LANGUAGE AS A DETERMINANT OF HEALTH STATUS AND SERVICE QUALITY

Lifestyle Habits and Health Indicators of Québec Anglophones

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Lifestyle Habits and Health Indicators of Québec Anglophones

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ABSTRACT

As part of an initiative to evaluate the health status of Québec anglophones, their lifestyle habits and certain health indicators were examined by area of residence and compared with those of francophones. The data was taken from the 2003, 2007–2008 and 2009–2010 cycles of the Canadian Community Health Survey (CCHS), with particular emphasis on the most recent data.

The results show few statistically significant differences in lifestyle habits and health indicators between anglophones and francophones, regardless of survey cycle or area of residence. Among the few significant differences we did find, anglophones report eating less often fruits and vegetables and tended to be more prone to overweight than francophones, but were also more physically active. They also seem to have a stronger sense of community belonging.

The sample of anglophones was relatively small in this survey, which reduces its statistical power and may partially account for the limited differences between the two linguistic groups. Québec's anglophone population could certainly benefit from a larger-scale health survey using a bigger sample. This would provide more robust statistical results and a more reliable indication of whether anglophones differ from francophones in their lifestyle habits and other health indicators. It would also help determine specific actions that could be developed targeting anglophones.

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INTRODUCTION

This analysis is part of an initiative to improve our knowledge about the health status of Québec anglophones. The project is being conducted by Institut national de santé publique du Québec (INSPQ) in cooperation with Réseau communautaire de santé et de services sociaux (RCSSS) and Ministère de la Santé et des Services sociaux (MSSS). Its objective is to analyze the health status of anglophones from various perspectives, including socioeconomic status, considered a health determinant; access to care and services, which is assessed using avoidable mortality rates; and hospitalization rates for conditions amenable to ambulatory care. This report explores another important aspect of health, namely lifestyle habits and a number of health indicators, based on data from the Canadian Community Health Survey (CCHS). Examining lifestyle habits is an important part of healthcare planning because it enables us to anticipate future risks to population health. This report also examines other health-related indicators such as perceived health and activity limitations, which provide a more immediate measure of these communities' current state of health.

This is the first analysis to profile the health of anglophone Quebecers based on survey data. Québec anglophones are an official language minority community, just like francophones living outside Québec. It has been shown that minority group health indicators, such as perceived health, may differ from those of the majority (Bélanger et al., 2011; Bouchard et al., 2009). In this light, it is important to assess whether Québec anglophones display different health behaviors than Québec francophones.

1 METHODOLOGY

1.1 DATA SOURCE AND TIME PERIODS

Data was taken from the Canadian Community Health Surveys (CCHS) conducted in 2003 (cycle 2.1), 2007–2008 (cycle 4.1), and 2009–2010. The CCHS is a sample survey with a cross-sectional design, and is conducted by Statistics Canada.

1.2 LANGUAGE

We use *mother tongue* as the variable determining membership in the anglophone or francophone community. It is defined as the first language learned at home in childhood and still understood by the person in question, and its CCHS variable code is SDCDFL1. Mother tongue is more closely bound to the cultural and ethnic identity of individuals and their ancestors than the language spoken at home or at work or the first official language spoken. It is considered here as a determinant of health status or as a factor acting on other determinants. In this text, the terms *francophone* and *anglophone* refer to the mother tongue of the persons so designated.

1.3 AREAS STUDIED

For purposes of analysis, Québec was divided into three general geographical areas: the Montréal Census Metropolitan Area (CMA), the five other metropolitan areas combined (Québec City, Trois-Rivières, Sherbrooke, Saguenay, and Gatineau), which are designated as “other CMAs,” and the rest of the province. This third group comprises all villages, towns, and rural areas that are not part of a metropolitan area, and is designated “non-CMAs” or “non-metropolitan areas.” These geographical groupings were necessary because the anglophone population would otherwise be too small to allow for statistically reliable thematic analysis. Figure 1 maps out the areas of residence examined. Census metropolitan areas (CMAs) are the geographical units used by Statistics Canada. A census metropolitan area is the area consisting of one or more neighboring municipalities situated around a major urban core. A CMA must have a population of at least 100,000, of whom 50,000 must live in the urban core (Statistics Canada, 2008).

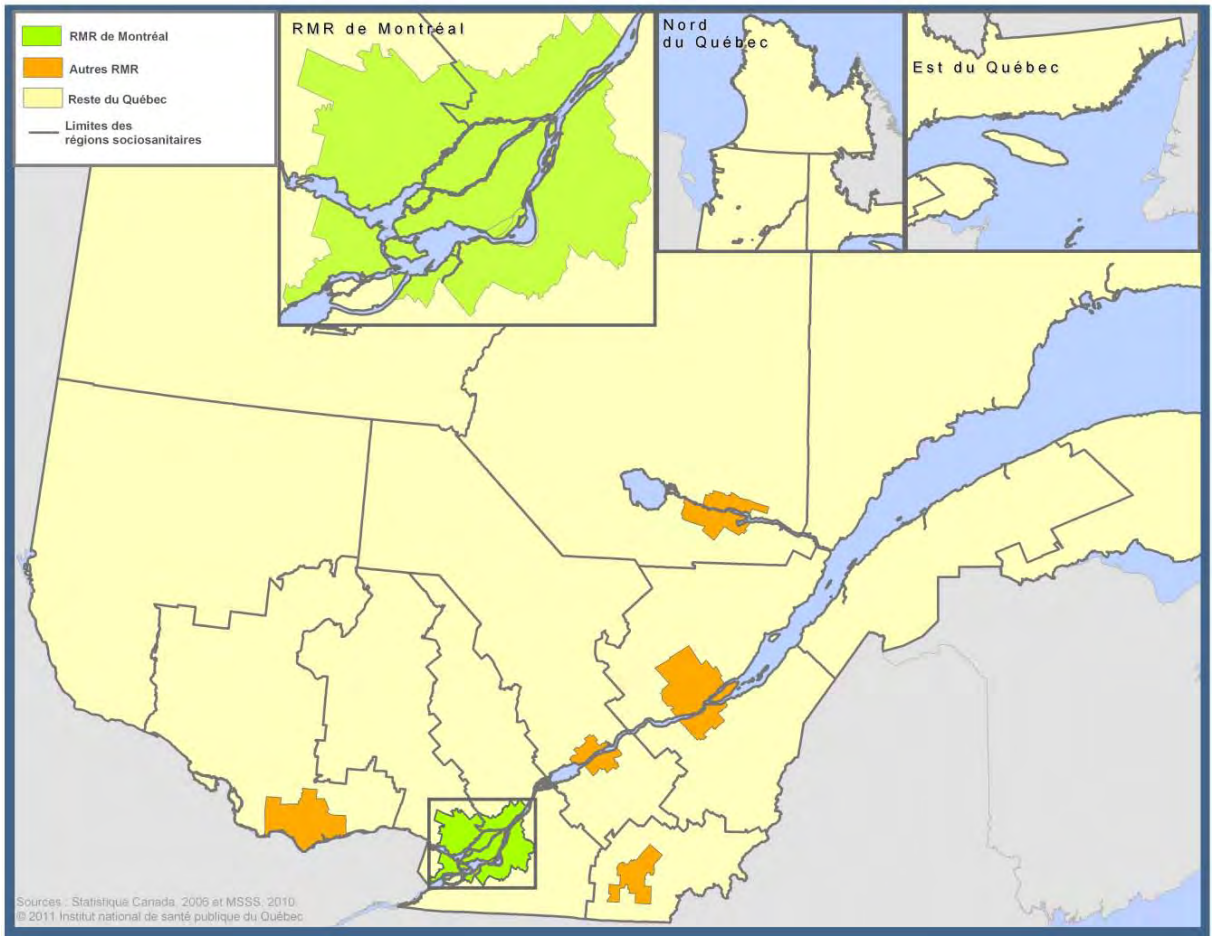

Figure 1 Map of areas studied: Montréal CMA, other CMAs (Québec City, Sherbrooke, Trois-Rivières, Saguenay, Gatineau) and the rest of Québec (non-CMAs)

1.4 NUMBER OF RESPONDENTS

One of the CCHS's main objectives is to provide reliable estimates for the 117 Canadian health regions (HR). Prior to 2007, data was collected every two years from 130,000 people throughout Canada. Since 2007, data has been collected on a continuous basis with an annual sample of 65,000 people. Inhabitants of aboriginal reserves and crown lands, people living in institutions, full-time members of the Canadian Armed Forces, and residents of certain remote regions are excluded from the CCHS survey frame, but these populations only account for 2% of the Canadian population (Statistics Canada, 2011).

Table 1 shows the number of respondents broken down by language and area of residence in Québec for the three cycles studied.

Table 1 Number of CCHS respondents by mother tongue and area of residence: 2003, 2007–2008, and 2009–2010[1]

	All of Québec		Montréal CMA		Other CMAs		Non-CMAs	
	English	French	English	French	English	French	English	French
2003	**1,834**	**23,368**	619	4,998	456	6,436	759	11,934
2007–2008	**1,390**	**20,775**	716	4,815	219	4,764	455	11,196
2009–2010	**1,289**	**19,539**	638	4,997	250	4,968	401	9,574

Sampling for a survey on the scale of the CCHS is a complex process that must fulfill a number of criteria, and it is not necessarily proportional to the regional distribution of the population. As one of the main objectives of the CCHS is to produce reliable estimates for each health region (HR), lightly populated HRs are over-represented with respect to their actual weight in the province. This is why there are more respondents from non-metropolitan areas, which include a number of HRs, than from the Montréal CMA or the other CMAs, where the number of HRs concerned is lower. However, the final results have been weighted to take the actual population of each HR into account.

The smaller number of anglophone respondents in the other CMAs inevitably results in lower statistical robustness for this area of residence. Proportions and estimates with high coefficients of variation are indicated in the tables and graphs.

