males versus 84% of females feel safe.¹³⁹

Unfortunately, those provincial and national averages are not comparable to the Glace Bay GPI data, since the GSS only asked the question to respondents who actually engage in the activity of walking in their neighbourhoods alone at night. By contrast, the Glace Bay GPI survey asked the question to all respondents rather than only those who actually engage in the activity.

Figure 104. Percent of respondents feeling safe when walking alone at night in one's neighbourhood, by gender, Glace Bay, 2002



Chapter 7. Environmental Behaviour and Attitudes

Selected Indicators: Transportation Sustainability Ecological Attitudes

How we eat, shop, travel, use energy, and build our houses directly impacts the environment. Almost everything we do consumes natural resources and produces waste. Our “Ecological Footprint” is the amount of space we take up in ecological terms, or the amount of land and sea area it takes to meet our current levels of consumption. It tells us what impact our consumption patterns have on the environment and whether we are exceeding the capacity of the environment to satisfy our wants. The world has a limited supply of productive land for growing food and timber, limited supplies of fish, finite quantities of oil, gas, metals and other non-renewable resources, and a limited capacity to absorb waste. If we overload the earth’s capacities, or use up resources faster than they can replenish themselves, then the natural systems that support life on earth break down.

Scientists tell us that as human beings, we cannot use all the productive land on earth entirely for our own needs if we want to survive, and they suggest that at least 30% of land needs protection. World leaders have committed to set aside just 12% of our land to protect the millions of other species on the planet, on whom our survival ultimately depends. If we set aside that 12% to protect biodiversity, and divide the remaining 88% of biologically productive area by the current world population, then we have 1.8 hectares per person to supply all our human needs and assimilate all our waste.

Researchers at the Global Footprint Network, which regularly monitors the Ecological Footprints of different nations, have found that our current global resource consumption and waste production requires 2.2 hectares per person. That is the *average* “ecological footprint” of a human being in the world today. In other words, human beings are presently in a state of “overshoot,” depleting resources faster than they can regenerate, and producing more waste than the world can handle.

Based on the evidence available at the time, GPIAtlantic reported in 2001 that the Ecological Footprint of Nova Scotians was 8.1 ha per person, and the Canadian Footprint was 7.6 ha per person. In other words, if everyone in the world consumed at Canadian or Nova Scotian levels, we would need at least four planets Earth to provide the necessary energy and resources and to absorb the waste produced.

The 2001 GPI report also found that richer Nova Scotians have a greater adverse impact on the environment than those less wealthy, just as richer nations tend to consume more resources and produce more waste per capita than poorer ones. Thus, the Ecological Footprint of Nova Scotians in the highest income quintile (richest 20%) was found to be more than seventy percent larger than the Footprint of persons in the lowest income quintile (poorest 20%) (see Table 12 below).

Reported for the first time in GPIAtlantic’s education indicators report for Nova Scotia, data are now available on the ecological footprints of Canadians based on their educational attainment. These results indicate that higher levels of formal education lead to more unsustainable lifestyles. Thus, those Canadians who have only some secondary education use 6.76 global hectares per capita, those who

have completed secondary education use 6.96 global hectares, while those who have a university degree use 8.67 global hectares each in order to sustain their lifestyles.¹⁴⁰

Table 12. Ecological footprint by quintile, Nova Scotia, 1999

Consumption	1 st quintile	2 nd quintile	3 rd quintile	4 th quintile	5 th quintile	Average
Consumption expenditure (\$/person)	9,949	10,550	11,131	12,995	17,001	12,846
Ecological footprint (ha/person)	6.2	6.6	7.0	8.1	10.7	8.1

Source: GPIAtlantic, The Nova Scotia Ecological Footprint, March 2001

New work by the Global Footprint Network, using improved methodologies and newly available data sources, will require an updating of these 1999 Nova Scotian Footprint results as soon as provincial breakdowns of the new data are available. For the moment, however, these are the most recently available Footprint results for this province. Unfortunately, data limitations do not presently allow an accurate estimate of the composite Ecological Footprint for Glace Bay, based on the 2002 GPI survey data.

