



QUEBEC FIRST NATIONS REGIONAL HEALTH SURVEY - 2008

Chapter 7 Food and physical activity



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Thanks

We thank all those who helped prepare this portrait of the health status of First Nations of Quebec, especially all the respondents who participated within First Nations communities. We also thank all those who participated at all stages of the survey and in their realization.

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The masculine in this document is intended to lighten the text, and without prejudice against women.

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METHODOLOGICAL NOTE

Background

The First Nations Regional Health Survey (RHS) is a groundbreaking survey in the area of research by and for First Nations. Completely carried out by First Nations, it is an innovative endeavour with respect to the involvement of the communities in the process, ethics and cultural adaptation of research.

The RHS is the first research project to be carried out while completely respecting the principles of ownership, control, access and possession (OCAP). These principles aim to ensure the complete involvement of the First Nations communities in all of the steps of the research.

The governance and coordination of the RHS are ensured by the First Nations Information Governance Centre (FNIGC) at the national level and by the First Nations of Quebec and Labrador Health and Social Services Commission (FNQLHSSC) in Quebec.

This second wave of the RHS was preceded by the wave that took place in 2002 (first wave) as well as by a pilot project (1997). For the past 15 years, the RHS data has contributed to supporting the decision-makers and interveners while contributing to expanding the knowledge on the socio-sanitary situation of the First Nations. We plan on carrying out two phases following this one, which are phase 3 in 2013 and phase 4 in 2016.

1997	2002	2008	2013	2016
Pilot of the RHS	Phase 1 of the RHS	Phase 2 of the RHS	Phase 3 of the RHS	Phase 4 of the RHS
Completed	Completed	Completed		

Questionnaire

Three distinct questionnaires were created for three different age groups (children, youth, adults). These questionnaires were administered in person by 63 First Nations interviewers who were trained for this purpose. In order to prevent the error risks, data entry was performed by the interviewers during the interview using laptop computers. With respect to children less than 12 years of age, the questionnaire was administered to the parent or guardian. The following table summarises the themes addressed according to each age group.

Themes addressed in the 2008 RHS questionnaires

Themes	Children	Youth	Adults
	0 – 11 years	12 – 17 years	18 years and up
Vaccination	√		
Child care services	√		√
Demographic characteristics	√	√	√
Household characteristics	√	√	√
Education	√	√	√
Language and culture	√	√	√
Chronic diseases	√	√	√
Injuries	√	√	√
Dental care	√	√	√
Diabetes	√	√	√
Physical activity	√	√	√
Nutrition and traditional foods	√	√	√
Indian residential schools	√	√	√
Mental health		√	√
Community well-being		√	√
Smoking		√	√
Alcohol and drugs		√	√
Sexual health		√	√
Access to health care		√	√
Traditional medicine		√	√
Preventive health care			√
Housing			√
Natural caregivers			√
Depression			√
Migration			√
Employment and income			√
Gambling			√
Food security			√
Home care and limitations			√
Violence			√
State of health index			√

A total of 2 691 individual interviews were carried out (87.3% of the sampling that was initially anticipated).

0-11 years: 727 respondents (94.4% of the sampling initially anticipated).

12-17 years: 600 respondents (77.9% of the sampling initially anticipated).

18 years and up: 1 364 respondents (88.6% of the sampling initially anticipated).

Data collection period

The data collection unfolded from September 2008 to February 2010 among the 21 selected communities in the Quebec region.

Sampling

The RHS was carried out using a two-stage stratified sampling.

First stage: Classification of the communities from each nation according to their sizes among one of the following strata: small (between 75 and 299 residents); medium (between 300 and 1499 residents); large (1500 residents and up). The communities required at least 75 residents in order to be eligible. A random selection of the communities was then performed among each of the strata. With the goal of increasing statistical power, all of the large communities were invited to participate in the RHS. In the event that a stratum was represented by a single community of a given nation, it was automatically invited to participate in the survey.

Second stage: Breakdown of the populations of the selected communities according to eight strata established according to age and gender:

Stratum 1: 0-11 years/male;

Stratum 2: 0-11 years/female;

Stratum 3: 12-17 years/male;

Stratum 4: 12-17 years/female;

Stratum 5: 18-54 years/male;

Stratum 6: 18-54 years/female;

Stratum 7: 55 years +/male;

Stratum 8: 55 years +/female.

The individuals in each of the strata were randomly selected. This selection process was carried out using the band lists of each of the participating communities.

The number of respondents in the sampling was sufficient to allow for verifying the statistical significance of the results observed. As can be read among the survey's chapters, for the majority of the results observed, it is possible to apply the result observed in the sampling to the entire population with a margin of error of less than 5% or, depending on the case, less than 1%.

Communities participating in the 2008 RHS

Nation (8)	Size	Community (21)	Sampling	Population	% of the pop. interrogated
Abenaki	Medium	Odanak	50	309	16.2%
Algonquin	Large	Kitigan Zibi	122	1535	7.9%
		Lac Simon	174	1403	12.4%
	Medium	Pikogan	95	567	16.8%
		Timiskaming	86	604	14.2%
		Eagle Village	55	261	21.1%
Atikamekw	Large	Manawan	167	2122	7.9%
		Opitciwan	183	2117	8.6%
	Medium	Wemotaci	118	1307	9.0%
Hurons-Wendat	Medium	Wendake	111	1332	8.3%
Innus	Large	Betsiamites	252	2848	8.8%
		Mashteuiatsh	183	2022	9.1%
		Uashat Mak Mani-Utenam	246	3080	8.0%
	Medium	Matimekush-Lac John	87	729	11.9%
		Natashquan	128	916	14.0%
		Pakua Shipi	50	314	15.9%
		Unamen Shipu	96	1016	9.4%
	Small	Essipit	38	177	21.5%
Mi'gmaqs	Large	Listuguj	220	2000	11.0%
	Medium	Gesgapegiag	72	608	11.8%
Mohawks	Medium	Kanesatake	94	1328	7.1%
Naskapis	Medium	Kawawachikamach	64	614	10.4%
Total			2691	27209	9.9%

Weighting

All of the data presented in the RHS was weighted in order to provide an estimate with respect to the total First Nations population of Quebec living in the communities.

Representation limits for the Mohawk Nation

Even though the Mohawk Nation in Quebec is made up of Kahnawake, Kanesatake and part of Akwesasne, the only community that participated in the RHS is Kanesatake. Regarding the community of Akwesasne, it was excluded from the sampling plan for the Quebec region because of the fact that the majority of its residents reside on the Ontario side of the provincial border. As for the community of Kahnawake where most of the Mohawk population of Quebec resides, it opted not to participate in the RHS. For these reasons, it is impossible to produce estimates that can be applied to the entire Mohawk Nation of Quebec.

Geographic zone

Some of the RHS data is presented according to geographic zone. This refers to the degree of isolation of the respondents' communities. The degree of geographic isolation is based on a zone system developed by Aboriginal Affairs and Northern Development Canada (AANDC).

Zone 1: The community is located less than 50 km from a service centre with year-round road access.

Zone 2: The community is located between 50 km and 350 km from a service centre with year-round road access.

Zone 3: The community is located over 350 km from a service centre with year-round road access.

Zone 4: The community has no year-round road access to a service centre.

Service centre: The nearest location where the community members must go in order to access service providers, banks and governmental services.

HIGHLIGHTS

Children

Food

- Almost 90% of children consume milk products every day.
- A third of the children eat vegetables several times a day and more than half eat fruit just as often.
- About half (53.4%) of the children eat fast food at least a few times a week.
- About three out of ten children aged 0 to 5 years old (29.5%) and two out of ten children aged 6 to 11 (22%) eat sweets every day.
- The traditional foods most often eaten by children are land-based animals as well as bannock and other types of fry bread.
- Sixty percent (60%) of parents consider that their child always or almost always eats a balanced diet.

Breastfeeding

- Thirty-five percent (35.4%) of children were breastfed. In the province of Quebec, in 2005-2006, 85.1% of babies had been breastfed.
- Of all breastfed children, 37.2% were fed for over six months.
- More children were breastfed in zones 1 and 2 than in zones 3 and 4.
- The percentage of breastfed children increases with household income.

Food security index

- Thirty-one percent (31.2%) of adults living with children suffer from moderate or severe food insecurity.
- Almost half (49.6%) of adults living with children from zone 4 suffer from moderate or severe food insecurity.



Body weight

- Thirty percent (30.5%) of boys and 31.1% of girls have a BMI indicating obesity, whereas 21% of boys and 21.8% of girls are overweight.
- A higher proportion of children living in zones 3 and 4 have a BMI value associated with obesity.

Physical activity

- Eight out of ten children aged 6 to 11 (81.7%) are considered active, 13.6% moderately active and 4.7% inactive. Boys are more active than girls.
- Almost two out of five children (39.8%) spend more than 90 minutes per day watching TV. The proportion of children aged 6 to 11 (42.1%) spending more than 90 minutes per day watching TV is higher than that of children aged 0 to 5 (35.4%).
- Thirty-one percent (31.6%) of boys spend more than 90 minutes per day playing video games.

Youths

Food

- Three out of four youths (73.5%) consume milk products every day.
- Fifty-six percent (56%) of youths eat vegetables every day and 71.2% eat fruit every day. Girls eat more fruit and vegetables than boys.
- About six out of ten youths (62.4%) eat fast food at least a few times a week.
- Thirty-six percent (35.8%) of youths consume soft drinks daily.
- The traditional foods most often eaten by youths are land-based animals as well as bannock and other types of fry bread.
- Twenty-eight percent (27.6%) of youths consider that their diet is always or almost always balanced; 16% say that their diet is never or rarely balanced.