1.5 SELECTED INDICATORS

The selected indicators are recognized health determinants. Given the detailed analysis by linguistic group and area, indicators with an overall prevalence of under 5% were excluded, as their statistical power was too low when broken down into different categories. Indicators with a high partial non-response rate or overly high coefficients of variation were also excluded.

Fourteen indicators were finally selected; six for the life style habits analysis and eight for the analysis of other health indicators (see Appendix 2 for a detailed description).

Lifestyle habits:

- Heavy drinking
- Low fruit and vegetable consumption (less than five times a day)
- Smoking
- Excess weight
- Lack of physical activity during leisure time
- Presence of two or more risk factors (out of the five above)

[1] The number of allophone and bilingual respondents and the total number of respondents are presented in Table 3 in Appendix 1.

Other health indicators:

- Moderate or severe health problems
- Activity limitations
- Health perceived as fair or poor
- Dental health perceived as fair or poor
- Weak sense of community belonging
- Poor emotional and informational support
- Two or more chronic illnesses in people age 40 and over
- Severe psychological distress

1.6 METHODOLOGICAL NOTES AND LIMITATIONS

The CCHS is a voluntary survey. An adjustment factor is applied to the weights of household respondents to compensate for the non-response of certain other households.

Since the CCHS is a survey of households, individuals who potentially have more health problems, namely those living in health facilities, are excluded from the survey.

Recent studies have suggested that overweight alone (without obesity) may not be harmful to health and may even protect health, especially in seniors (Orpana et al., 2009; Janssen, 2007; Santé Canada, 2003). However, we chose to present *excess weight* (overweight + obesity) as an indicator, since obesity alone would not have enabled us to calculate sufficiently robust estimates for anglophones.

Chronic bronchitis was excluded from the *two or more chronic illnesses* indicator in 2007–2008 but included in 2009–2010, which slightly skews any data comparison between the two cycles.[2]

The *moderate and severe health problems* variable was calculated using the Health Utility Index (HUI) Mark 3, whose value varies from -0,36 (health condition worse than death) to 1 (perfect health). According to Feeny (2007), Feeny and Furlong (2002), and Feng et al. (2009), a score below 0.89 indicates that an individual has moderate to severe functional health problems. Other sources use 0.80 as a threshold, but since this would exclude more anglophones and reduce the statistical reliability of the estimates, we opted for the 0.89 threshold.

Institut de la statistique du Québec (ISQ) recommends a more in-depth analysis when an indicator has a partial non-response rate above 10%. This happened several times; in each case it involved anglophones in non-CMAs. Cases where the partial non-response rate was greater than 10% are identified by the ^^ symbol. The indicators affected were *two or more risk factors* and *poor informational and emotional support*. We cross-tabulated the results by age group (12–44, 45–64, and 65 and over) and by gender. A more detailed analysis of the cases with high partial non-response rates is presented in Appendix 4, Table 9.

[2] See methodological note on chronic bronchitis in Appendix 2 for more information.

1.7 COMPARABILITY

There are certain concerns about the comparability of CCHS data between cycles at the provincial and regional levels as well as at the regional level within the same cycle. Data comparability can be affected in three main ways: samples in the different cycles are not distributed in the same proportions between the area and telephone frames; the proportions of face-to-face and telephone interviews are not the same from one cycle to another; and the questions or choice of answers for the same variable differ from one cycle to another.

For example, certain factors such as *obesity* and *physical activity* are underestimated in telephone interviews compared to face-to-face interviews (St-Pierre and Béland, 2004). This bias can vary according to cycle, for example in the 2003 CCHS, 27% of the interviews were conducted in person, compared to 33% in 2005 (Plante et al., 2010), 45% in 2007–2008 (ISQ et al., 2011), and 47% in 2009–2010 (Statistics Canada, 2011). Moreover, a self-response bias exists with respect to the prevalence of *chronic health problems*, which also tend to be underestimated (Feng, 2009).

Methodological tools and documents are available for the comparison between cycles 1.1 (2000–2001) to 4.1 (2007–2008), but this data is not yet available for the 2009–2010 cycle (Plante et al. 2010; ISQ, 2010; ISQ et al., 2011; PHIRN, 2012). Virtually none of the variables presented in this report can be compared between cycles 2.1 (2003) and 4.1 (2007–2008). Therefore caution should be used in interpreting data between cycles and areas. See Appendix 3 for a summary of our indicators' comparability results.

1.8 STATISTICAL TESTS

Survey data variability partially results from the fact that the data is derived from samples. Generally speaking, the smaller the sample, the greater the variability. By using statistical difference tests, survey data can be compared—in this case between linguistic groups— in a manner that takes the variability of the estimates into account.

The statistical tests on differences between linguistic groups were performed using adjusted proportions. The tables, however, show the unadjusted proportions. The reference population for standardization purposes is Québec's population in 2001. The results of the statistical tests comparing linguistic groups are classified by color: red boxes indicate significant differences that are unfavorable for anglophones while the green boxes indicate favorable differences. Yellow boxes mean there is no statistical difference between the two groups. Transparent or white boxes mean that the test was not performed[3] or that no data was available for one of the two proportions.

For comparisons between areas, the proportions are considered to be different if the confidence intervals do not overlap. Statistical differences between areas are not shown in the tables or graphs. See Appendix 5 for the detailed results and confidence intervals.

[3] We decided against conducting statistical comparison tests when the coefficient of variation of at least one of the two values was greater than 33%.

Comparisons between different cycles are not recommended given the small number of comparable variables (See Appendix 3). Therefore the results of the statistical tests comparing cycles are not shown.

2 RESULTS

The results are presented by theme. Due to insufficient statistical power, the data is presented for Québec as a whole for all three cycles, while the results of the regional comparisons are only presented for 2009–2010. However, the regional estimates for the previous cycles are presented in the appendices. In both cases, the tests comparing the two linguistic groups are shown. However, the five appendices contain a wealth of additional data not available in the main text, including: a comparison between linguistic groups by area of residence for all three cycles (Appendix 4), and the complete results with confidence intervals for anglophones, francophones, allophones, and the total for all languages across all areas and cycles (Appendix 5).

2.1 LIFESTYLE HABITS

Table 2 CCSS lifestyle habit and health indicators for anglophones and francophones and comparisons between the two groups, all of Québec, 2003, 2007–2008, and 2009–2010[4]

		2003	2007–2008	2009–2010
Heavy drinking[c]	A	16.9	17.7	17.1
	F	17.4	18.7	20.1
Low fruit and vegetable consumption[c]	A	56.5	51.5	51.6
	F	54.8	46.8	46.9
Smoking[c]	A	27.8	21.8	24.3
	F	26.7	25.2	23.7
Excess weight	A	48.9	48.4	55.2
	F	47.1	47.8	50.3
Lack of physical activity during leisure time[c]	A	20.3	21.6	18.7
	F	25.9	25.4	23.7
Two or more risk factors (Lack of physical activity during leisure time)[c]	A	^ 55.3	^ 53.4	^ 53.3
	F	^ 55.9	^ 52.5	^ 53.3

Unfavorable result for anglophones compared to francophones.
Little difference between anglophones and francophones.
Positive result for anglophones compared to francophones.

A: Anglophones.
F: Francophones.
^ Partial non-response between 5% and 10%.
[c] These indicators cannot be compared between 2003 (Cycle 2.1) and 2007–2008 (2007–2008 cycle). The comparability study for the 2009–2010 cycle is not yet available. See Appendix 3 for more information.

[4] Care should be taken in comparing between cycles as only one lifestyle indicator is comparable between 2003 and 2007–2008, namely *excess weight*. The comparability study for the 2009-2010 cycle is not yet available.