However, transportation constitutes a major component of the Ecological Footprint, and the 2002 GPI survey in Glace Bay does contain sufficient detailed questions on transportation use to provide valuable information on this key Footprint component. GPIAtlantic's 2006 Sustainable Transportation Accounts for Nova Scotia provide abundant evidence that greater private vehicle use, more driving, and larger, less fuel-efficient vehicles (like SUVs) have more adverse impacts on the environment, particularly in contributing to global warming (through greenhouse gas emissions), to air pollution, to fossil fuel depletion, and to land space devoted to transport infrastructure.

Transportation Sustainability

A number of indicators of sustainable transportation are considered which, together, indicate the degree to which respondents' transportation patterns (assessed by income group) are sustainable:

- * Number of cars per household, by household income
- * Annual kilometres travelled per vehicle, by household income
- * Annual kilometres driven by household (all vehicles), by household income
- * Average commuting distances of household members who commute to work or school, by household income
- * Distribution of vehicle types (subcompact, compact, midsize, full size, minivan, SUV, light truck), by household income.

Together these indicators reveal households' transport-related energy use and impacts on the environment, including emissions of air pollutants and greenhouse gas emissions.

In light of the pronounced income gradient that has been found in the Ecological Footprint, we here examine transportation use by Glace Bay residents by income group, based on the 2002 Community GPI survey results. Table 13 below shows that higher income households in Glace Bay are more likely to have multiple cars, and they drive each vehicle longer distances on an annual basis than lower income groups. For households in the \$35,000–\$70,000 income range, these longer distances are partially attributable to their longer commuting distances.

On average, there were 1.2 vehicles for each Glace Bay household, with each vehicle averaging 19,295 kms per year, and each household travelling 27,013 kms a year in its vehicles, and with each household member commuting an average distance of 13 km to work or school. Unfortunately, comparative data for Canada and the provinces were not available at the household level. However, these Community GPI results for Glace Bay illustrate the kind of comparative data that will be increasingly essential if Canada and Nova Scotia are to meet their greenhouse gas reduction targets, to conserve energy, and to reduce our transportation and Ecological Footprints—issues of vital and growing importance to Canadians and to the world.

It is noteworthy that Glace Bay residents generally commute considerably further than other Nova Scotians and Canadians. According to 2001 Census results, the median commuting distance in Nova Scotia was 7.8 km, while the median commuting distance in Canada was 7.2 km.¹⁴¹

Whereas the Census reports on *median* commuting distance within a jurisdiction, the Glace Bay commuting results were calculated as the *average* individual commuting distances of all commuting members of Glace Bay households. Thus, even though these commuting results are therefore not entirely comparable, they are provided here because there does still seem to be a notable difference in commuting distances. The considerably longer commute that Glace Bay residents appear to face may be due to a shortage of work opportunities within the town of Glace Bay, and the need for many Glace Bay residents to commute to Sydney for work—a drive of about 20 km each way.

In order to test this comparison further, and because averages may potentially reflect considerably longer commutes by some, we also did some calculations on *median* commuting distances (in order to try to match Statistics Canada protocols). These calculations were complicated by the fact that the GPI Glace Bay survey asked respondents to report commuting distances for each household member to work or school, whereas the comparable Statistics Canada Census figures are only for respondents themselves and only to their place of work.¹⁴² Taking just the commuting distances of “household member 1” in the GPI Glace Bay survey, the median commuting distance is seen to be 10 km—still considerably longer than the 7.8 median commuting distance in Nova Scotia and the 7.2 km median commuting distance in Canada reported in the 2001 Census.