Body weight

- Twelve percent (11.6%) of boys and 13.4% of girls have a BMI indicating obesity, whereas 29.4% of boys and 23.1% of girls are overweight.

- Sixty-five percent (65.1%) of youths are satisfied with their weight, whereas 13.2% of youths are not.

Physical activity

- Seventy-one percent (70.6%) of youths are active, 9.7% are moderately active and 19.7% are inactive. Among youths, boys are more active than girls.
- Forty-one percent (41.1%) of youths spend more than 90 minutes per day watching TV and more than one third spend just as much time on the computer.

Adults

Food

- Sixty-nine percent (69%) of adults consume milk products every day.
- A third (31%) of adults eats fruit and vegetables several times a day. Women eat more fruit and vegetables than men.
- Almost four out of ten adults (37.5%) consume soft drinks every day and half (51%) eat fast food several times a week.
- The traditional foods most often eaten by adults are land-based animals as well as bannock and other types of fry bread.
- Thirty-eight percent (38.4%) of adults consider that their diet is always or almost always balanced; 10.9% say that their diet is never or rarely balanced.
- The better the perception of their health condition, the more adults consider that their diet is balanced.

Food security index

- One out of four adults (24.8%) suffers from moderate or severe food insecurity. In the province of Quebec, in 2004, 8.1% of adults suffered from moderate or severe food insecurity.
- The proportion of adults suffering from food insecurity is higher in zone 4 than in the other geographical regions.

Body weight

- Twenty-two percent (21.7%) of adults have a BMI indicating a normal weight, 33% are overweight and 40.6% are obese.
- Adults' BMI is directly related to geographical isolation.



Physical activity

- Almost half (49.4%) of adults are active, 15.8% are moderately active and 34.8% are inactive. Men are more active than women.
- Six out of ten adults (60%) spend between 60 and 90 minutes per day watching TV, reading, playing bingo, playing video games or working on the computer.

SUMMARY


Life habits, such as diet and physical activities, have long been recognized as important human health determinants. This chapter addresses the RHS 2008 results on food, food security, body weight, physical activity and sedentary living, which are all elements targeted in the *Quebec First Nations Health and Social Services Blueprint 2007-2017, Closing the gaps... Accelerating change*. The obtained results reveal, among others things, the adoption of bad eating habits, such as the regular consumption of fast food, sweets and soft drinks, as well as the consumption of healthy foods under the recommendations issued in the *Eating Well with Canada's Food Guide - First Nations, Inuit and Métis*. Food insecurity seemed more frequent in First Nations households. Finally, the results on the body mass index of individuals, physical activity and sedentary living uncover an urgent situation requiring targeted preventive measures.

A healthy diet and regular physical activity are at the core of a healthy life style. In the *Quebec First Nations Health and Social Services Blueprint 2007-2017, Closing the gaps... Accelerating change*, developed by the FNQLHSSC in collaboration with First Nations communities, concerns are expressed about the poor diet encouraged by a large part of the population, the high cost of healthy foods, especially in remote communities, and the sedentary lifestyle adopted by an increasing number of youths. Moreover, it is acknowledged that the food insecurity faced by the communities' households is aggravated by the low income earned by First Nations adults.

This chapter, divided into four sections, firstly explains the eating habits of First Nations and tries to identify the variables that could influence them. The question of food insecurity in First Nations households is introduced afterwards. The third section of this chapter addresses height and body weight. Finally, the habits related to physical activity and inactivity are presented.

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PART 1 – FOOD

1. HEALTHY FOOD CONSUMPTION

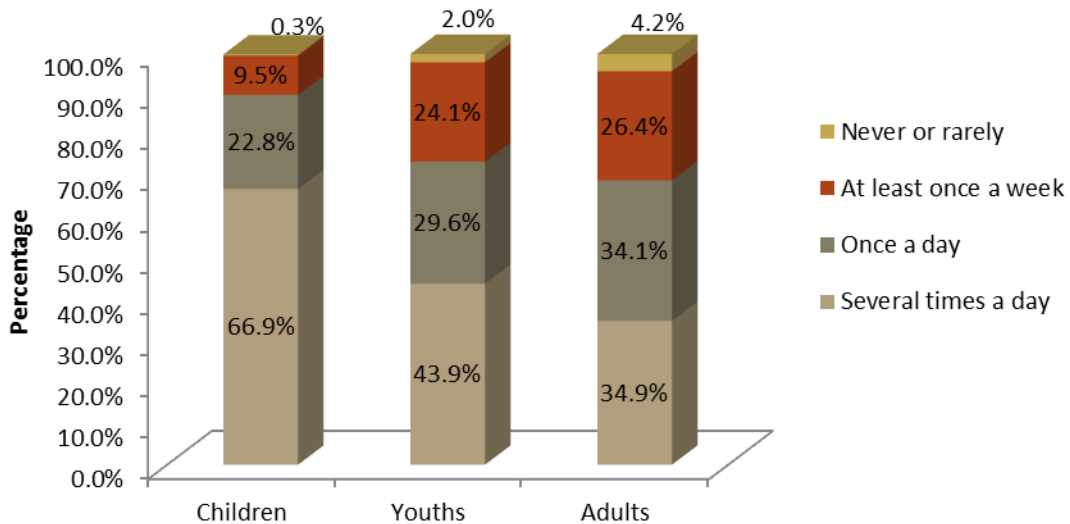
The document *Eating Well with Canada's Food Guide - First Nations, Inuit and Métis* (Health Canada, 2007) recommends a daily intake of fruit and vegetables, grain products, milk and other dairy products as well as meat and its alternatives. It also prescribes to limit the intake of foods that are high in calories, lipids, sugar and salt.

The following sections address the consumption of foods from each of the four food groups by the Quebec First Nations living in the communities. However, it is important to note that nothing allows us to assess the quality and the variety of the foods eaten, nor if these are fresh, frozen or canned.


1.1. Milk and dairy products

The frequency of milk and dairy product consumption is different for children, youths and adults (Figure 1).

Figure 1: Frequency of milk and dairy products consumption for children (N=6,288), youths (N=3,661) and adults (N=19,068)*



* To simplify the figure, the proportions of "Don't know/Refused" are not indicated (children: 0.5%, youths: 0.4%, adults: 0.4%).



A total of 66.9% of children drink milk and eat other dairy products several times a day, and 22.8% do so at least once a day. Only 0.3% of children never drinks milk or eat dairy products. Compared to children aged 6 to 11 (62.9%), a greater number of children aged 0 to 5 (73.5%) consume these products several times a day. Among children, the Hurons-Wendat (96.5%) and Abenakis (92.7%) are two nations where a higher proportion of children eat dairy products daily; the children of the Naskapi nation are the ones who eat the least of these products (76.4%).

As for youths, the majority of them seem to be consuming milk and dairy products regularly. In fact, 43.9% consume these products several times a day and 29.6% do so once a day. Among youths, the Abenakis (100%), Hurons-Wendat (96.2%) and Naskapis (93.6%) consume more dairy products daily, whereas Mohawk¹ youths consume less (59.5% consume dairy products at least once a day, and 13.5% never or hardly ever do so).

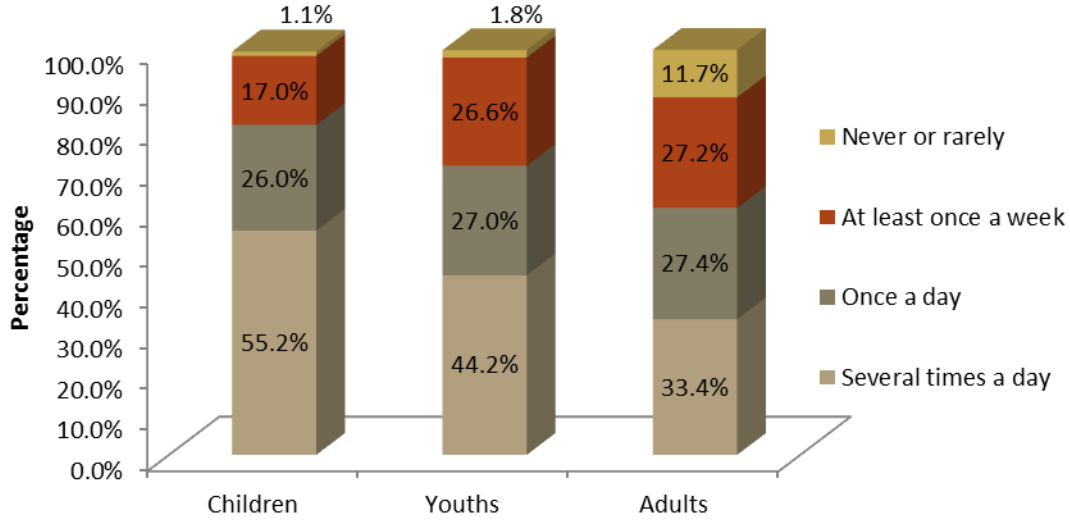
More than three out of ten adults (34.9%) drink milk and eat dairy products several times a day, whereas 34.1% do so once a day and 4.2% never or hardly ever do so. Young adults aged 18 to 34 (37.7%) consume more of these products than the adults of other age groups. Adults aged between 55 and 64 are the ones who indicated in lower proportions that they consume these products several times a day (28.8%) (significant difference at $p < 0.05$). Depending on the nation, the members consume milk and dairy products in different proportions. Thus, while 87% of Huron-Wendat adults drink milk and eat dairy products at least once a day, 64.9% of Atikamekw adults consume just as much. We also see that 11.9% of Naskapis over 18 never or hardly ever eat dairy products.