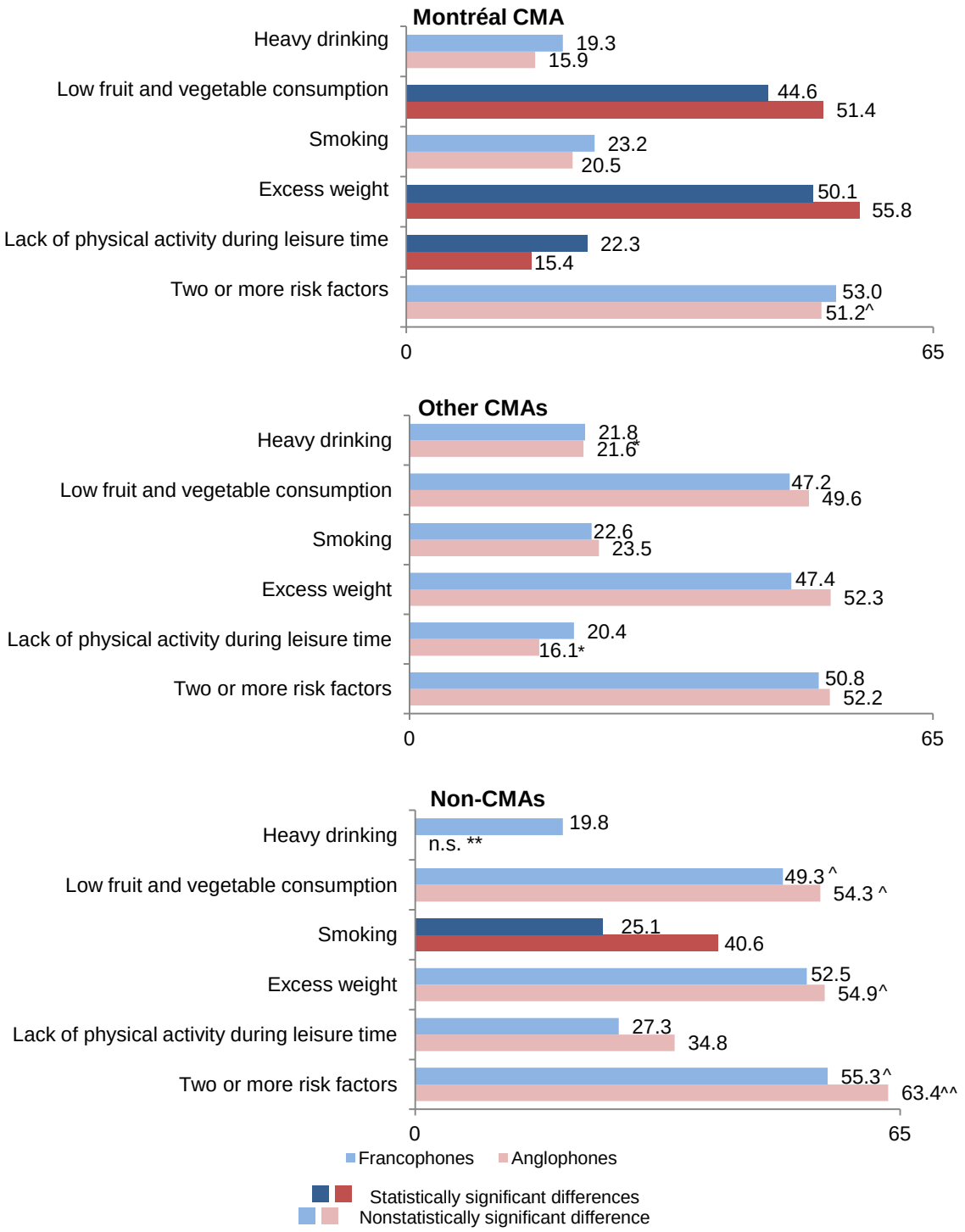

Figure 2 CCHS lifestyle indicators for anglophones and francophones and statistical comparisons between the two groups, Montréal CMA, other CMAs, and Non-CMAs, 2009–2010

^ Partial non-response between 5% and 10%.

^^ Partial non-response greater than 10%: Analyze with caution. See footnote in Appendix 4, Table 7.

* Coefficient of variation between 16.6% and 33.3%. Interpret with caution.

** Coefficient of variation greater than 33.3%. Data not shown.

Heavy drinking corresponds to the consumption of five or more alcoholic drinks on a single occasion at least 12 times a year. For Québec anglophones, this figure has remained stable at about 17% since 2003 and is the same as for francophones, regardless of geographical area.

A healthy diet, including large quantities of fruits and vegetables, is known to reduce the incidence of a number of health problems, including certain cancers, cardiovascular disease (CVD), type 2 diabetes, obesity, and osteoporosis (WHO, 2004). ***Low fruit and vegetable consumption* was more common for anglophones (52%) than francophones (47%) in 2007–2008 and 2009–2010**. This trend was also observed in the Montréal CMA. This is one of the most striking findings on lifestyle differences between Québec anglophones and francophones.

According to the 2009-2010 data for Québec, **the percentage of smokers** was 24% among anglophones. Tobacco use by anglophones did not differ from that of francophones, except in non-CMAs, where 41% of anglophones smoked, compared to 25% of francophones. This was the biggest gap between the two linguistic groups in 2009–2010. Although statistically significant, it should be interpreted with caution as it is markedly different not only from findings for the other areas and Québec as a whole, but also from the proportion of anglophone smokers observed in non-CMAs in the two previous cycles (Appendix 4, Table 7).[5]

The rising obesity rate is often seen as a major public health problem with numerous harmful effects, especially as an obstacle to improving cardiovascular health (Lamontagne et al., 2011). In 2009–2010, **more anglophones (55%) than francophones (50%) were overweight or obese** in Québec as a whole. Between 2003 and 2007–2008, the percentage remained almost stable at 48% and was similar for both linguistic groups (excess weight is one of the indicators that can be compared between 2003 and 2007–2008). The percentage of anglophones with excess weight also differs from that of francophones in the Montréal CMA, but not in the other areas.

Lack of physical activity is associated with increased risk for many health problems, especially cardiovascular and musculoskeletal problems. Physical exercise also reduces the risk of developing type 2 diabetes and certain cancers (WHO, 2002). **A smaller proportion of anglophones were physically inactive compared to francophones (1 anglophone in 5 compared to 1 francophone in 4.** The proportion of physically inactive anglophones in the Montréal CMA was even lower, at 15%, which is 7 points less than the proportion observed in francophones. However, 35% of anglophones living in non-CMAs were physically inactive.

The **two or more risk factors** indicator is calculated by combining the five main lifestyle indicators: heavy drinking, low fruit and vegetable consumption, smoking, excess weight, and lack of physical activity. A little over half of Québec anglophones present two or more risk factors (53%), exactly the same proportion as francophones.

[5] There could have been a sampling bias of some kind.

Results summary for lifestyle habits

Analysis of a population's lifestyle habits is most meaningful when data is compared over time, with another population, or across different geographical areas. Only one of the lifestyle indicators analyzed is comparable over time, namely, excess weight, which has been increasing in anglophones since 2003. In the 2009–2010 cycle, anglophones differed from francophones in that they showed a higher percentage of persons with excess weight. However they tended to be more physically active than francophones in Québec as a whole, particularly in the Montréal CMA. The last difference with respect to lifestyle habits between the two linguistic groups was that anglophones consumed fewer fruits and vegetables than francophones. The comparison of anglophone lifestyle habits across geographical areas showed that those living in non-CMAs were worse off than those living in metropolitan areas in terms of lack of physical activity and heavy smoking.

2.2 OTHER HEALTH INDICATORS

Given that the results of the lifestyle analysis differed very little among cycles and that there were few significant differences between linguistic groups for 2003 and 2007–2008, only the 2009–2010 cycle is presented in the area analysis. Data on the previous cycles is available in the appendices.

Table 3 CCSS health indicators for anglophones and francophones and comparisons between the two groups, all of Québec, 2003, 2007–2008 and 2009–2010

		2003	2007–2008	2009–2010
Moderate or severe health problems	A	26.6	24.7	26.0
	F	21.9	22.1	22.5
Activity limitations[c]	A	30.2	26.6	27.3
	F	28.6	23.8	25.6
Health perceived as fair or poor[c]	A	11.9	10.5	8.5
	F	9.8	11.0	9.5
Dental health perceived as fair or poor	A	14.5	13.6	NA
	F	13.0	11.0	NA
Weak sense of community belonging[c]	A	40.2	38.6	40.0
	F	45.7	43.6	44.3
Poor emotional or informational support[c]	A	NA	^ 10.9	^ 11.5
	F	NA	^ 11.5	^ 11.5
Two or more chronic illnesses in people age 40 and over[c]	A	NA	26.4	24.8
	F	NA	22.1	23.8
Severe psychological distress[c]	A	NA	19.0	17.9
	F	NA	20.0	19.4

***Unfavorable** result for* anglophones compared to francophones.

Little difference between anglophones and francophones.

***Positive** result for* anglophones compared to francophones.

A: Anglophones.

F: Francophones.

NA: Data not available.

^ Partial non-response between 5% and 10%.

[c] These indicators cannot be compared between 2003 (Cycle 2.1) and 2007–2008 (2007–2008 cycle). The comparability study for the 2009–2010 cycle is not yet available. See Appendix 3 for more information.

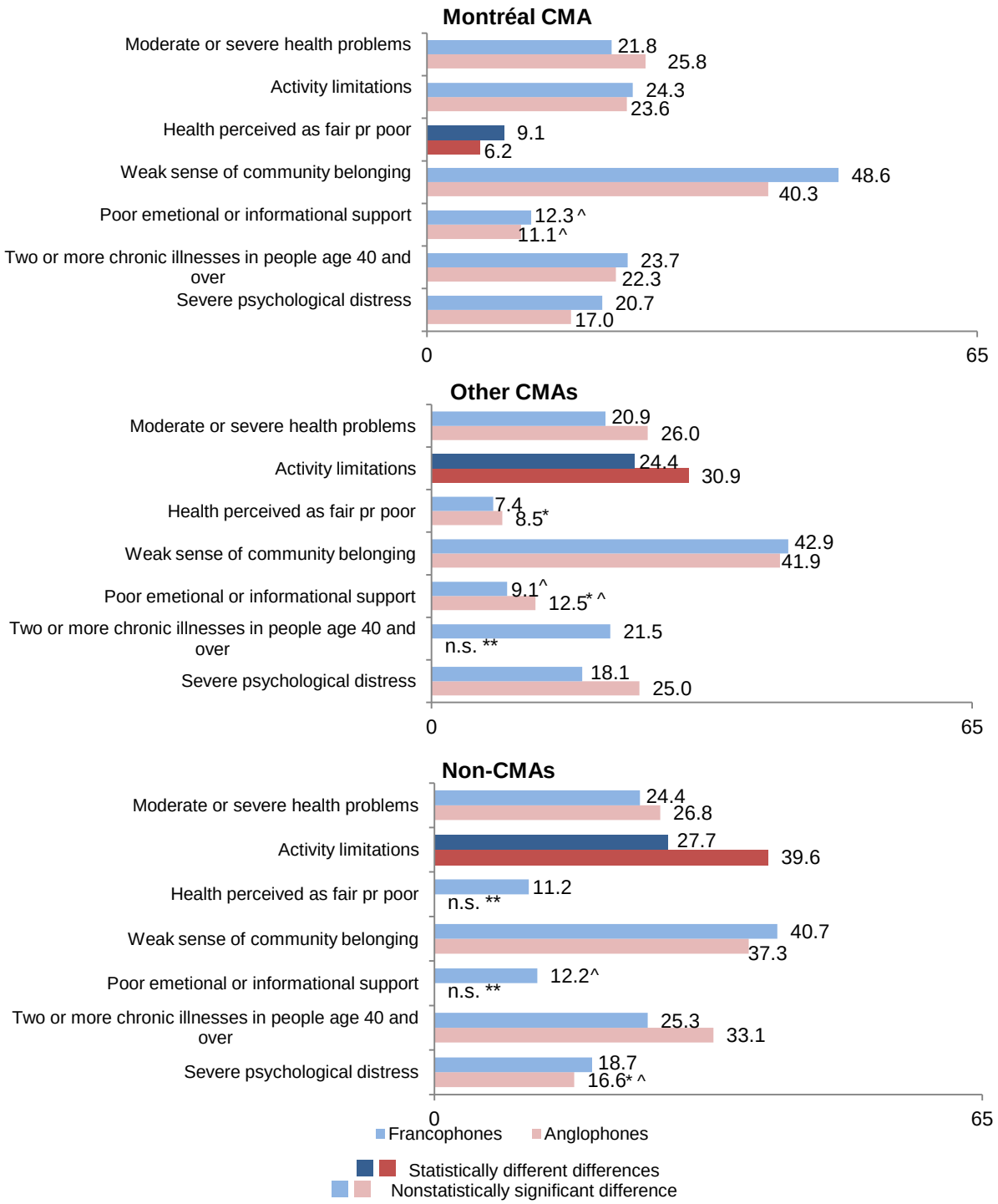

Figure 3 CCSS health indicators in anglophones and francophones and comparisons between the two groups, Montréal CMA, other CMAs, and non-CMAs, 2009–2010

^ Partial non-response between 5% and 10%.