While the Census statistics on commuting distance for Nova Scotia and Canada are not entirely comparable to our Glace Bay results due to different calculation methods and survey questions, we have nevertheless decided to report them here in order to draw attention to the close connection between economic and ecological realities. Thus, it is clear that availability of work closer to home can help reduce the human impact on the environment by reducing driving needs and concomitant fossil fuel use. Provision of better work opportunities within Glace Bay itself can therefore have ecological as well as economic benefits by reducing commuting distances and work trips to Sydney.

The Glace Bay GPI results reveal a dramatic income gradient related to transportation, and in particular to use of private vehicles. The average low income household in Glace Bay (less than \$20,000 per year) was only one-third as likely to own a car as high income households—0.6 vehicles per household with less than \$20,000 per year compared to an average of 1.7 vehicles/household for those with incomes of \$50,000–\$70,000, and 1.9 cars per household for those with the highest incomes.

As well, lower income residents of Glace Bay drive their cars less than higher income households. The average vehicle in a low income household was driven less than 16,000 km a year—11% less than those with incomes between \$20,000 and \$35,000 a year, 20% less than those with incomes between \$35,000 and \$50,000, and 27% less than the highest income households, where each car was driven nearly 22,000 km per year.

When these two sets of numbers are combined (vehicles/household and kilometres driven by each vehicle), it is seen that the highest income households in Glace Bay drive nearly four times as much (43,670 km per year) as the lowest income households (11,182 km per year), more than twice as much as households with incomes between \$20,000 and \$35,000 (21,479 km per year), and 46% more than middle-income households (\$35,000–\$50,000 km per year).

Interestingly, the longest commutes to work and school in Glace Bay were for middle- and upper-middle-income households (\$35,000–\$70,000 per year), whose average commute (about 14.8 km) was 80% longer than that of the lowest income households (8.2 km) and 24% longer than for households earning \$20,000–\$35,000 (11.9 km).

Because this section of the Glace Bay GPI on ecological behaviours is the only part of the survey to collect data at the household rather than individual level, it is important to note that the income-related results presented here are also a function of household size and age of household members. Thus, low income households are generally smaller and younger than higher income households—with low income households, for example, including university students and unattached individuals. Time and resources did not allow adjustment of results for household size and age, but this should be done in future updates.

Table 13. Transportation use, by household income, Glace Bay, 2002

Household income (annual dollars)	Average number of vehicles per household	Average kms / vehicle / year	Household kms / year	Average individual commuting distance to work or school for all commuting members of the household
<20,000	0.6	15,975	11,182	8.2
20,000–34,999	1.1	17,899	21,479	11.9
35,000–49,999	1.4	19,949	29,923	14.7
50,000–69,999	1.7	20,576	37,039	14.9
70,000+	1.9	21,835	43,670	13.5
Average: all groups	1.2	19,295	27,013	13.0

Note: Average commuting distance is based on the average of all the household members who commuted in each household.

The type of vehicle(s) a household owns also affects its transportation footprint and consequent impact on the natural environment, with smaller, more fuel-efficient cars clearly having less impact than gas-guzzling SUVs, for example. Sadly, however, less than one-quarter of the cars in Glace Bay (23.5%) are compacts (18.9%) and sub-compacts (only 4.6%), while nearly a third (32.7%) are light trucks, minivans, and SUVs.

The shift from cars to light trucks, vans, and SUVs reflects national trends, with sales of light trucks and vans up 50% nationwide since the early 1990s, and sales of SUVs up nearly 300%.¹⁴³ In Nova Scotia too, passenger-kilometres travelled in cars have declined since the early 1990s but increased by 50% for light trucks (including SUVs and minivans).¹⁴⁴ These passenger transportation trends, reflected in current Glace Bay vehicle ownership, impede efforts to cut greenhouse gas emissions and combat global warming.