1.2 Fruit and vegetables

The following figures (Figure 2 and Figure 3) show the frequency of fruit and vegetable consumption among children, youths and adults.

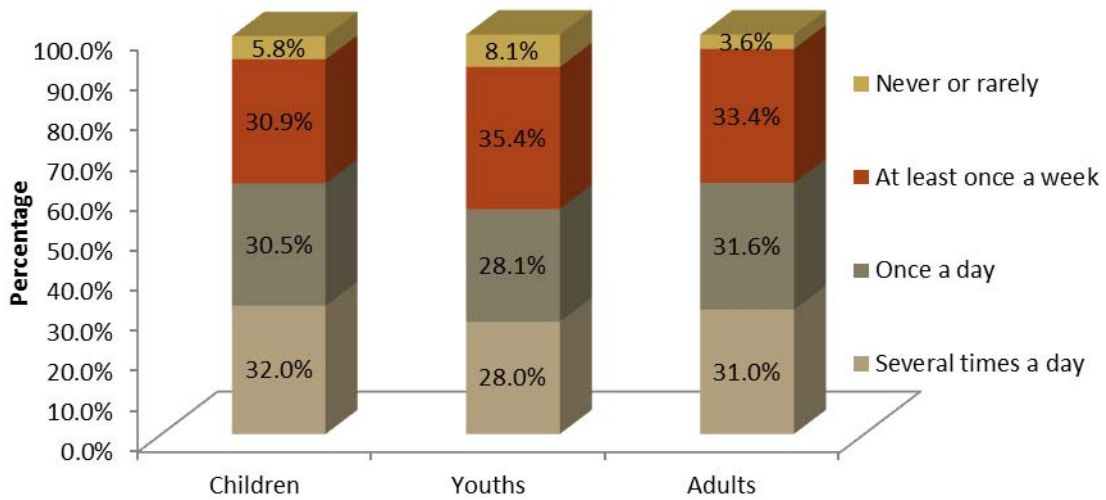
¹ The Mohawks are only represented by the Kanésatake community.

Figure 2: Frequency of fruit consumption among children (N=6,288), youths (N=3,661) and adults (N=19,068)*




* To simplify the figure, the proportions of "Don't know/Refused" are not indicated (children: 0.7%, youths: 0.4%, adults: 0.3%).

Figure 3: Frequency of vegetable consumption among children (N=6,288), youths (N=3,661) and adults (N=19,068)*



* To simplify the figure, the proportions of "Don't know/Refused" are not indicated (children: 0.8%, youths: 0.4%, adults: 0.4%).



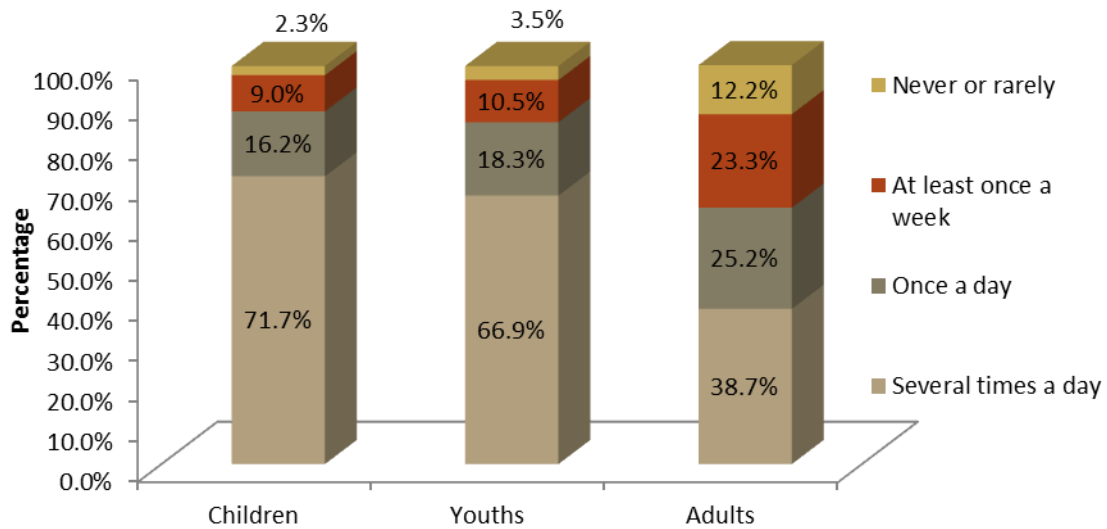
Like youths, children eat fruit more regularly than they eat vegetables. The parents have thus indicated that 55.2% of children eat fruit several times a day, whereas 32% indicated the same for vegetable consumption. Few children never eat fruit (1.1%) whereas 5.8% never or hardly ever eat vegetables. Depending on the nations, significant differences are observed with regards to children's fruit and vegetable consumption. Therefore, while 94.4% of Hurons-Wendat and 92.7% of Abenakis consume vegetables at least once a day, only 45.6% of Mi'gmaqs aged 10 and under do the same. As for fruit, a similar pattern emerges: a greater number of Huron-Wendat (96.4%) and Abenaki (93.9%) children eat fruit every day compared to a smaller number of Mi'gmaq children (63.8%).

The consumption of fruit and vegetables in youths aged 12 to 17 is different than that of adults; youths eat fruit more regularly than they eat vegetables: 56% eat vegetables at least once a day, but 71.2% eat fruit daily. We also notice that girls eat more fruit and vegetables than boys. Furthermore, 8.1% of youths indicated that they never or hardly ever eat vegetables, whereas 1.8% never or hardly ever eats fruit. Naskapi youths (87.3%) indicated in the highest proportion that they eat vegetables every day and 16.5% of Mi'gmaq youths said they never or hardly ever eat any. Atikamekw youths (77.6%) show the highest percentage for daily fruit consumption and Naskapi youths (60.5%) show the lowest.

Adults eat fruit as often as they eat vegetables. Thus, 31% of adults eat vegetables several times a day and 31.6% do so once a day. For fruit, 33.4% consume them several times a day and 27.4% do so once a day. Women significantly eat vegetables much more regularly (at least once a day) than men (68.3% vs. 58.8%) and it is the same for fruit (65.5% vs. 49.8%) ($p < 0.01$). The Hurons-Wendat (80.5%) eat vegetables daily in higher proportions than adults from other nations, whereas the Abenakis (70.3%) are the ones who eat fruit the most regularly.

Juice consumption is quite common in adults, youths and children. Therefore, it is important to note that the type of juice consumed (100% pure fruit juice, juice made from concentrate, vegetable juice, drinks, etc.) is not specified. We have observed that 38.7% of adults, 66.9% of youths and 71.7% of children drink juice several times a day (Figure 4)

Figure 4: Frequency of juice consumption in children (N=6,288), youths (N=3,661) and adults (N=19,068)*

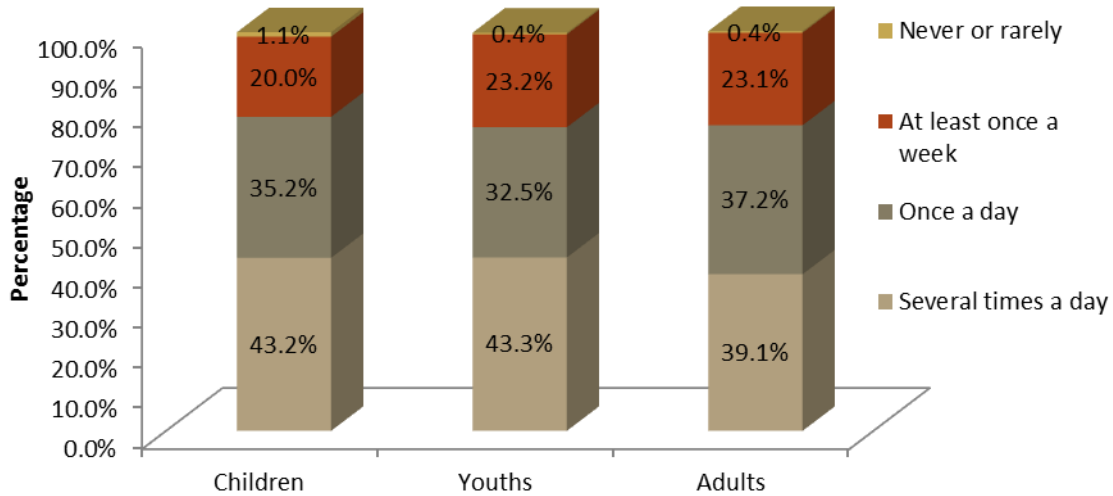


* To simplify the figure, the proportions of "Don't know/Refused" are not indicated (children: 0.8%, youths: 0.8%, adults: 0.6%).

1.3 Meat and alternatives

Figure 5 shows the frequency of meat and its alternatives consumption, such as fish, eggs, beans and tofu, in children, youths and adults.

Figure 5: Frequency of meat and alternative consumption in children (N=6,288), youths (N=3,661) and adults (N=19,068)*



* To simplify the figure, the proportions of "Don't know/Refused" are not indicated (children: 0.5%, youths: 0.6%, adults: 0.2%).

Among children, 78.4% eat meat or alternatives at least once a day. We note that 100% of Abenaki children and 96.5% of Huron-Wendat children eat meat and its alternatives daily.

As for youths aged 12 to 17, 75.8% eat meat or alternatives at least once a day. The Huron-Wendat (96.2%) and Abenaki (92.8%) youths are the ones who consume meat and alternatives daily in the highest proportion.