* Coefficient of variation between 16.6% and 33.3%. Interpret with caution.

** Coefficient of variation greater than 33.3%. Data not shown.

Moderate or severe health problems were calculated using the Health Utilities Index, HUI Mark 3 (See Appendix 2). Since 2003 and across all areas, approximately one-quarter of anglophones have reported suffering from moderate or severe health problems. This figure was the same for francophones in 2007–2008 and 2009–2010 but was higher for anglophones in 2003.

Since 2003, 27 to 30% of anglophones across Québec have reported suffering from **activity limitations**, which is very similar to the figures for francophones. However, the situation varied according to area. In 2009–2010, a higher proportion of anglophones living in other CMAs and non-CMAs suffered from activity limitations than francophones. The difference was particularly marked in non-CMAs, where the percentage was 40% for anglophones, compared to 28% for francophones.[6] In contrast, the two linguistic groups were neck and neck in the Montréal CMA, closer than at the provincial level. Activity limitations were thus the only health indicator in 2009–2010 for which anglophones were statistically worse off than francophones in the other CMAs and in non-CMAs.

Perceived health is a recognized indicator of the general health status of the population (Shields and Shooshtari, 2001). About one in ten Québec anglophones considered their health status as fair or poor, a figure that has changed very little since 2003 and is very similar to that of francophones. However, in 2009–2010, the proportion of anglophones in the Montréal CMA who said that their health was fair or poor was particularly low (6%). The figures for anglophones living in other CMAs were not statistically robust and did not differ from those for francophones or for the Montréal CMA. The **perceived dental health** indicator is only available for 2003 and 2007–2008. In these two periods, 14% of anglophones perceived their dental health as fair or poor, which is similar to the figure for francophones.

The CCHS included a number of questions on the **prevalence of chronic illnesses** such as diabetes, heart disease, and emphysema. We selected 13 of the most common illnesses for which data was available for Québec, and we calculated an indicator that measures the proportion of people age 40 and over suffering from at least two of the thirteen chronic illnesses. The results show that approximately one in four anglophones age 40 and over suffered from two of the selected chronic illnesses in 2007–2008 and 2009–2010 (data not available for 2003). These results do not differ from those for francophones.

Physical health is not the only factor affecting the overall health status of an individual or population; mental health and social capital also play a critical role and are often correlated with physical health (Desjardins et al., 2008). The next three indicators—sense of community belonging, emotional and informational support, and psychological distress—are closely related to mental health.

Sense of community belonging refers to the social ties individuals forge with their communities. The greater the sense of community belonging, the more likely individuals will be supported and assisted, including in terms of health. For example, Canadians with the strongest sense of community belonging also have the most positive perception of their

[6] It is important to remember that these proportions are not adjusted for age, but that the statistical differences were calculated based on proportions adjusted for age.

physical and mental health (Shields, 2008). Proportionately speaking, anglophones were less likely than francophones to report having a weak sense of community belonging; this is reflected by **a lower score for weak sense of community belonging** in all the CCHS survey cycles. In 2009–2010, 40% of anglophones considered that they had a weak sense of community belonging, compared to 44% of francophones, a result that varied little by area of residence.

The poor emotional and informational support indicator is based on a number of questions, notably whether respondents had someone they could talk to or seek advice from in times of crisis or someone to confide in. In 2007–2008 and 2009–2010, approximately 11% of anglophones reported having poor emotional and informational support. The figures varied little—9% to 13%—across all areas of residence, for both anglophones and francophones.

The last health status indicator analyzed was *psychological distress*, based on the Kessler Psychological Distress Scale (See Appendix 2). Approximately one anglophone in five said that they suffered from severe psychological distress. The data shows no significant difference between areas of residence or between the two linguistic groups.

Results summary for other health status indicators

Despite the small number of statistically different results between the two linguistic groups or between anglophones living in different areas, a number of general observations can be made. Approximately one-quarter of anglophones have activity limitations. The figure is similar for respondents reporting moderate or severe health problems and the presence of two or more chronic illnesses. One of the few results that distinguishes anglophones from francophones is the higher activity limitation rate for anglophones living outside greater Montréal. Despite their stronger sense of community belonging, anglophones do not enjoy greater emotional and informational support.

CONCLUSION

Due to problems of statistical robustness and the non-comparability of many CCHS indicators over time, it is difficult to draw conclusions about Québec anglophone lifestyle habits and health indicators when comparing them over time or between linguistic group and area of residence. Nevertheless, several points emerge from this analysis. Anglophones consumed fewer fruits and vegetables and were more likely to have excess weight than francophones in 2009–2010, despite the fact that they had a greater tendency to be physically active. Anglophones also tended to have a stronger sense of community belonging than francophones.

The area analysis showed that results for the Montréal CMA were very similar to those for Québec as a whole. In the other CMAs and non-CMAs, there were very few notable differences between the two linguistic groups, except for the higher proportion of anglophones suffering from activity limitations. However, unfavorable results for anglophones were more frequent in non-CMAs.

The most marked finding is the relative similarity, or at least the absence of statistically significant differences, between the two linguistic groups for most indicators across all cycles. Two hypotheses have been put forward and are not necessarily mutually exclusive. The first is that anglophones and francophones are actually very similar in terms of lifestyle habits and health indicators. The second is that the results do not allow for a clear distinction given the wide confidence intervals typically associated with the small sample sizes used for anglophones in CCHS. It would be interesting to compare results for the two linguistic groups across several series of CCHS cycles or with another survey using a bigger sample size providing greater statistical power before concluding that the two linguistic groups are truly similar for most lifestyle habits and health indicators.

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APPENDIX 1

NUMBER OF CCHSS RESPONDENTS BY MOTHER TONGUE

Table 4 Total number of CCHS respondents by mother tongue and area of residence, 2003, 2007–2008, and 2009–2010

	All of Québec			Montréal CMA			Other CMAs			Non CMAs		
	2003	2007-2008	2009-2010	2003	2007-2008	2009-2010	2003	2007-2008	2009-2010	2003	2007-2008	2009-2010
English	1 834	1 390	1 289	619	716	638	456	219	250	759	455	401
French	23 368	20 775	19 539	4 998	4 815	4 997	6 436	4 764	4 968	11 934	11 196	9 574
Other languages	1 975	1 508	1 564	965	1 256	1 286	158	133	172	852	119	106
Bilingual (English and French)	308	207	202	84	77	81	105	52	61	119	78	60
Total (excluding missing data)	27 485	23 880	22 594	6 666	6 864	7 002	7 155	5 168	5 451	13 664	11 848	10 141

Note: The numbers of respondents from the anglophone and other language groups in non-CMAs seem odd in 2003. The weighted numbers were checked and the number of respondents was not a problem. This variation is probably due to the difference in sampling plans.

APPENDIX 2

DESCRIPTION OF SELECTED INDICATORS

(and methodological note on chronic bronchitis)

DESCRIPTION OF SELECTED INDICATORS (AND METHODOLOGICAL NOTE ON CHRONIC BRONCHITIS)

Heavy drinking:

Proportion of the population age 12 and over in private households having consumed five or more glasses of alcohol on a single occasion at least 12 times over a period of 12 months. The denominator is the total population age 12 and over.

Available for: 2003, 2007–2008, 2009–2010.

Low fruit and vegetable consumption:

Proportion of the population age 12 and over in private households who consumed fruits and vegetables less than 5 times a day.

Available for: 2003, 2007–2008, 2009–2010.

Smoking (proportion of regular or occasional smokers):

Proportion of the population age 12 and over in private households who smoked cigarettes. Smokers include “regular smokers” who smoke at least one cigarette a day every day and “occasional smokers” who do not smoke every day.

Available for: 2003, 2007–2008, 2009–2010.

Excess weight:

Proportion of the population age 18 and over, in private households whose members carry excess weight (excluding pregnant women). The general term “excess weight” corresponds to anyone with a body mass index (BMI) equal to or greater than 25.

Available for: 2003, 2007–2008, 2009–2010.

Lack of physical activity during leisure time:

Proportion of the population who were not physically active during their leisure time.

Available for: 2003, 2007–2008, 2009–2010.

Two or more risk factors (lack of physical activity during leisure time):

Proportion of the population with two or more of the following risk factors: lack of physical exercise during leisure time; smoking; low consumption of fruits and vegetables, heavy drinking, excess weight.

Available for: 2003, 2007–2008, 2009–2010.

Moderate or severe health problems:

Proportion of the population age 12 and over in private households with moderate or severe functional health problems

Calculated using the Mark 3 Health Utility Index (HUI). The HUI is a health status classification system based on eight attributes: vision, hearing, speech (elocution), ambulation (ability to get around), dexterity (use of hands and fingers), cognition (memory and thinking), emotions (feelings), and pain and illness.