In the distribution of vehicle types as well, responsibility is again not evenly shared by all households. It is noteworthy that higher income residents of Glace Bay were more likely than lower income residents to drive vehicles like SUVs and minivans that have relatively poor fuel efficiency. Table 14 below, indicating the composition of vehicles within Glace Bay households by income group, shows an income-related gradient on ownership of SUVs, vans, and light trucks. Twenty-one percent of the vehicles owned by low income residents are vans, SUV's, and light trucks, compared to 34% in the highest income group, 31% in the second highest group, and 27% in the middle-income group.

The difference is particularly pronounced with respect to sport utility vehicles, which comprise more than twice as high a percentage of all household vehicles among the highest income Glace Bay households as among lower and middle-income income households (Table 14 below).

Table 14. Distribution of vehicle types (%), by household income, Glace Bay, 2002

Vehicle type	Household income					Total
	<20,000	20,000–34,999	35,000–49,999	50,000–69,999	70,000+	
Subcompact	6.0	4.3	3.9	5.4	3.8	4.6
Compact	21.0	19.9	22.8	17.6	16.4	19.8
Midsize	38.5	28.4	29.4	27.5	28.6	30
Fullsize	11.1	18.6	14.4	16.1	15.6	15.6
Minivan	6.1	9.0	9.9	9.6	9.5	9.0
Sport utility	3.8	2.2	3.7	5.9	8.4	4.4
Light truck	11.4	14.9	13.1	15.8	16.0	14.3
Other	1.9	2.4	2.7	2.0	1.5	2.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Since high income households also own more vehicles, the income gradient by vehicle type is even more marked when comparing absolute numbers. Thus, among the highest income Glace Bay households (\$70,000+), there were 0.5 minivans and SUVs per household, compared to 0.4 for households with incomes between \$50,000 and \$70,000, 0.2 for lower middle and middle-income households (\$20,000–\$50,000), and 0.1 for the lowest income households. These numbers show that the highest income households were five times more likely to own a gas-guzzling SUV or minivan as the lowest income households, with a clear gradient showing that the higher the income, the greater the likelihood of owning non-fuel efficient vehicle.

Considering that these fuel-inefficient vehicles are also driven longer distances in high-income households, it is clear that high-income households make a considerably larger contribution to global warming, air pollution, and other environmental problems through their driving patterns than do lower income households. In sum, it is apparent that the larger transportation footprint (and therefore greater adverse impact on the environment) of higher income groups is due to a combination of more vehicles per household, longer driving distances per annum, and higher rates of ownership of fuel-inefficient vehicles. For middle- and upper-middle-income groups, longer commutes also contribute to a larger transportation footprint.

Ecological Attitudes

Ecological attitudes towards sustainability, consumption, and waste. Consumption patterns directly affect resource use, waste production, and ecological sustainability. Because ecological attitudes are a key factor in predicting sustainable behaviour, a number of questions were asked in the GPI Glace Bay survey to assess respondents' attitudes on the sustainability of their current lifestyles—including whether their lifestyles produced too much waste, consumed too many resources, and adequately conserved resources for future generations, and whether they were presently consuming more than necessary and could choose to consume less.

The vast majority of Glace Bay residents feel that their way of life produces too much waste (82%), that they focus too much on getting what they want now and not enough on conserving resources for future generations (82%), that most of them buy and consume more than they need (84%), and that youth are too concerned with consumption (83%). This seems to indicate a strong awareness of basic sustainability issues among Glace Bay residents, and an open acknowledgement that their present lifestyles are not sustainable.

The results also seem to point to an openness to change, with a clear majority (62%) saying that they could in fact choose to buy and consume less than they presently do (Table 15 below).