Meat and alternatives consumption is regular (at least once a day) for over three out of four adults (76.3%). Moreover, 20.2% of adults indicated that they eat meat or alternatives several times a week. The highest meat consumption is that of adults aged 18 to 34 (79.7% eat meat at least once a day) whereas the lowest is that of adults aged 55 to 65 (71.4%) and 65 and over (71.5%) (significant difference at $p < 0.05$). Huron-Wendat (89.6%), Algonquin (84.2%) and Naskapi (83.1%) adults are the ones who eat meat and alternatives daily in the highest proportion.

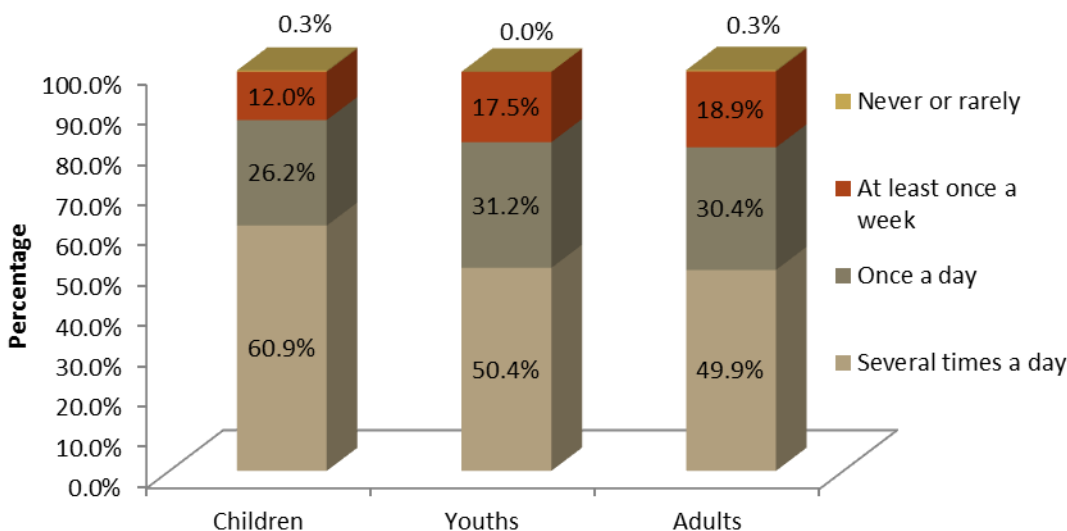
For the three major age groups (children, youths and adults), Mi'gmaqs are the ones who consume the least meat and its alternatives on a daily basis (49.1% of children, 47.4% of youths and 39% of adults).

According to the data collected, only 0.4% of adults, 0.4% of youths and 1.1% of children never or hardly ever eat meat or alternatives. Therefore, meat and fish are culturally the main sources of protein consumed by the Quebec First Nations members. Note that no data allow us to assess the proportion of vegetarians in the Quebec First Nations population.

1.4 Grain products

The consumption of grain products (bread, pasta, rice and other grain products) by children, youths and adults is illustrated in Figure 6.

Figure 6: Frequency of grain product consumption in children (N=6,288), youths (N=3,661) and adults (N=19,068)*



* To simplify the figure, the proportions of "Don't know/Refused" are not indicated (children: 0.6%, youths: 0.9%, adults: 0.5%).

A proportion of 87.1% of children eat grain products every day. All Abenaki (100%) and Huron-Wendat (100%) children eat grain products every day, whereas only 53.2% of Mi'gmaq children do so.

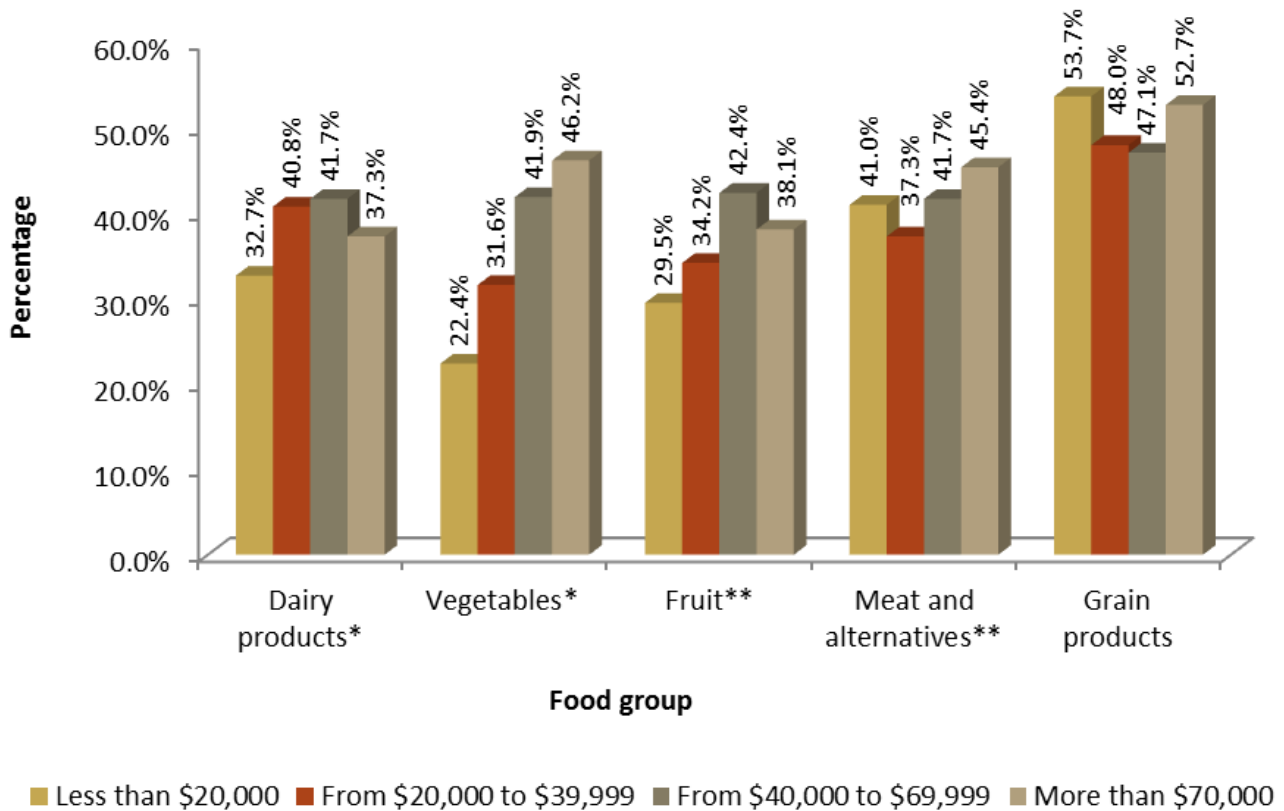
Youths eat grain products daily in the same proportion as adults (81.6%). Youths from the Huron-Wendat (100%) and Abenaki (95.8%) nations eat grain products daily in a higher proportion than the other nations, such as the Mi'gmaqs who eat grain products daily in a proportion of 52.1%.

A proportion of 80.3% of adults eat grain products every day. Men eat grain products more regularly than women (83.2% eat it daily versus 77.4%; significant difference at $p < 0.05$). The largest consumption is observed in the 18-34 age group (84.4% eat grain products daily) and the smallest in the 55-64 age group (76.4%) (significant difference at $p < 0.05$). As for the different nations, the Abenakis (91%), Algonquin (88.4%) and Naskapis (88.3%) are the ones in which we find the highest proportions of adults eating grain products at least once a day, whereas the proportion of Mi'gmaqs (52.3%) who eat grain products daily is lower.

1.5 Healthy food consumption based on the household income

Regular consumption by adults of foods from all four food groups varies with the household income. We also note that for two food groups (dairy products, and fruit and vegetables), individuals whose household income is lower than \$20,000 are fewer to eat these types of foods several times a day. For the other two food groups, meat and alternatives as well as grain products, individuals with an average household income consume these types of foods less regularly.

Figure 7: Adult consumption of foods from all four food groups, several times a day, based on the household income



* p < 0.01

** p < 0.05

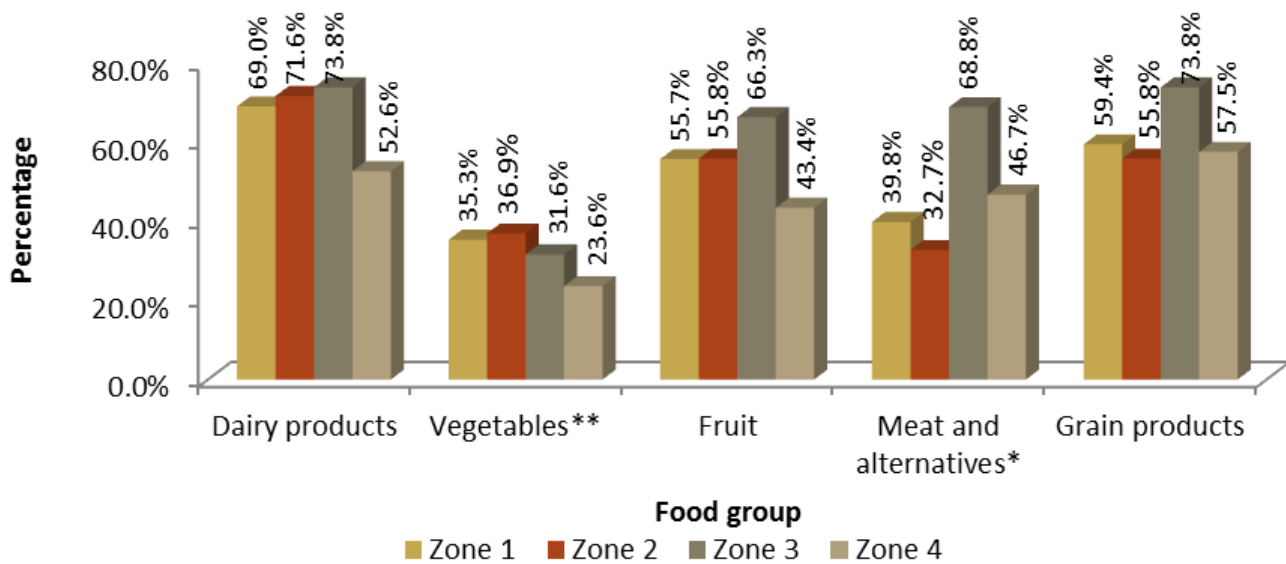
A greater number of children from households with an income over \$70,000 than children from households with revenues below \$20,000 per year daily eat foods from all four food groups.