The version used in the CCHS was adapted from the HUI Mark3 (HUI3) developed at McMaster University. Twenty-eight questions are used to assess overall health. The answers to the various questions make it possible to determine an overall index, with values varying between -0.36 to 1.0. The most desirable health status (perfect health) is indicated by a score of 1.0 and death by a score of 0.0. A score of -0,36 reflects a state of health worse than death (Statistics Canada, 2009; Furlong et al., 1998). According to Statistics Canada, individuals are considered to have moderate or severe health problems if they score below 0.8 (Statistics Canada and CIHI, 2008; Statistics Canada, 2009). However, according to Feeny (2007), Feeny and Furlong (2002), and Feng et al. (2009), moderate or severe functional health problems correspond to a score of less than 0.89 and this is the threshold we used.

Available for: 2003, 2007–2008, 2009–2010.

Activity limitations:

Proportion of the population age 12 and over in private households who sometimes or often had an activity limitation.

Available for: 2003, 2007–2008, 2009–2010.

Perception of health as fair or poor:

Proportion of the population age 12 and over in private households who perceived their health as fair or poor.

Available for: 2003, 2007–2008, 2009–2010.

Perception of dental health as fair or poor:

Proportion of the population age 12 and over in private households who perceived their oral health as fair or poor.

Available for: 2003, 2007-2008.

Weak sense of community belonging:

Proportion of the population age 12 and over in private households who had a weak sense of community belonging.

Available for: 2003, 2007–2008, 2009–2010.

Poor emotional and informational support:

Proportion of the population age 12 and over in private households who did not have a high level of emotional or informational support.

This derived variable uses a scale of 0 to 32. A score of less than 21 indicates poor emotional and informational support. Respondents were asked whether they had someone who could listen to them and advise them or provide information in times of crisis, or someone in whom they could confide or who could understand their problems.

Available for: 2007–2008, 2009–2010.

Two or more chronic illnesses in people age 40 and over:

Asthma, arthritis, high blood pressure, diabetes, heart disease, cancer, stroke-related disorders, urinary incontinence, intestinal disorders (Crohn's disease or colitis), Alzheimer's disease or dementia, emphysema, chronic bronchitis (only in 2009–2010), and chronic obstructive bronchopulmonary disease.

Available for: 2007–2008, 2009–2010.

Methodological note on chronic bronchitis:

The CCC_91A (chronic bronchitis) variable was introduced in the middle of the 2007–2008 cycle, which resulted in a very high partial non-response rate. Therefore we excluded chronic bronchitis from calculations for the *Two or more chronic illnesses* indicator in 2007–2008. However, in 2009–2010, this variable and two others (emphysema and chronic obstructive bronchopulmonary disease) were combined to create the *chronic obstructive pulmonary diseases* (COPD) indicator. This new variable was called CCC_091 in 2009–2010 and CCCDCPD in 2007–2008. Since the three illnesses were not available separately for 2009–2010, the *Two or more chronic illnesses* indicator was calculated using the *chronic obstructive pulmonary diseases* indicator. This is likely to compromise our ability to compare data between the 2007–2008 and 2009–2010 cycles, but only minimally since a number of other illnesses are used to calculate this indicator.

Severe psychological distress:

Proportion of the population age 15 and over in private households suffering from a high level of psychological distress.

Derived variable DISDDSX and based on the Kessler Psychological Distress Scale (K10). Each of the ten questions is attributed a score of 0 to 4, with the final score varying from 0 to 40. The threshold for severe psychological distress is 9 or over.

Available for: 2007–2008, 2009–2010.

APPENDIX 3

DATA COMPARABILITY

DATA COMPARABILITY

The following table was compiled from data based on ISQ comparability documents (ISQ, 2010; ISQ, 2011; Plante et al., 2010) available at Infocentre de santé publique du Québec.

Table 5 Table summarizing variable comparability (between cycles 2.1 and 4.1) according to Infocentre de santé publique du Québec

Variable			INDICATOR		Available and selected variables			Indicator comparable between 2003 (Cycle 2.1) and 2007–2008 (Cycle 4.1)
2003	2007 – 2008	2009 – 2010			2003	2007 – 2008	2009 – 2010	
CCC_031			Two or more chronic illnesses	Asthma		x	x	Yes
CCC_051				Arthritis		x	x	No
CCC_071				High blood pressure		x	x	Yes
CCC_101				Diabetes		x	x	Yes
CCC_121				Heart disease		x	x	Yes
CCC_131				Cancer		x	x	Yes
CCC_151				Stroke-related disorders		x	x	Yes
CCC_161				Urinary incontinence		x	x	Yes
CCC_171				Intestinal disorders		x	x	No
CCC_181				Alzheimer's disease or dementia		x	x	NA
	CCC_91A	CCC_091		Chronic bronchitis			x	No
	CCC_91E			Emphysema		x	x	Yes
	CCC_91F			Chronic bronchopulmonary disease		x	x	Yes
ALCC_3	ALC_3		Consumption frequency of 5 glasses or more		x	x	x	No
FVCCDTOT	FVCGTOT		Fruit and vegetable consumption		x	x	x	No
SMKCDSTY	SMKDSTY		Regular and occasional smokers (type of smoker)		x	x	x	No
HWTCDISW	HWTDISW		Overweight and obesity		x	x	x	Yes
	DISDDSX		Severe psychological distress			x	x	NA
GENCDHDI	GENDHDI		Perceived health		x	x	x	No

Table 5 Table summarizing variable comparability (between cycles 2.1 and 4.1) according to Infocentre de santé publique du Québec (cont'd)

Variable			INDICATOR	Available and selected variables			Indicator comparable between 2003 (Cycle 2.1) and 2007–2008 (Cycle 4.1)
2003	2007 – 2008	2009 – 2010		2003	2007 – 2008	2009 – 2010	
OH1C_20	OH1_20		Perceived dental health	x	x		Yes
HUICDHSI	HUIDHSI		Health status index	x	x	x	Yes
RACCDPAL	RACDPAL		Activity limitations	x	x	x	No
GENC_10	GEN_10		Sense of community belonging	x	x	x	No
	SSADEMO		Poor or moderate emotional and informational support		x	x	NA
Nolin algorithm			Lack of physical activity during leisure time	x	x	x	No

<u>Recommendations by Plante, Côté, and Courtemanche (2010)</u>

Comparison between cycles at the provincial level

Cycles 2.1 and 3.1:

- Indicators not affected in cycles 2.1 and 3.1 (Table 7): usual method with original weightings
- Indicators slightly affected in cycle 2.1 or cycle 3.1 (Table 9): usual method with original weightings
- Indicators greatly affected in cycle 2.1 or cycle 3.1 (Table 8): comparison not recommended.

Comparison between cycles at regional level

Cycles 2.1 and 3.1:

- All regions – Indicators not affected in cycles 2.1 and 3.1 (Table 7): usual method with original weightings
- All regions – indicators affected in cycle 2.1 or cycle 3.1 (tables 8 and 9): no method proposed to date given the small size of regional samples

<u>Data comparability for the 2007–2008 cycle</u> (ISQ, 2010):

Regional comparisons for the 2007–2008 cycle (comparison between regions or between one region and all the others combined):

- Analyze with usual methods and with new weighting, given the small differences observed from one region to another in the sample distribution according to the survey frame and collection method.

Comparisons between the 2007–2008 and previous cycles at the regional level

- For indicators identified as unaffected by the survey frame in cycles 2.1 and 3.1, compare 2007–2008 cycle with cycle 1.1, 2.1, or 3.1 using the usual methods and the weightings supplied by Statistics Canada.
- For indicators identified as affected by the survey frame in cycles 2.1 and 3.1, or for indicators that were not checked for this, do not compare the 2007–2008 cycle with cycles 1.1, 2.1, or 3.1 at the regional level.

Comparisons between the 2007–2008 and previous cycles at the provincial level

- For indicators identified as unaffected by the survey frame in cycles 2.1 and 3.1, compare 2007–2008 cycle with cycle 1.1, 2.1, or 3.1, using the usual methods and the weightings supplied by Statistics Canada. For indicators identified as affected by the survey frame in cycles 2.1 and 3.1, or for indicators that were not checked for this, compare the 2007-2008 cycle with cycle 1.1 using data from the area frame only (using weights post-stratified by age and gender and subject to the assumption that changing the weighting method, mainly with regard to the adjustment for individual non-response, has a negligible impact on these comparisons).

  Caution: the objective of this analysis is to confirm a significant result detected previously using data from both frames and the usual analysis methods. Do not use this analysis for non-significant results based on the usual methods.

- For indicators identified as affected by the survey frame in cycles 2.1 and 3.1, or for indicators that were not checked for this, compare the 2007-2008 cycle with cycles 2.1 or 3.1 using data from the telephone survey frame only (using weights post-stratified by age and gender, and subject to the assumption that changing the weighting method, mainly with regard to the adjustment for individual non-response, has a negligible impact on these comparisons).

  Caution: the objective of this analysis is to confirm a significant result detected previously using data from both frames and the usual analysis methods. Do not use this analysis for non-significant results based on the usual methods.