Table 15. Ecological attitudes and attitudes towards sustainability and consumption (%), by gender, Glace Bay, 2002

Survey statements	Male	Female	Total
The way we live produces too much waste	83.2	80.7	81.8
The way we live consumes too many resources	72.9	67.3	69.7
We focus too much on getting what we want now and not enough on conserving resources for future generations	83.8	81.0	82.2
Most of us buy and consume more than we need	85.2	83.5	84.2
Today's youth are too focused on buying and consuming things	81.6	84.5	83.3
I spend nearly all of my money on the basic necessities of life	60.8	64.0	62.6
If I wanted to, I could choose to buy and consume less than I do	64.8	59.4	61.7

The difference between the 84% of Glace Bay residents who say most people consume more than they need and the 62% who say they personally could consume less is likely due to the first question asking about consumption by people in general, and the second question asking about the respondent's own consumption. Thus, although there appears to be general concurrence among respondents that *most* people buy and consume more than they need, there is somewhat less acceptance that they personally, as individuals, could reduce their own consumption.

Nevertheless, it remains very significant, and a mark of commitment to change and pro-ecological behaviour, that a clear majority of Glace Bay residents say they could consume less (and thus reduce their impact on the environment)—especially since Glace Bay is not generally a wealthy community,

and since 63% of residents say they already spend nearly all their money on the basic necessities of life. This is explored further in the analysis of results from Table 16 below.

Males and females generally held similar attitudes about consumption and sustainability, although males were slightly more likely to agree that they consumed too many resources and that they could choose to reduce their levels of consumption (Table 15 above). However, there were marked differences among income groups that go a long way towards explaining the apparent anomaly noted above between attitudes about one's own consumption and attitudes about consumption in general (Table 16 below).

Thus, while a modest income gradient appeared for most questions, there was a very much stronger income gradient for the two questions about personal consumption. In general, and not surprisingly, higher income groups were more likely than lower income groups to acknowledge that their lifestyles produced too much waste and consumed too many resources, and that they were too focused on present desires rather than the needs of future generations. More than 90% of those with household incomes over \$50,000 per year agreed that "most of us buy and consume more than we need" compared to 77% of low-income and 86% of middle-income residents.

However, the two questions that used "I" rather than "we" produced much sharper income-related distinctions. While 81% of those in the highest income group (\$70,000+) and 76% of those in the next highest group (\$50,000 to \$70,000) agreed that they could choose to consume less if they wanted to, this was true of only 43% of the lowest income group (less than \$20,000). Not surprisingly, those in the lowest income group were far more likely (80%) to report that they spend nearly all their money on the basic necessities of life than those in the highest income group (33%) and second highest group (51%) (Table 16 below).

The sharpness of the income gradients for these two personal questions certainly helps explain why a smaller majority overall (62%) said they personally could choose to consume less, than agreed with the more generalized statement that "most of us" consume more than we need (84%) (Table 15 above). In other words, those who currently spend nearly all they have on basic necessities simply cannot imagine themselves being able to get by with less.

Again, these results are significant, because while social justice approaches tend to focus on improving the living standards of the poor, an ecological perspective can also help focus on curbing excess consumption among the rich, and thus bring greater attention to the equity dimension of sustainability.

Table 16. Ecological attitudes and attitudes towards sustainability and consumption (%), by household income, Glace Bay, 2002

Survey statements	Household income				
	<20,000	20,000–34,999	35,000–49,999	50,000–69,999	70,000+
The way we live produces too much waste	79.9	82.7	81.1	86.9	86.9
The way we live consumes too many resources	66.8	67.6	69.4	76.8	75.9
We focus too much on getting what we want now and not enough on conserving resources for future generations	80.9	82.2	83.3	87.4	84.7
Most of us buy and consume more than we need	77.2	84.9	86.3	90.8	90.5
Today's youth are too focused on buying and consuming things	82.9	83.8	84.3	84.5	80.9
I spend nearly all of my money on the basic necessities of life	80.0	66.8	56.5	51.2	32.9
If I wanted to, I could choose to buy and consume less than I do	43.3	64.3	65.0	76.3	81.0

There were also significant relationships between age and ecological attitudes. In general, Glace Bay residents 45 and older were more likely than those under 45 to believe that people produce too much waste and consume more than they need (see Table 31 below). Interestingly, however, seniors were the least likely of any age group to believe they could consume less than they presently do (57%), while those aged 45–54 were the most likely to say they could consume less (67%). Although 70% of Glace Bay youth aged 15–24 agreed that young people today are too focused on consumption, 85% of those 35 and older held this view.