1.6 Healthy food consumption based on the geographic zone

Depending on the zone of residence, differences in the regular consumption of foods from all four food groups are also observed. Figures 8, 9 and 10 illustrate this finding.

As for children, we note that the ones living in the geographic zone 3² eat foods from all four food groups more regularly than the children from the other three zones (except for the consumption of vegetables, which is the highest in zone 2). The children in zone 4 are the ones who are least likely to eat dairy products, fruit and vegetables several times a day (Figure 8).

Figure 8: Children consumption of foods from all four food groups, several times a day, based on the zone (N=6,288)



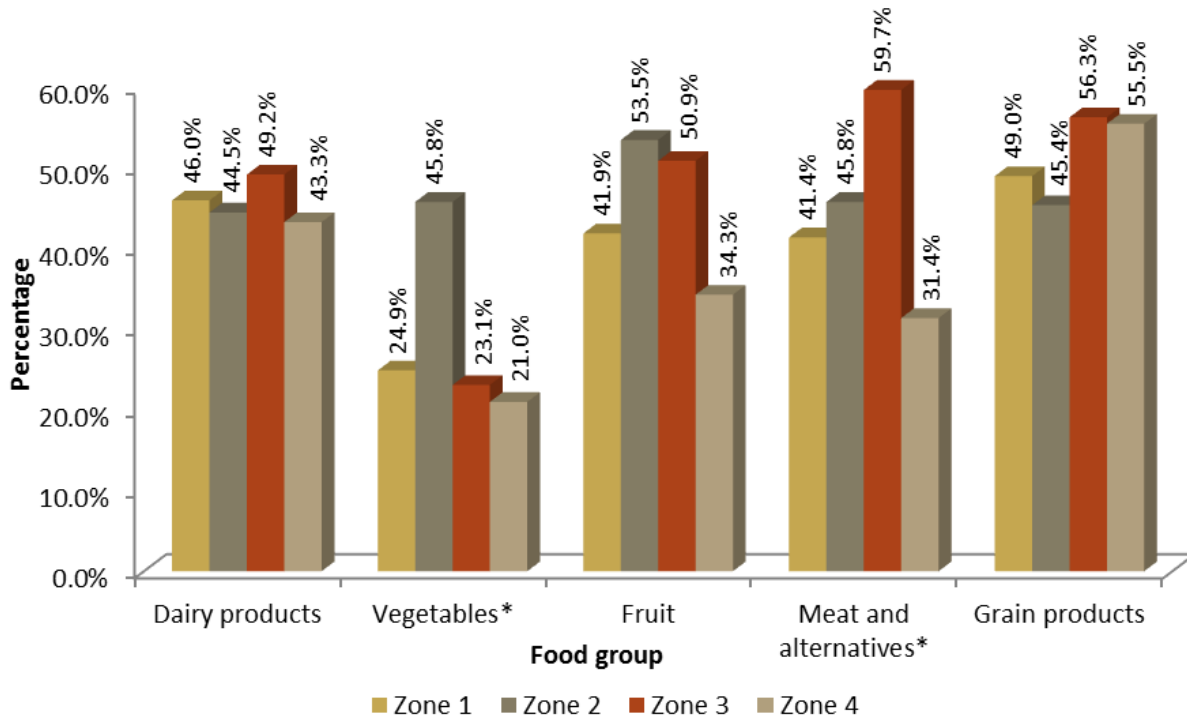
* p < 0.01

** p < 0.05

² Because of sampling, the data obtained from the respondents from geographic zone 3 can be biased. These results should therefore be interpreted with caution.

Among youths, we notice that, with regards to vegetable consumption, youths in zone 2 are more likely to eat vegetables regularly than youths from other zones. A similar pattern can be observed with the consumption of meat and alternatives by youths in zone 3. Finally, fewer youths from zone 4 eat fruit and vegetables as well as meat and alternatives regularly (Figure 9).

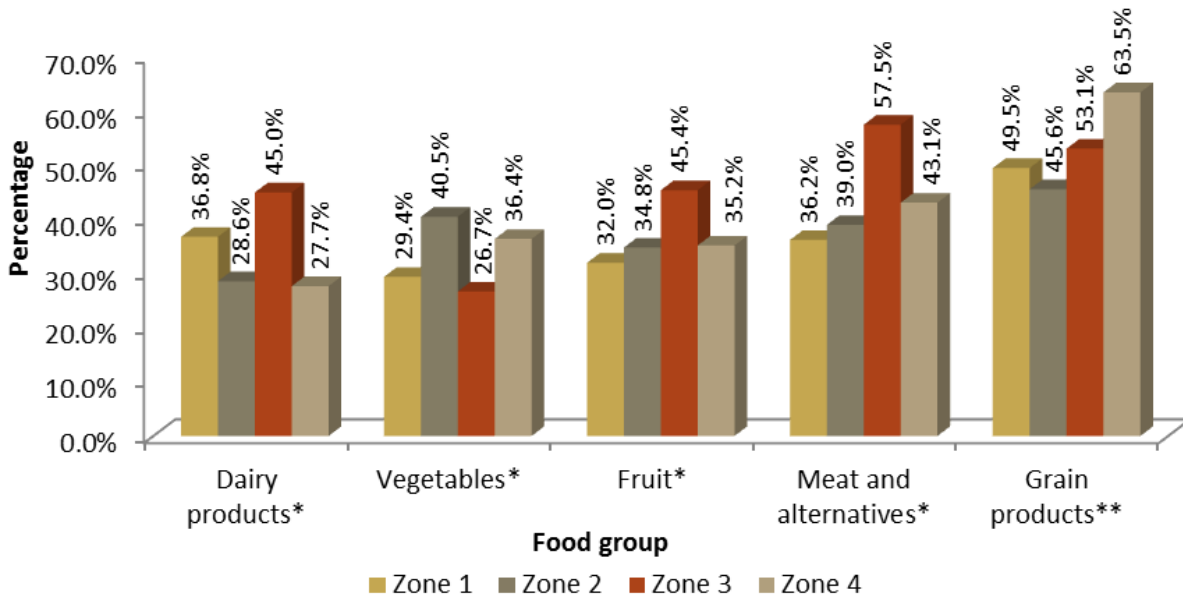
Figure 9: Youth consumption of foods from all four food groups, several times a day, based on the zone (N=3,661)



* $p < 0.01$

Adults living in zone 3 are more likely to eat dairy products, fruit and meat and alternatives several times a day than the adults from other geographic zones. Adults in zone 2 eat vegetables more regularly, and adults in zone 4 eat grain products more regularly (Figure 10).

Figure 10: Adult consumption of foods from all four food groups, several times a day, based on the zone (N=19,068)




* p < 0.01
 ** p < 0.05

1.7 Cost of food

During this survey, data from 23 communities was collected. With this data, it was possible to find out, among other things, the cost of eleven selected foods in each of these communities. Important variations were reported. Of these eleven foods, three were kept for this analysis, as the grocery stores of some communities did not carry some of the foods or did not have them in sufficient quantities. Therefore, it is possible that the respondent mentioned the cost for another quantity than the one requested or for a different but similar product. Extreme values were also omitted from the analysis, because they were not realistic.

In light of this information, we note that a dozen eggs costs between \$1.97 and \$4.79, depending on the community. For a ten-pound bag of potatoes, the cost varies from \$2.99 to \$5.99 and it costs between \$2.99 and \$10 for a five-pound bag of apples. If we look at the cost of these foods based on the geographic zones where the communities are located, we generally see higher costs in the zone 3 and zone 4 communities. This data must however be interpreted with caution, since a part of the variations observed for the cost of these foods can be attributed to the time of year when the questionnaire was filled by the respondent in the community, and consequently, to the fact that fruit and vegetables are cheaper during harvest season.



Similar results were found as part of the Scan on Diabetes among the First Nations communities of Quebec (FNQLHSSC, 2011). Indeed, it was also found in this study that the cost of foods increases with geographic isolation of communities, and this makes it harder for First Nations in remote locations to access healthy, varied and affordable foods.

The community data collected also helped establish that there was a food bank serving the territory of four of the 23 participating communities and that community kitchens were organized in eight of these communities.

1.8 Water

Drinking water every day is essential to maintain the body's vital functions. One should drink water rather than drinks containing calories and carbohydrates (Health Canada, 2007a).

The data obtained reveal that 89.7% of adults, 87.8% of youths and 81.9% of children drink water at least once a day. However, 2.5% of adults, 3.4% of youths and 6.2% of children never or hardly ever drink water.