APPENDIX 4

CCHS INDICATORS FOR ANGLOPHONES AND FRANCOPHONES AND STATISTICAL COMPARISONS BETWEEN LINGUISTIC GROUPS BY AREA, 2003, 2007–2008 AND 2009–2010

Table 6 CCHS indicators for anglophones and francophones and comparisons between the two groups, 2003, 2007–2008, and 2009–2010, Montréal CMA

		2003	2007–2008	2009–2010
Heavy drinking	A	17.0	18.1	15.9
	F	17.7	18.2	19.3
Low fruit and vegetable consumption	A	59.7	53.9	51.4
	F	45.7	45.7	44.6
Smoking	A	28.4	20.3	20.5
	F	28.8	26.5	23.2
Excess weight	A	45.4	45.6	55.8
	F	45.1	44.7	50.1
Lack of physical activity during leisure time	A	20.2	20.9	15.4
	F	25.2	25.4	22.3
Two or more risk factors (Lack of physical activity during leisure time)	A	^ 56.0	^ 52.9	51.2
	F	56.8	^ 51.3	^ 53.0
Moderate or severe health problems	A	26.0	22.7	25.8
	F	21.1	21.1	21.8
Activity limitations	A	28.3	25.0	23.6
	F	27.8	22.6	24.3
Perception of health as fair or poor	A	9.8	10.4	6.2
	F	9.2	11.0	9.1
Perception of dental health as fair or poor	A	12.7	12.2	NA
	F	12.9	11.0	NA
Weak sense of community belonging	A	42.7	39.0	40.3
	F	52.0	47.2	48.6
Poor emotional and informational support	A	NA	^ 11.0	^ 11.1
	F	NA	^ 11.1	^ 12.3
Two or more chronic illnesses in people age 40 and over	A	NA	25.8	22.3
	F	NA	20.7	23.7
Severe psychological distress	A	NA	19.6	17.0
	F	NA	19.7	20.7

***Unfavorable** result for* anglophones compared to francophones.

Little difference between anglophones and francophones.

***Positive** result for* anglophones compared to francophones.

NA: Data not available.

^ Partial non-response between 5% and 10%.

Table 7 CCHS indicators for anglophones and francophones and comparisons between the two groups, 2003, 2007–2008 and 2009–2010, other CMAs

		2003	2007–2008	2009–2010
Heavy drinking	A	18.7	* 16.0	* 21.6
	F	18.4	21.0	21.8
Low fruit and vegetable consumption	A	^ 42.6	40.2	49.6
	F	54.9	48.9	47.2
Smoking	A	* 28.8	* 26.4	23.5
	F	25.6	23.6	22.6
Excess weight	A	50.2	49.0	52.3
	F	45.0	47.7	47.4
Lack of physical activity during leisure time	A	15.7	* 14.5	* 16.1
	F	22.2	22.5	20.4
Two or more risk factors (Lack of physical activity during leisure time)	A	^ 49.5	^ 45.9	52.2
	F	53.8	^ 52.3	50.8
Moderate or severe health problems	A	22.7	29.0	26.0
	F	21.3	21.8	20.9
Activity limitations	A	32.1	29.6	30.9
	F	27.6	22.7	24.4
Perception of health as fair or poor	A	* 11.3	* 7.4	* 8.5
	F	8.6	8.9	7.4
Perception of dental health as fair or poor	A	* 14.6	* 14.7	ND
	F	11.3	9.5	ND
Weak sense of community belonging	A	47.1	42.7	41.9
	F	46.8	46.6	42.9
Poor emotional and informational support	A	NA	* ^ 8.7	* ^ 12.5
	F	NA	^ 10.5	^ 9.1
Two or more chronic illnesses in people age 40 and over	A	NA	* 27.7	** n.s.
	F	NA	22.5	21.5
Severe psychological distress	A	NA	* 16.5	25.0
	F	NA	20.5	18.1

***Unfavorable** result for* anglophones compared to francophones.

Little difference between anglophones and francophones.

***Positive** result for* anglophones compared to francophones.

NA: Variable not available for this cycle.

* Coefficient of variation greater than 16.66% and less than or equal to 33.33%. The value should be interpreted with caution.

** n.s. Coefficient of variation greater than 33.33%. Value not shown.

^ Partial non-response rate between 5% and 10%.

Table 8 CCHS indicators for anglophones and francophones and comparisons between the two groups, 2003, 2007–2008 et 2009–2010, Non-CMAs

		2003	2007–2008	2009–2010
Heavy drinking	A	* 14.9	17.2	** n.p.
	F	16.6	17.7	19.8
Low fruit and vegetable consumption	A	^ 52.9	^ 48.5	^ 54.3
	F	^ 54.1	^ 46.7	^ 49.3
Smoking	A	24.7	25.2	40.6
	F	25.3	24.8	25.1
Excess weight	A	62.2	^ 60.3	^ 54.9
	F	50.3	51.3	52.5
Lack of physical activity during leisure time	A	24.0	29.0	34.8
	F	28.7	27.2	27.3
Two or more risk factors (lack of physical activity during leisure time)[a]	A	^^ 56.8	^^ 60.5	^^ 63.4
	F	^ 56.1	^ 54.0	^ 55.3
Moderate or severe health problems	A	31.2	30.6	26.8
	F	23.0	23.3	24.4
Activity limitations	A	36.6	31.2	39.6
	F	29.9	25.7	27.7
Perception of health as fair or poor	A	20.5	* 12.8	** n.s.
	F	10.9	11.0	11.2
Perception of dental health as fair or poor	A	21.5	18.7	NA
	F	14.0	12.1	NA
Weak sense of community belonging	A	^ 26.1	34.4	^ 37.3
	F	38.9	37.8	40.7
Poor emotional and informational support[b]	A	NA	* ^^ 11.7	** n.p.
	F	NA	^ 12.6	^ 12.2
Two or more chronic illnesses in people age 40 and over	A	NA	27.4	33.1
	F	NA	23.2	25.3
Severe psychological distress	A	NA	^ 18.0	* ^ 16.6
	F	NA	20.1	18.7

***Unfavorable** result for* anglophones compared to francophones.
Little difference between anglophones and francophones.
***Positive** result for* anglophones compared to francophones.

NA: Variable not available for this cycle.

* Coefficient of variation greater than 16.66% and less than or equal to 33.33%. The value should be interpreted with caution.

** n.s. Coefficient of variation greater than 33.33%. Value not shown.

[a] Anglophones in non-CMAs had a high partial non-response rate (PNR) (over 10%) for the *Two or more risk factors* variable, and their characteristics differ from cycle to cycle. We cross-tabulated the PNR rates by gender and age (12–44; 45–62 and 65 +). For the 2003 cycle, the PNR rate was high for all except men age 12 to 44. In the 2007–2008, the PNR rate gradually rises with age for both genders. In 2009–2010, the PNR rates for men and women were very different, that for women being much higher for the two highest age groups. The resulting total yields a 3.4% PNR rate for men and 18.2% for women.

[b] Anglophones from non-CMAs had a high partial non-response rate (PNR) (over 10%) for the *Poor emotional and informational support* variable in the 2007-2008 cycle. Cross-tabulated PNR data is not available by gender and age. The data cross-tabulated by gender only (all ages combined) showed that both genders were very similar. We only have cross-tabulated data for 12+ and 12–44. The 12+ group had an 11% PNR rate and the 12–44 group a rate of 5.5%. Thus we can assume that the PNR rate for anglophones increases with age.

^ Partial non-response rate between 5% and 10%.

^^ Partial non-response rate (PNR) > 10%: interpret with caution. (See a and b).

APPENDIX 5

RESULTS AND CONFIDENCE INTERVALS BY MOTHER TONGUE (TOTAL, FRENCH, ENGLISH, AND OTHER), 2003, 2007–2008 AND 2009–2010

Table 9 Results and confidence intervals by mother tongue, 2003, 2007–2008, and 2009–2010, all of Québec

		Total	French	English	Other	Total	French	English	Other	Total	French	English	Other
		2003				**2007–2008**				**2009–2010**			
Heavy drinking	%	16.8	17.4	16.9	11.5	17.3	18.7	17.7	8.1	18.2	20.1	17.1	7.7
	IC	16.0-17.6	16.6-18.3	13.9-20.1	8.6-14.9	16.5-18.0	17.9-19.5	14.7-21.1	6.3-10.4	17.3-19.0	19.1-21.0	14.0-20.5	6.2-9.6
Low consumption of fruits and vegetables	%	55.1	54.8	56.5	56.2	47.4	46.8	51.5	48.5	48.1	46.9	51.6	53.2
	IC	54.1-56.1	53.7-55.9	52.6-60.5	51.9-60.4	46.4-48.4	45.8-47.8	47.8-55.2	45.1-52.0	47.1-49.2	45.8-48.1	46.9-56.4	49.8-56.5
Smoking	%	26.1	26.7	27.8	19.5	24.2	25.2	21.8	18.8	22.9	23.7	24.3	17.1
	IC	25.2-27.0	25.8-27.7	24.0-31.5	16.4-22.5	23.3-25.0	24.3-26.2	18.8-24.8	16.0-21.7	22.0-23.8	22.8-24.7	20.7-27.8	14.3-19.9
Excess weight	%	47.4	47.1	48.9	48.8	48.3	47.8	48.4	51.5	50.7	50.3	55.2	49.9
	IC	46.3-48.6	46.0-48.3	44.7-53.2	44.7-52.9	47.3-49.3	46.8-48.8	44.0-52.8	47.7-55.3	49.5-51.8	49.2-51.5	50.4-60.1	46.2-53.6
Lack of physical activity during leisure time	%	26.2	25.9	20.3	33.0	25.8	25.4	21.6	31.0	24.2	23.7	18.7	30.4
	IC	25.2-27.2	24.8-27.0	16.7-23.9	28.9-37.0	24.8-26.8	24.4-26.4	18.2-25.0	27.5-34.5	23.2-25.2	22.7-24.7	15.3-22.5	26.7-34.1
Two or more risk factors (lack of physical activity during leisure time)	%	55.8	55.9	55.3	55.0	52.1	52.5	53.4	48.6	52.8	53.3	53.3	49.3
	IC	54.7-56.8	54.7-57.0	51.0-59.6	50.8-59.2	51.1-53.2	51.5-53.6	49.1-57.8	44.6-52.6	51.6-53.9	52.1-54.5	48.4-58.2	45.5-53.2
Moderate or severe health problems	%	22.6	21.9	26.6	25.8	22.5	22.1	24.7	23.6	23.6	22.5	26.0	28.6
	IC	21.8-23.5	21.1-22.7	23.0-30.2	21.7-29.9	21.6-23.3	21.2-23.0	21.7-27.7	20.6-26.6	22.7-24.6	21.6-23.5	22.3-29.8	25.1-32.2
Activity limitations	%	28.3	28.6	30.2	25.1	23.5	23.8	26.6	19.4	25.5	25.6	27.3	24.0
	IC	27.4-29.3	27.6-29.6	26.7-33.8	21.5-28.7	22.7-24.2	22.9-24.7	23.2-29.9	16.7-22.2	24.6-26.4	24.6-26.6	23.6-31.0	20.9-27.2
Perception of health as fair or poor	%	10.5	9.8	11.9	15.8	9.8	9.7	10.5	10.0	9.8	9.5	8.5	12.3
	IC	10.0-11.1	9.2-10.3	9.6-14.2	13.0-18.7	9.2-10.3	9.1-10.3	8.1-12.9	8.2-12.0	9.2-10.4	8.9-10.1	6.8-10.5	9.7-14.9
Perception of dental health as fair or poor	%	13.9	13.0	14.5	21.1	12.0	11.0	13.6	17.5	NA	NA	NA	NA
	IC	13.2-14.6	12.2-13.7	11.7-17.6	17.9-24.3	11.3-12.7	10.4-11.7	10.8-16.8	15.0-19.9				