Table 17. Ecological attitudes and attitudes towards sustainability and consumption (%), by age group, Glace Bay, 2002

Survey statements	Age group					
	15–24	25–34	35–44	45–54	55–64	65+
The way we live produces too much waste	78.7	75.8	80.4	84.3	82.3	84.4
The way we live consumes too many resources	64.9	63.2	69.2	70.4	71.1	73.9
Not enough focus on consuming resources for future generations	74.8	82.4	81.3	83.2	85.4	82.8
Most of us buy and consume more than we need	79.4	78.6	81.3	88.3	87.2	85.1
Today's youth are too concerned with buying and consuming things	69.7	81.3	84.6	86.3	85.3	83.5
I spend nearly all of my money on the basic necessities of life	35.5	61.0	67.7	65.5	71.9	59.5
If I wanted to, I could choose to buy and consume less than I do	62.6	62.1	59.2	67.4	61.6	56.9

In summary, the most significant results on ecological attitudes include the following: The vast majority of Glace Bay residents (82–84%) acknowledge that they consume more than they need, produce too much waste, and should pay more attention to conserving resources for future generations. They are somewhat less willing overall (62%) to reduce their own level of consumption, primarily because most lower income residents (80% of those with incomes under \$20,000 per year and 67% of those with incomes of \$20,000–\$35,000) already spend most of their money on necessities and, consequently, have little room to reduce consumption. By contrast, respondents with higher levels of income (33% of those with incomes of \$70,000+ and 51% of those with incomes of \$50,000–\$70,000) are much less likely to report spending most of their income on necessities and they are correspondingly more willing and able to reduce their levels of consumption (81% in the highest income group and 76% in the next highest group).

Endnotes

- ¹ Statistics Canada. 2001 Census. Cited in Nova Scotia Community Counts. Available from <http://www.gov.ns.ca/chartfx62/communitycounts/profiles/profile.aspx?ptype=&gnum=com1708&gname=Glace%20Bay&gnum2=com1708>ype=Province&yearid=&yearid2=&acctype=&chartid=&mapid=&dcol=&gnew=2&gview=1&sub=demographics>. Accessed May, 2008.
- ² Heylighen, Francis. "What Is a World View?" in *Principia Cybernetica Web*. Ed. Heylighen, F., C. Joslyn, and V. Turchin. Brussels: Principia Cybernetica, 2002. Available from <http://pespmc1.vub.ac.be/WORLVIEW.html>. Accessed January, 2005.
- ³ Jason Reichler, King, Madsen, Camacho, and Marchese, "The Measurement of Wisdom: A Preliminary Effort." p. 588.
- ⁴ For more information on current research in this field please refer to the following Journals: *Journal of Religion and Health*, available from <http://www.springerlink.com/content/104938/?p=bfdc58d0227f4fdb8168400c048c9406&pi=0>; *Journals of Gerontology—Psychological Sciences and Social Sciences*, available from <http://psychsoc.gerontologyjournals.org/cgi/content/full/59/3/P123>; *Social Science and Medicine*, available at <http://www.sciencedirect.com/science/journal/02779536>.
- ⁵ New Economics Foundation. *The Happy Planet Index. An Index of Human Well-being and Environmental Impact*. Available from <http://www.happyplanetindex.org/life-satisfaction.htm>. Accessed February 8, 2008.
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- ¹¹³ Ibid. Original citation: National Consensus Conference on Population Health Indicators: Final Report, Canadian Institute for Health Information, Ottawa, 1999, pp. 5 and B9.
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- ¹¹⁶ Social support data for Nova Scotia are from the Canadian Community Health Survey, 2000/2001, available from <http://www.statcan.ca/english/freepub/82-221-XIE/00503/tables.htm#health>. Social support data for Canada are from the 1996/1997 National Population Health Survey, available from <http://www.statcan.ca/english/freepub/82-221-XIE/00503/nonmed/personal2.htm>. Pan-Canadian data are not available for the CCHS survey years 2000/2001, 2003, or 2005 because only a few provinces took part in that section in each of those years. Therefore, the latest year for which Canadian data are available is 1996/1997—the last year that all provinces took part in the social supports section of the survey. The most recent Nova Scotia data are for 2000/2001, after which Nova Scotia stopped participating in that section