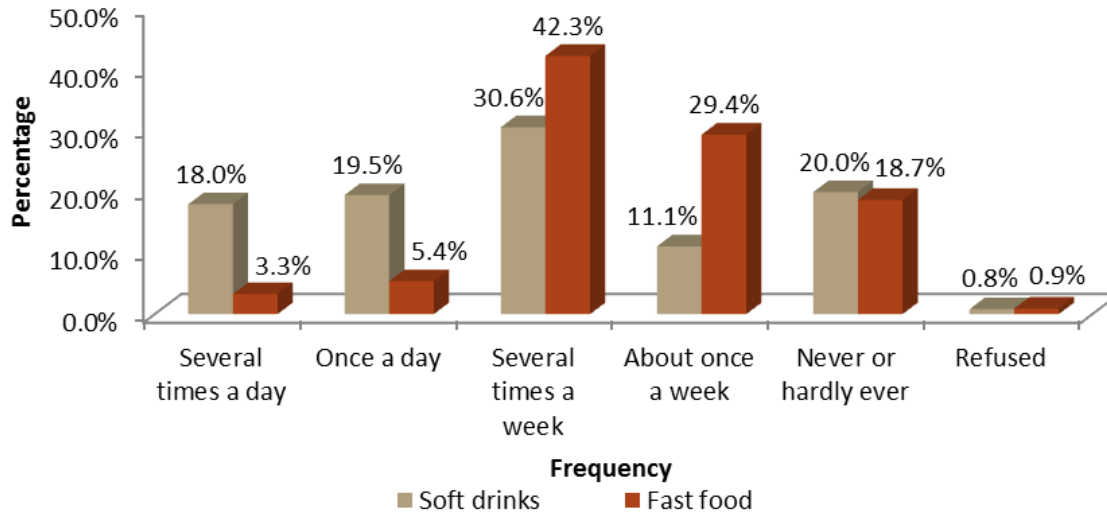
2. JUNK FOOD CONSUMPTION

The regular consumption of junk food, such as soft drinks, sweets and fast food (i.e. hamburgers, pizza or French fries) can cause numerous well known health problems: obesity, diabetes, heart disease, dental problems, etc.

2.1 Junk food consumption in adults

Among First Nations adults, the results indicate that almost four out of ten adults (37.5%) consume soft drinks at least once a day. As for fast food, 51% eat such meals at least a few times a week and 29.4% do so once a week (Figure 11).

Figure 11: Frequency of junk food and soft drink consumption among adults (N=19,068)



2.1.1 Junk food consumption in adults based on the geographic zone

With regards to fast food and soft drink consumption in adults based on the geographic zones, the data show that adults living far from urban centres are more likely to eat fast food every day ($p < 0.01$). As for soft drinks, the daily consumption seems equal between zones 1, 2 and 4, and weaker in zone 3 ($p < 0.05$). The sampling plan could however explain this difference (Table 1).

Table 1: Proportion of First Nations adults who consume fast food and soft drinks daily, based on the geographic zone

	Zone 1	Zone 2	Zone 3	Zone 4
Fast food	6.9%	9.2%	12.6%	12.0%
Soft drinks	39.1%	38.4%	27.2%	36.1%

2.1.2 Junk food consumption in adults based on the nation

The consumption of soft drinks and fast food in adults differ from one nation to another. Consequently, as illustrated in Table 2, more than half of the Naskapi adult population (52.4%) consume soft drinks every day and the Hurons-Wendat (18.5%) are the ones who drink the least. We also note that 44.7% of the Hurons-Wendat indicated that they never or hardly ever consume soft drinks. As for fast food, considerable differences were also observed from one nation to another. Hence, 26.4% of the Naskapis eat fast food every day and this proportion is only of 2.1% for the Mohawks and 3.7% for the Hurons-Wendat.

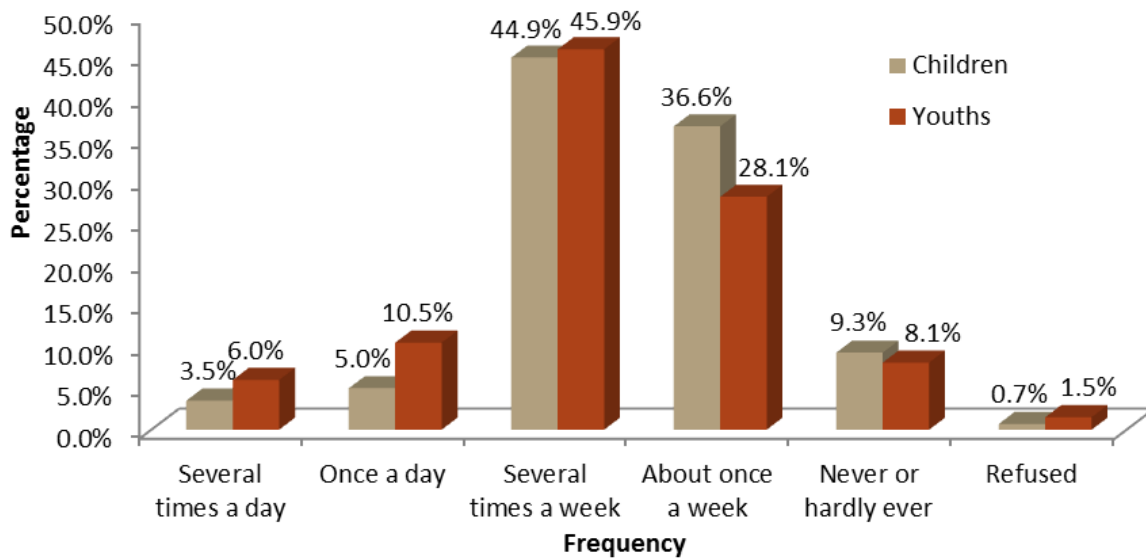
Table 2: Proportion of First Nations adults who consume fast food and soft drinks daily, based on the nation (N=19,068)

	Nations							
	Atikamekw	Mi'gmaq	Mohawks	Innus	Naskapis	Abenakis	Algonquins	Hurons-Wendat
Fast food	8.0%	6.0%	2.1%	10.3%	26.4%	5.7%	8.3%	3.7%
Soft drinks	30.7%	40.9%	33.1%	43.1%	52.4%	21.5%	36.0%	18.5%

2.2 Junk food consumption in children and youths

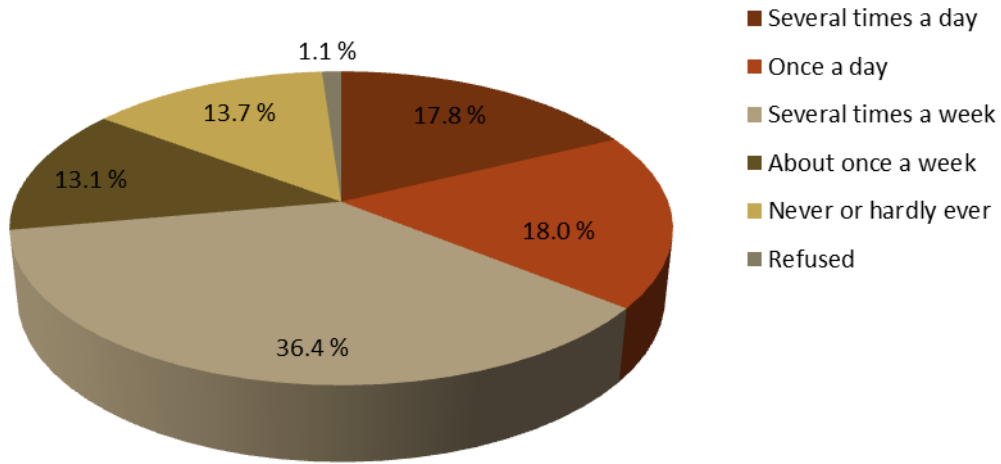
It turns out that children and youths consume fast food quite frequently. Indeed, a great part of these populations eat these meals at least a few times per week (53.4% of children and 62.4% of youths). We also note that 16.5% of youths eat fast food every day (Figure 12).

Figure 12: Proportion of respondents who believe that alcoholism and drug abuse are their communities' main challenges, based on age group



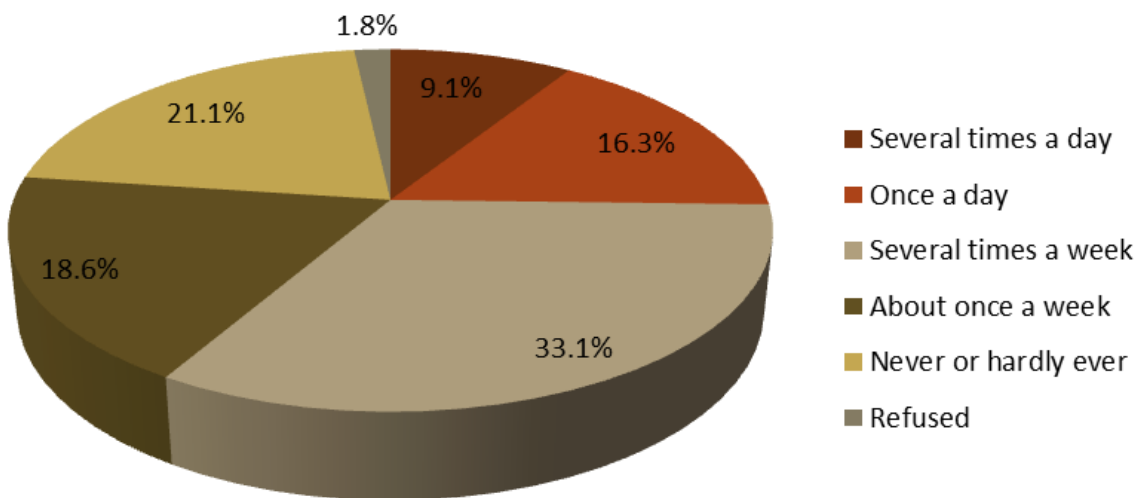
Among youths, the consumption of soft drinks and sweets is quite common. With regards to soft drinks, 35.8% of youths consume these drinks daily and 36.4% a few times a week (Figure 13). By comparison, a study conducted with Quebec high school youths show that 9.8% of them consume soft drinks at least once a day (Institut de la statistique du Québec, 2012).