Table 9 Results and confidence intervals by mother tongue, 2003, 2007–2008, and 2009–2010, all of Québec (cont'd)

		Total	French	English	Other	Total	French	English	Other	Total	French	English	Other
		2003				**2007–2008**				**2009–2010**			
Weak sense of community belonging	%	44.7	45.7	40.2	39.6	42.2	43.6	38.6	35.8	43.5	44.3	40.0	40.7
	IC	43.7-45.7	44.6-46.8	36.2-44.3	36.0-43.2	41.1-43.4	42.4-44.7	34.6-42.6	32.5-39.0	42.3-44.7	43.0-45.6	35.3-44.7	36.9-44.4
Poor emotional or informational support	%	NA	NA	NA	NA	12.1	11.5	10.9	17.2	12.1	11.5	11.5	15.9
	IC					11.4-12.9	10.7-12.2	8.8-13.0	14.5-19.9	11.3-12.8	10.7-12.3	8.9-14.5	13.0-19.2
Two or more chronic illnesses in people age 40 and	%	NA	NA	NA	NA	22.1	22.1	26.4	19.9	23.6	23.8	24.8	21.7
	IC					21.2-23.1	21.0-23.2	21.8-30.9	16.3-24.0	22.6-24.7	22.7-24.9	20.1-29.4	17.6-25.9
Severe psychological distress	%	NA	NA	NA	NA	20.0	20.0	19.0	20.4	19.4	19.4	17.9	20.6
	IC					19.2-20.8	19.2-20.9	16.1-21.8	17.6-23.2	18.6-20.3	18.5-20.3	14.7-21.6	17.8-23.4

Table 10 Results and confidence intervals by mother tongue, 2003, 2007–2008, and 2009–2010, Montréal CMA

		Total	French	English	Other	Total	French	English	Other	Total	French	English	Other
		2003				**2007–2008**				**2009–2010**			
Heavy drinking	%	16.4	17.7	17.0	11.4	15.7	18.2	18.1	7.9	15.9	19.3	15.9	7.5
	IC	15.0-17.7	16.0-19.5	13.3-21.4	8.3-15.1	14.5-17.0	16.6-19.7	14.2-22.6	5.9-10.3	14.6-17.3	17.5-21.1	12.1-20.3	5.8-9.5
Low consumption of fruits and vegetables	%	56.4	55.6	59.7	57.5	47.4	45.7	53.9	49.2	47.7	44.6	51.4	53.7
	IC	54.5-58.3	53.4-57.7	54.5-64.9	53.0-62.1	45.6-49.2	43.7-47.8	49.2-58.7	45.5-52.8	45.9-49.4	42.4-46.9	45.2-57.5	50.2-57.2
Smoking	%	26.8	28.8	28.4	19.5	24.0	26.5	20.3	18.8	21.3	23.2	20.5	17.1
	IC	25.3-28.4	26.9-30.7	23.5-33.3	16.3-23.0	22.6-25.4	24.8-28.3	16.8-23.8	15.8-21.8	20.0-22.7	21.5-24.8	16.2-24.8	14.2-20.3
Excess weight	%	45.8	45.1	45.4	48.6	46.4	44.7	45.6	51.7	50.7	50.1	55.8	49.9
	IC	44.0-47.7	42.9-47.3	39.7-51.0	44.2-53.0	44.7-48.0	42.7-46.6	40.0-51.2	47.7-55.7	48.9-52.6	48.0-52.3	49.6-62.1	45.9-53.9
Lack of physical activity during leisure time	%	26.2	25.2	20.2	33.1	26.3	25.4	20.9	31.2	23.6	22.3	15.4	30.5
	IC	24.3-28.0	22.9-27.4	15.4-25.0	28.8-37.5	24.7-27.9	23.5-27.3	16.6-25.2	27.5-34.9	22.0-25.2	20.6-24.0	11.5-20.0	26.5-34.5
Two or more risk factors (lack of physical activity during leisure time)	%	56.5	56.8	56.0	55.4	50.9	51.3	52.9	48.9	51.9	53.0	51.2	49.6
	IC	54.6-58.3	54.6-59.1	50.4-61.6	51.0-59.9	49.1-52.8	49.2-53.5	47.2-58.6	44.7-53.2	50.0-53.9	50.8-55.2	44.8-57.6	45.4-53.7
Moderate or severe health problems	%	22.5	21.1	26.0	25.6	21.9	21.1	22.7	23.7	23.9	21.8	25.8	28.4
	IC	20.9-24.1	19.4-22.8	21.5-30.6	21.3-30.0	20.6-23.2	19.5-22.7	18.9-26.4	20.5-27.0	22.3-25.5	20.2-23.5	20.8-30.8	24.6-32.3
Activity limitations	%	27.2	27.8	28.3	24.6	22.1	22.6	25.0	19.2	24.2	24.3	23.6	24.1
	IC	25.6-28.8	26.0-29.6	24.0-32.6	20.7-28.5	20.8-23.4	21.0-24.3	20.8-29.2	16.2-22.1	22.7-25.6	22.5-26.0	19.2-28.1	20.8-27.5
Perception of health as fair or poor	%	10.6	9.2	9.8	15.7	9.2	8.8	10.4	9.6	9.6	9.1	6.2	12.3
	IC	9.5-11.6	8.1-10.2	7.3-12.7	12.7-19.1	8.3-10.0	7.8- 9.9	7.4-14.0	7.8-11.7	8.5-10.6	7.9-10.3	4.4- 8.4	9.6-15.4
Perception of dental health as fair or poor	%	14.5	12.9	12.7	21.3	12.5	11.0	12.2	17.0	ND	ND	ND	ND
	IC	13.3-15.7	11.5-14.3	9.4-16.7	17.8-24.7	11.4-13.6	9.7-12.2	8.7-16.5	14.5-19.6				

Table 10 Results and confidence intervals by mother tongue, 2003, 2007–2008, and 2009–2010, Montréal CMA (cont'd)

		Total	French	English	Other	Total	French	English	Other	Total	French	English	Other
		2003				**2007–2008**				**2009–2010**			
Weak sense of community belonging	%	48.6	52.0	42.7	39.8	43.4	47.2	39.0	34.7	45.6	48.6	40.3	40.6
	IC	46.9-50.3	50.0-53.9	37.4-47.9	35.9-43.7	41.7-45.2	45.1-49.3	33.9-44.0	31.2-38.2	43.8-47.5	46.3-50.9	34.4-46.3	36.5-44.7
Poor emotional or informational support	%	NA	NA	NA	NA	12.5	11.1	11.0	17.6	13.2	12.3	11.1	16.3
	IC					11.3-13.7	9.7-12.4	8.5-14.0	14.6-20.6	11.8-14.5	10.8-13.8	7.9-15.1	13.1-19.9
Two or more chronic illnesses in people age 40 and	%	NA	NA	NA	NA	21.1	20.7	25.8	20.0	23.0	23.7	22.3	21.5
	IC					19.5-22.6	18.8-22.6	20.0-31.7	16.1-24.4	21.2-24.8	21.5-25.9	16.8-28.8	17.1-25.9
Severe psychological distress	%	NA	NA	NA	NA	19.9	19.7	19.6	20.8	20.2	20.7	17.0	20.3
	IC					18.6-21.3	18.2-21.2	16.1-23.5	17.8-23.9	18.8-21.6	19.1-22.4	13.0-21.7	17.3-23.3

Table 11 Results and confidence intervals by mother tongue, 2003, 2007–2008, and 2009–2010, other CMAs