of the CCHS. Therefore, the Glace Bay and Kings County data reported in this summary report are actually the most recent available data on social supports in Nova Scotia.

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¹¹⁸ Ibid, p. 6.

¹¹⁹ See, for example, Mustard, J.F. and J. Frank. 1991. *The Determinants of Health* (CIAR Publication No. 5), Canadian Institute for Advanced Research, Toronto. Cited in Colman, Ronald. *The Economic Value of Civic and Voluntary Work in Atlantic Canada*. 2003 Update. Halifax: GPIAtlantic. Available from <http://www.gpiatlantic.org/pdf/volunteer/volunteerupdate03.pdf>. Accessed April 2008.

¹²⁰ For example, Newfoundlanders have lower incomes and higher rates of unemployment than the rest of Canada, as well as high levels of behavioural risk factors, all of which are conventionally associated with health problems. Yet they consistently record the highest rates of self-reported excellent and very good health, the highest rates of psychological wellbeing, the lowest stress and depression rates, and the lowest rates of several chronic ailments in the country. It has been suggested that strong communities and social networks may help explain this apparent anomaly. Cited in Colman (2003), *The Economic Value of Civic and Voluntary Work in Atlantic Canada*.

¹²¹ Health Canada. 1999. *Toward a Healthy Future: Second Report on the Health of Canadians*. Ottawa, p. 60. Cited in Colman (2003).

¹²² Op. cit., pp. 60–62.

¹²³ Colman, Ronald. 1998. *The Economic Value of Civic and Voluntary Work in Nova Scotia*. Halifax: GPIAtlantic. Available from <http://www.gpiatlantic.org/pdf/volunteer/volunteer.pdf>. Accessed April 2008, p. 13.

¹²⁴ Leah Skanes, Office Manager, Citizens Service League. Personal communication with Linda Pannozzo, April 8, 2008.

¹²⁵ Hall, Michael, Larry McKeown, and Karen Roberts. 2001. *Caring Canadians, Involved Canadians: Highlights from the 2000 National Survey of Giving, Volunteering, and Participating*. Statistics Canada, catalogue no. 71-542-XPE, Ottawa, p. 5. Cited in Colman, Ronald. *The Economic Value of Civic and Voluntary Work in Atlantic Canada*. 2003 Update, pp. 5–6. Halifax: GPIAtlantic. Available from <http://www.gpiatlantic.org/pdf/volunteer/volunteerupdate03.pdf>. Accessed April 2008. According to the most recent publication on rates of volunteerism in Canada, based on results from the 2004 CSGVP, methodological differences and changes in the 2004 survey coverage, sample size, and questionnaire, the 2004 results are not comparable to the 1997 and 2000 results on volunteering rates. Therefore, for the sake of comparison with the Glace Bay data presented here, we have provided the national and provincial comparative data from the 2000 *National Survey of Giving, Volunteering, and Participating*, on which the Glace Bay survey questions on volunteering were based.

¹²⁶ Kiceniuk, Deborah, Adrian MacKenzie and Andrew Harvey. 2004. *Community in Profile: A Comparison of Caregiving in Glace Bay and Kings County*. Halifax: GPIAtlantic. Available from <http://www.gpiatlantic.org/pdf/communitygpi/unpaidcare.pdf>

¹²⁷ Ibid.

¹²⁸ Statistics Canada. *Canada's Workforce: Unpaid Work: 2001 Census*. Available from <http://www.statcan.ca/english/IPS/Data/97F0013XCB2001000.htm>.