Figure 13: Soft drink consumption in youths (N=3,661)



More than a quarter (25.4%) of youths eats sweets, such as candy, cookies and cakes, every day, and 33.1% eat sweets a few times a week. One out of five (21.1%) youths indicated that they never or hardly ever eat sweets (Figure 14). No difference has been noticed with regards to sweets consumption in terms of the sex or age of youths.

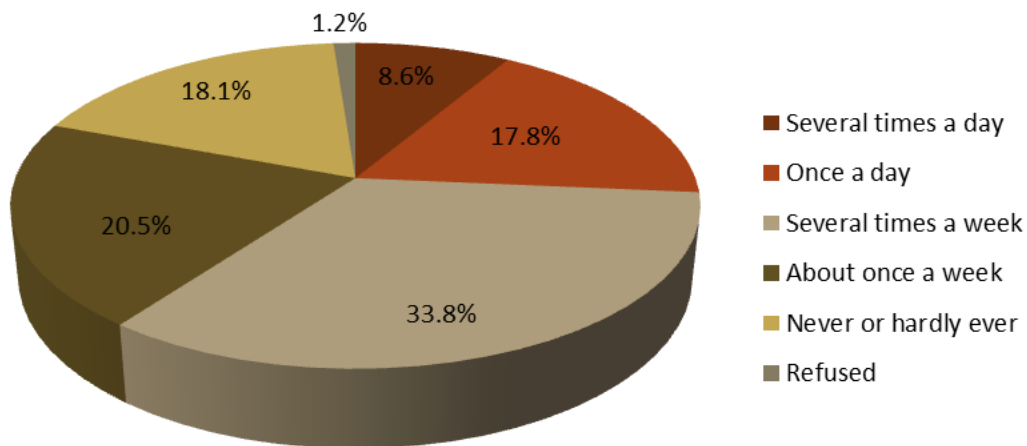
Figure 14: Sweets consumption in youths (N=3,661)





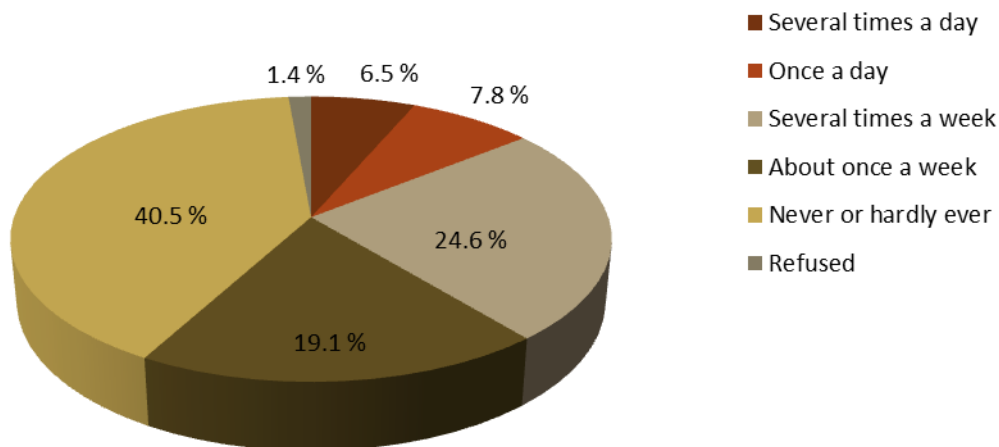
Many children eat sweets daily, such as candy, cakes and cookies (26.4%). We also note that 33.8% of children eat this type of foods a few times a week, whereas 18.1% of children hardly ever eat sweets (Figure 15). Among children aged 0 to 5, we observed that 22% of children eat sweets daily. Among children aged 6 to 11, 29.5% eat sweets every day (significant difference at $p < 0.01$).

Figure 15: Sweets (candy, cake, cookies...) consumption among children (N=6,288)



As for soft drink consumption among children, we note that 40.5% never or hardly ever drink any, and 14.3% consume soft drinks at least once a day (Figure 16). As with sweets, children aged 6 to 11 consume soft drinks more regularly than children under 6 years old (18% consume soft drinks daily, versus 8.8%) ($p < 0.01$).

Figure 16. Soft drink consumption among children (N=6,288)



2.2.1 Junk food consumption in children based on the geographic zone

The consumption of fast food in children is correlated with the communities' geographical remoteness, given that more children in zones 3 and 4 eat fast food than children in zones 1 and 2. With regards to sweets, children in zone 3³ (38.3%) eat much more, and children in zone 4 (18.3%) eat less. No difference has been observed in terms of soft drink consumption among children, based on the geographic zone (Table 3).

Table 3: Proportion of First Nations children who consume fast food, soft drinks and sweets daily, based on the geographic zone (N=6,288)

	Zone 1	Zone 2	Zone 3	Zone 4
Fast food	6.0%	5.2%	15.4%	14.3%
Soft drinks	13.1%	14.8%	12.9%	14.1%
Sweets	25.2%	25.3%	38.3%	18.3%

2.2.2 Junk food consumption in children based on the nation

The Naskapi (17.2%) and Innu (13.5%) children are more likely to eat fast food every day than children from other nations. The Naskapis consume soft drinks daily in higher proportions (21.6%). The highest consumption of sweets was noted among Mohawk (39.3%), Huron-Wendat (35.6%) and Atikamekw (34.1%) children. However, it is important to mention that, according to the data collected, virtually no child (0%) of the Abenaki nation⁴ consumes fast food and soft drinks every day and virtually no child (0%) of the Huron-Wendat nation eats fast food daily (Table 4).

Table 4: Proportion of First Nations children who consume fast food, soft drinks and sweets daily, based on the nation (N=6,288)

	Nations							
	Atikamekw	Mi'gmaq	Mohawk	Innus	Naskapis	Abenakis	Algonquins	Hurons-Wendat
Fast food	5.4%	1.4%	3.4%	13.5%	17.2%	0.0%	6.9%	0.0%
Soft drinks	15.6%	12.1%	7.1%	14.9%	21.6%	0.0%	14.1%	7.1%
Sweets	34.1%	7.5%	39.3%	28.7%	16.2%	12.2%	17.9%	35.6%

³ This important difference could be caused by a sampling bias.

⁴ It should be noted that only one Abenaki nation community took part in the survey and that the sample only contains a small number of child respondents from this community

2.2.3 Junk food consumption among children based on the household income

The regular consumption of fast food and soft drinks seems inversely proportional to the income of the children's household. Therefore, children living in households with revenues over \$70,000 are less likely to consume fast food or soft drinks every day than children from households with lower revenues (Table 5).

Table 5: Proportion of First Nations children who consume fast food, soft drinks and sweets daily, based on the household income (N=6,288)

	Less than \$20,000	From \$20,000 to \$39,999	From \$40,000 to \$69,999	More than \$70,000
Fast food	8.5%	9.4%	4.3%	0.0%
Soft drinks	13.5%	15.5%	11.5%	2.9%
Sweets	28.6%	24.5%	25.0%	31.4%

2.2.4 Junk food consumption among youths based on the geographic zone

The frequency of fast food consumption in youths seems correlated with the communities' geographical remoteness. Hence, 31.2% of youths from zone 4 eat fast food daily, versus 12.6% of youths from zone 1. A similar observation can be made with regards to soft drink and sweets consumption (Table 6).

Table 6: Proportion of First Nations youths who consume fast food, soft drinks and sweets daily, based on the geographic zone (N=3,661)

	Zone 1	Zone 2	Zone 3	Zone 4
Fast food*	12.6%	17.0%	20.8%	31.2%
Soft drinks	38.1%	40.0%	30.0%	35.2%
Sweets**	26.5%	18.9%	21.1%	31.0%

* p < 0.01

** p < 0.05

2.2.5 Junk food consumption among youths based on the nation

Innu (24.8%), Atikamekw (15.3%) and Algonquin (12.4%) youths are more likely to eat fast food daily. The Innus (44.6%), Hurons-Wendat (35.9%), Atikamekw (34.9%) and Naskapis (33.1%) consume more soft drinks, whereas the Abenakis (37.1%), Innus (32.8%) and Hurons-Wendat (32.4%) eat more sweets on a daily basis (Table 7).

Table 7: Proportion of First Nations youths who consume fast food, soft drinks and sweets daily, based on the nation (N=3,661)

	Nations							
	Atikamekw	Mi'gmaq	Mohawk	Innus	Naskapis	Abenakis	Algonquins	Hurons-Wendat
Fast food	15.3%	5.6%	6.3%	24.8%	6.4%	0.0%	12.4%	0.0%
Soft drinks	34.9%	30.8%	27.0%	44.6%	33.1%	25.8%	24.3%	35.9%
Sweets	21.8%	5.5%	6.3%	32.8%	27.2%	37.1%	25.5%	32.4%

3. TRADITIONAL FOOD CONSUMPTION

Canada's First Nations have a cultural, traditional and social relation with the land. Still today, a great number of communities rely on traditional foods for their sociocultural, economic and physical well-being (Assembly of First Nations, undated). The traditional food systems were mainly related to the lifestyle and comprised animal species captured in the wild (game, fish and birds) and vegetable species harvested in the natural environment (plants and berries). These hunting, fishing and gathering activities contributed, in particular, to the fitness, health, identity and cultural values of the First Nations. It is also recognized that the consumption of traditional foods provides a diet rich in proteins, calcium, iron, zinc, niacin and polyunsaturated fatty acids (omega-3) and low in saturated fatty acids (Assembly of First Nations, 2007).