		Total	French	English	Other	Total	French	English	Other	Total	French	English	Other
		2003				**2007-2008**				**2009-2010**			
Heavy drinking	%	18.2	18.4	18.7		20.5	21.0	16.0	10.2	21.3	21.8	21.6	9.9
	IC	16.9-19.6	17.0-19.9	13.6-24.7		19.0-22.0	19.4-22.7	9.9-23.8	5.1-17.7	19.8-22.8	20.3-23.4	14.7-29.8	5.1-16.8
Low consumption of fruits and vegetables	%	53.9	54.9	42.6	34.6	48.3	48.9	40.2	40.9	47.5	47.2	49.6	52.6
	IC	52.2-55.6	53.1-56.7	36.2-48.9	24.8-44.4	46.5-50.1	47.0-50.7	31.5-48.8	30.8-50.9	45.5-49.4	45.1-49.2	41.0-58.1	42.0-63.1
Smoking	%	25.5	25.6	28.8	14.6	23.6	23.6	26.4	19.5	22.5	22.6	23.5	18.8
	IC	23.9-27.1	24.0-27.2	22.1-36.4	7.6-24.3	21.9-25.3	21.8-25.4	17.9-36.4	11.8-29.3	20.9-24.1	20.9-24.3	16.8-31.3	11.2-28.7
Excess weight	%	45.2	45.0	50.2	47.2	47.6	47.7	49.0	43.8	47.6	47.4	52.3	48.3
	IC	43.4-47.1	43.1-46.8	42.6-57.7	36.4-57.9	45.7-49.6	45.7-49.7	39.7-58.2	32.2-55.3	45.7-49.6	45.4-49.4	43.5-61.0	36.9-59.7
Lack of physical activity during leisure time	%	22.0	22.2	15.7	27.8	22.1	22.5	14.5	21.3	20.7	20.4	16.1	32.3
	IC	20.6-23.5	20.7-23.7	11.0-21.4	18.6-38.5	20.5-23.8	20.8-24.2	8.6-22.3	12.9-31.8	19.1-22.3	18.7-22.1	11.0-22.4	21.3-44.9
Two or more risk factors (lack of physical activity during leisure time)	%	53.4	53.8	49.5	45.6	51.6	52.3	45.9	38.7	50.9	50.8	52.2	52.2
	IC	51.7-55.1	52.0-55.5	41.9-57.1	33.8-57.4	49.7-53.6	50.4-54.2	36.3-55.4	27.3-51.1	48.8-53.1	48.6-53.0	43.9-60.6	40.9-63.4
Moderate or severe health problems	%	21.4	21.3	22.7	21.3	22.0	21.8	29.0	20.3	21.3	20.9	26.0	25.8
	IC	20.0-22.7	19.9-22.7	17.0-28.4	13.8-30.5	20.6-23.5	20.3-23.3	20.9-38.3	11.9-31.1	19.8-22.9	19.3-22.5	20.0-32.8	17.4-35.6
Activity limitations	%	27.8	27.6	32.1	26.2	22.8	22.7	29.6	15.4	24.3	24.4	30.9	15.9
	IC	26.4-29.2	26.2-29.0	25.5-38.7	18.1-35.8	21.3-24.2	21.2-24.2	21.1-39.2	9.0-23.8	22.8-25.9	22.8-26.0	23.9-38.0	9.7-23.9
Perception of health as fair or poor	%	8.8	8.6	11.3	13.1	8.8	8.9	7.4		7.6	7.4	8.5	11.4
	IC	8.0-9.7	7.8- 9.4	6.7-17.6	6.9-21.9	7.8-9.7	7.9- 9.9	3.5-13.5		6.8-8.5	6.5- 8.3	5.4-12.8	5.0-21.2
Perception of dental health as fair or poor	%	11.5	11.3	14.6	15.2	10.0	9.5	14.7	19.5	NA	NA	NA	NA
	IC	10.4-12.6	10.2-12.4	9.4-21.1	8.9-23.6	8.8-11.2	8.3-10.7	8.8-22.6	11.5-30.0				

Table 11 Results and confidence intervals by mother tongue, 2003, 2007–2008, and 2009–2010, other CMAs (cont'd)

		Total	French	English	Other	Total	French	English	Other	Total	French	English	Other
		2003				**2007-2008**				**2009-2010**			
Weak sense of community belonging	%	46.8	46.8	47.1	42.8	46.4	46.6	42.7	44.8	42.7	42.9	41.9	38.0
	IC	45.0-48.5	45.0-48.7	39.8-54.4	32.6-52.9	44.3-48.5	44.4-48.8	34.3-51.1	33.5-56.0	40.7-44.6	40.9-45.0	33.6-50.3	28.0-48.1
Poor emotional or informational support	%	NA	NA	NA	NA	10.5	10.5	8.7	12.8	9.4	9.1	12.5	12.9
	IC					9.3-11.7	9.3-11.7	4.7-14.5	6.9-21.0	8.5-10.3	8.1-10.0	7.4-19.4	7.0-21.0
Two or more chronic illnesses in people age 40 and	%	NA	NA	NA	NA	22.8	22.5	27.7	25.8	21.7	21.5		
	IC					21.0-24.6	20.6-24.4	18.1-39.1	11.3-45.5	19.8-23.6	19.6-23.5		
Severe psychological distress	%	NA	NA	NA	NA	20.2	20.5	16.5	17.3	18.7	18.1	25.0	24.1
	IC					18.8-21.7	19.0-22.0	10.6-24.0	9.3-28.4	17.2-20.2	16.6-19.7	18.3-32.6	15.5-34.7

Table 12 Results and confidence intervals by mother tongue, 2003, 2007–2008, and 2009–2010, non-CMAs

		Total	French	English	Other	Total	French	English	Other	Total	French	English	Other
		2003				**2007-2008**				**2009-2010**			
Heavy drinking	%	16.5	16.6	14.9	15.7	17.6	17.7	17.2		19.6	19.8		
	IC	15.4-17.6	15.4-17.7	9.9-21.3	11.1-21.4	16.5-18.7	16.6-18.9	12.9-22.2		18.2-21.0	18.3-21.3		
Low consumption of fruits and vegetables	%	54.0	54.1	52.9	49.1	46.7	46.7	48.5	44.3	49.4	49.3	54.3	38.9
	IC	52.4-55.5	52.5-55.7	46.3-59.6	39.1-59.1	45.4-48.1	45.3-48.1	41.8-55.3	29.6-59.7	47.5-51.2	47.4-51.2	45.6-62.9	24.6-54.9
Smoking	%	25.3	25.3	24.7	23.6	24.7	24.8	25.2	18.4	25.6	25.1	40.6	13.4
	IC	24.0-26.6	24.0-26.7	18.8-30.6	18.0-29.3	23.3-26.1	23.4-26.2	19.8-30.6	9.8-30.2	24.0-27.2	23.4-26.8	31.6-49.7	6.3-24.0
Excess weight	%	50.8	50.3	62.2	54.9	51.7	51.3	60.3	55.8	52.6	52.5	54.9	52.3
	IC	49.1-52.6	48.5-52.1	55.4-69.1	44.4-65.4	50.2-53.1	49.8-52.7	53.4-67.2	42.9-68.8	50.9-54.3	50.8-54.3	45.5-64.3	35.8-68.5
Lack of physical activity during leisure time	%	28.6	28.7	24.0	35.0	27.4	27.2	29.0	37.8	27.6	27.3	34.8	24.7
	IC	27.2-30.1	27.2-30.3	17.9-31.1	24.6-46.5	26.1-28.7	25.8-28.5	22.8-35.2	23.1-54.4	25.8-29.4	25.5-29.1	26.1-43.6	12.0-41.9
Two or more risk factors (lack of physical activity during leisure time)	%	56.1	56.1	56.8	55.2	54.2	54.0	60.5	54.0	55.4	55.3	63.4	38.4
	IC	54.6-57.6	54.5-57.7	50.2-63.5	43.6-66.8	52.6-55.9	52.4-55.6	54.1-66.9	37.7-69.8	53.8-57.1	53.6-57.0	54.9-72.0	23.4-55.2
Moderate or severe health problems	%	23.5	23.0	31.2	34.3	23.6	23.3	30.6	24.9	24.7	24.4	26.8	40.1
	IC	22.3-24.7	21.8-24.3	24.3-38.1	24.9-43.7	22.3-24.9	22.0-24.6	24.5-36.6	13.3-39.9	23.2-26.2	22.8-25.9	19.8-34.8	25.1-56.7
Activity limitations	%	30.2	29.9	36.6	34.9	26.0	25.7	31.2	30.7	28.4	27.7	39.6	37.9
	IC	28.8-31.6	28.4-31.3	29.6-43.7	25.9-43.9	24.6-27.3	24.3-27.1	24.9-37.4	17.8-46.3	26.8-30.0	26.1-29.4	31.2-48.1	22.6-55.2
Perception of health as fair or poor	%	11.4	10.9	20.5	21.5	11.3	11.0	12.8	23.6	11.6	11.2		
	IC	10.6-12.3	10.0-11.8	14.8-27.4	13.7-31.2	10.4-12.1	10.2-11.8	8.2-18.7	12.0-38.9	10.6-12.6	10.2-12.2		
Perception of dental health as fair or poor	%	14.4	14.0	21.5	24.1	12.5	12.1	18.7	25.6	ND	ND	ND	ND
	IC	13.3-15.4	12.9-15.0	15.9-28.1	16.8-32.7	11.6-13.5	11.1-13.0	14.2-23.9	14.2-40.2				

Table 12 Results and confidence intervals by mother tongue, 2003, 2007–2008, and 2009–2010, non-CMAs (cont'd)

		Total	French	English	Other	Total	French	English	Other	Total	French	English	Other
		2003				**2007-2008**				**2009-2010**			
Weak sense of community belonging	%	38.3	38.9	26.1	30.5	37.8	37.8	34.4	48.6	40.6	40.7	37.3	46.1
	IC	36.6-40.0	37.2-40.6	19.6-33.4	20.6-40.4	36.4-39.3	36.3-39.3	27.3-41.5	33.4-64.0	38.6-42.5	38.7-42.6	28.6-46.0	29.7-63.1
Poor emotional or informational support	%	NA	NA	NA	NA	12.6	12.6	11.7		12.1	12.2		
	IC					11.6-13.5	11.5-13.6	7.7-17.0		11.1-13.2	11.1-13.3		
Two or more chronic illnesses in people age 40 and	%	NA	NA	NA	NA	23.3	23.2	27.4	14.8	25.7	25.3	33.1	29.4
	IC					21.8-24.7	21.7-24.7	20.4-35.3	7.1-25.9	24.1-27.3	23.7-26.9	24.1-42.1	12.4-52.0
Severe psychological distress	%	NA	NA	NA	NA	19.9	20.1	18.0		18.7	18.7	16.6	22.1
	IC					18.6-21.3	18.8-21.5	13.2-23.5		17.5-19.9	17.5-20.0	11.0-23.7	10.8-37.6

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