¹²⁹ Romanow, Roy, J. 2002. *Final Report: Building on Values. The Future of Health Care in Canada*, Commission on the Future of Health Care in Canada. Available from http://www.hc-sc.gc.ca/english/pdf/romanow/pdfs/HCC_Final_Report.pdf, p. 172.

¹³⁰ To be eligible for these benefits, recipients have to show that their regular weekly earnings have decreased by more than 40% due to caregiving responsibilities and that they have accumulated 600 insurable hours in the last 52 weeks. The “compassionate care” benefits are paid up to a maximum of 6 weeks to a person who has to be absent from work “to provide care or support to a gravely ill family member at risk of dying within 26 weeks.” Available from http://www1.servicecanada.gc.ca/en/ei/types/compassionate_care.shtml. Accessed March 4, 2008.

¹³¹ Romanow, Roy, J. 2002. *Final Report: Building on Values. The Future of Health Care in Canada*, p. 176.

¹³² Colman, Ronald. 2004. *Final Report to Canadian Population Health Initiative. Development and Application of Community Health Indicators*. Halifax: GPIAtlantic. Available from <http://www.gpiatlantic.org/pdf/communitygpi/cphireport.pdf>, p. 38.

¹³³ Statistics Canada, Canadian Centre for Justice Statistics. *Criminal Justice Trends in Canada from 1962: Corrections Program*, p. 21, cited in Dodds, Colin, and Ronald Colman. *The Cost of Crime in Nova Scotia*, Halifax: GPIAtlantic. April, 1999, p. 100. Available from <http://www.gpiatlantic.org>.

¹³⁴ Statistics Canada, Canadian Centre for Justice Statistics. *A One-Day Snapshot of Inmates in Canada's Adult Correctional Facilities*. Catalogue no. 85-601, p. 120, cited in Dodds and Colman (1999), p. 100.

¹³⁵ The Daily. November 24, 2005. *General Social Survey: Criminal Victimization (2004)*. Available from <http://www.statcan.ca/Daily/English/051124/d051124b.htm>. Accessed April 2008.

¹³⁶ Ibid.

¹³⁷ Ibid.

¹³⁸ General Social Survey on Victimization, Cycle 18: An Overview of Findings. 2004. Available from <http://www.statcan.ca/bsolc/english/bsolc?catno=85-565-X>. Accessed March 2008. Tables 3 and 4.

¹³⁹ Ibid. Table 5.

¹⁴⁰ Estimates developed by Hans Messinger (HFM Consulting), former Director of Industry Measures and Analysis at Statistics Canada, are based on source data from Statistics Canada's Social Policy Simulation Database, National Accounts Analytical Studies Branch, and Global Footprint Network / International Institute for Sustainable Development data for the National Ecological Footprint and Biocapacity Accounts, 2005 edition. The Ecological Footprints by education illustrate the global hectares consumed per person for the individual with the highest income in each household disaggregated by that person's level of formal educational attainment. Global hectares is an area weighted by productivity or "the amount of biological material useful to humans that is generated in a given area." Global Footprint Network. *Footprint Term Glossary*. 2007. Available from http://www.footprintnetwork.org/gfn_sub.php?content=glossary. Accessed August 2007.

¹⁴¹ GPIAtlantic. The GPI Transportation Accounts: Sustainable Transportation in Nova Scotia. November, 2006, p. 282, Figure 158.

¹⁴² Statistics Canada. *Journey to Work*. 2001 Census Technical Report. Catalogue no. 92-390-XIE, pages 3–4. Available from http://www12.statcan.ca/english/census01/Products/Reference/tech_rep/journey/offline%20documents/92-390-XIE.pdf. Accessed 2 June, 2008.

¹⁴³ Ibid. Figure 19, p. 54.

¹⁴⁴ Ibid. Figure 23, p. 58, and Figure 24, p. 59.