The consumption of traditional foods in First Nations was also linked to the notion of territory and to the geographical location of the communities. Hence, traditionally, the First Nations peoples were eating the food that was present in their immediate environment. Their diet could then comprise, in greater or smaller proportions, meat, fish or agricultural products, varying according to the sedentary or nomadic lifestyle of these peoples (Aboriginal Affairs and Northern Development Canada, 2011).

Besides the historical factors that can influence the consumption of traditional foods, environmental factors such as urbanization, which can also hinder hunting, fishing and gathering, must also be taken into consideration.

The results of the survey, as they are presented in the following sections, illustrate these realities.

The results related to the traditional food consumption must however be interpreted with caution, since nothing allows us to confirm the source of the food eaten and thus, to know if it comes from traditional hunting, fishing or gathering activities.

3.1 Traditional food consumption among children

Among children, the traditional foods that seem most popular are land-based animals, such as moose, caribou, bear or deer (22.6% of children eat these foods often) as well as bannock and other types of fry bread (31.3% of children eat it often). According to the parents, other foods were never eaten by a great majority of children: salt water fish (67.2%), other water-based foods (82.6%), sea-based animals (98.4%), wild rice (72.4%) and corn soup (84.8%) (Table 8).

Table 8: Frequency of traditional food consumption among children (N=6,288)

	Never	Sometimes	Often	Refused	Total
Land-based animals	17.0%	59.7%	22.6%	0.7%	100.0%
Fresh water fish	35.5%	51.9%	11.8%	0.8%	100.0%
Salt water fish	67.2%	27.6%	4.4%	0.8%	100.0%
Other water-based foods	82.6%	14.0%	2.6%	0.8%	100.0%
Sea-based animals	98.4%	0.5%	0.3%	0.8%	100.0%
Game birds	48.5%	46.2%	4.6%	0.7%	100.0%
Small game	53.7%	40.8%	4.5%	1.0%	100.0%
Berries or other wild vegetation	29.3%	53.3%	16.2%	1.2%	100.0%
Bannock/Fry bread	11.3%	56.3%	31.3%	1.1%	100.0%
Wild rice	72.4%	23.0%	3.9%	0.7%	100.0%
Corn soup	84.8%	13.2%	1.2%	0.8%	100.0%

While a greater proportion of children ate some foods more regularly in 2008 (land-based animals, salt water fish, bannock and corn soup), others were more popular in 2002 (game birds, small game as well as berries or other wild vegetation) (Table 9).

Table 9: Proportion of children eating (sometimes or often) each of the traditional foods, in 2002 and in 2008

	2002	2008
Land-based animals	75.6%	82.2%
Fresh water fish	64.6%	63.7%
Salt water fish	25.8%	32.0%
Other water-based foods	16.4%	16.6%
Sea-based animals	0.5%	0.8%
Game birds	59.6%	50.8%
Small game	58.7%	45.3%
Berries or other wild vegetation	77.4%	69.5%
Bannock/Fry bread	81.3%	87.6%
Corn soup	10.8%	14.4%

3.1.1 Traditional food consumption among children based on the geographic zone

Depending on the geographic zone in which the child lives, the frequency of traditional food consumption varies. Therefore, we note that for most foods indicated, the children in zone 4 eat traditional foods more regularly than children from other zones. The largest differences are observed with regards to the consumption of fish and other water-based foods, game birds, berries and wild rice (Table 10).

Table 10: Proportion of children eating (sometimes or often) each of the traditional foods, based on the geographic zone (N=6,288)

	Zone1	Zone 2	Zone 3	Zone 4
Land-based animals*	69.9%	93.6%	92.9%	94.3%
Fresh water fish*	58.7%	78.9%	67.4%	72.6%
Salt water fish*	37.2%	18.9%	29.7%	43.4%
Other water-based foods*	20.2%	11.7%	8.6%	31.6%
Sea-based animals	0.9%	0.0%	1.1%	2.5%
Game birds*	33.1%	47.2%	83.5%	86.8%
Small game*	36.2%	57.7%	40.8%	54.9%
Berries or other wild vegetation*	68.4%	66.5%	73.8%	83.6%
Bannock/Fry bread*	78.3%	96.8%	92.1%	97.7%
Wild rice	28.6%	34.7%	23.7%	39.8%
Corn soup	14.8%	16.9%	19.0%	12.4%

*p < 0.01

3.1.2. Traditional food consumption in children based on the nation

Great variations in children's traditional food consumption are noted from one nation to another.

The Naskapi children are the ones who eat the most land-based animals (100%), fresh water fish (81.1%), game birds (81.1%) and bannock (100%). The Huron-Wendat children are more likely than children from other nations to eat salt water fish (82.2%), water-based foods (39.3%) and berries and wild vegetation (96.4%) (Table 11).

Table 11: Proportion of children eating (sometimes or often) each of the traditional foods, based on the nation (N=6,288)

	Nations							
	Atikamekw	Mi'gmaq	Mohawks	Innus	Naskapis	Abenakis	Algonquins	Hurons-Wendat
Land-based animals	95.5%	43.2%	38.2%	80.8%	100.0%	52.4%	87.9%	78.5%
Fresh water fish	77.5%	53.9%	35.3%	61.6%	81.8%	79.3%	53.0%	75.0%
Salt water fish*	15.1%	35.4%	10.5%	51.1%	19.2%	74.4%	9.4%	82.2%
Other water-based foods	6.4%	24.2%	24.8%	24.7%	5.4%	61.0%	6.1%	39.3%
Sea-based animals	0.0%	1.2%	0.0%	1.0%	0.0%	0.0%	1.5%	0.0%
Game birds*	63.6%	1.2%	3.7%	58.0%	81.8%	13.4%	43.6%	42.9%
Small game*	48.5%	2.8%	7.1%	54.0%	19.2%	12.2%	48.0%	42.9%
Berries or other wild vegetation	66.3%	30.4%	53.3%	74.6%	88.2%	86.6%	73.6%	96.4%
Bannock/Fry bread	96.0%	25.3%	64.4%	93.6%	100.0%	65.9%	93.2%	71.4%
Wild rice	26.3%	11.1%	46.4%	27.6%	48.3%	73.2%	20.6%	68.0%
Corn soup	14.7%	2.8%	57.3%	13.4%	24.7%	39.0%	11.7%	32.0%

*p < 0.01

3.2 Traditional food consumption among youths

Among youths, similar patterns as the ones about children can be observed. We note that the consumption of traditional foods among youths remains infrequent. Indeed, the only types of traditional foods that seem to be consumed "often" by a good portion of youths are bannock and other types of fry bread (29.9%), land-based animals (23.6%), berries and other wild vegetation (15.4%), fresh water fish (12%) and game birds (10.3%). However, some traditional foods are included in the diet of a large percentage of youths: sea-based animals (98.3%), water-based foods such as shellfish and eels (78.9%), corn soup (78.6%), salt water fish (70%) and wild rice (67.2%) (Table 12).

Table 12: Frequency of traditional food consumption in youths (N=3,661)

	Never	Sometimes	Often	Refused	Total
Land-based animals	18.4%	57.9%	23.6%	0.1%	100.0%
Fresh water fish	38.8%	48.5%	12.0%	0.7%	100.0%
Salt water fish	70.0%	24.0%	5.2%	0.8%	100.0%
Other water-based foods	78.9%	17.4%	2.9%	0.8%	100.0%
Sea-based animals	98.3%	1.0%	0.0%	0.7%	100.0%
Game birds	51.6%	37.5%	10.3%	0.6%	100.0%
Small game	55.7%	34.5%	9.2%	0.6%	100.0%
Berries or other wild vegetation	36.3%	47.1%	15.4%	1.2%	100.0%
Bannock/Fry bread	16.7%	52.2%	29.9%	1.2%	100.0%
Wild rice	67.2%	27.2%	4.8%	0.8%	100.0%
Corn soup	78.6%	16.7%	3.8%	0.9%	100.0%

Some traditional foods were consumed in higher proportions by youths in 2002 versus 2008 (land-based animals, fresh water fish, game birds, small game, berries and other wild vegetation, and corn soup) (Table 13).

Table 13: Proportion of youths eating (sometimes or often) each of the traditional foods, in 2002 and in 2008

	2002	2008
Land-based animals	87.0%	81.5%
Fresh water fish	66.2%	60.6%
Salt water fish	27.5%	29.2%
Other water-based foods	21.8%	20.3%
Sea-based animals	2.3%	1.0%
Game birds	68.2%	47.8%
Small game	63.4%	43.7%
Berries or other wild vegetation	77.8%	62.6%
Bannock/Fry bread	85.7%	82.1%
Corn soup	24.8%	20.5%

3.2.1 Traditional food consumption in youths based on the geographic zone

Youths from geographic zones 3 and 4 eat much more traditional foods than the ones from zones 1 and 2. The largest differences are observed with regards to the consumption of fresh and salt water fish, game birds, bannock and wild rice (Table 14).

Table 14: Proportion of youths eating (sometimes or often) each of the traditional foods, based on the geographic zone (N=3,661)

	Zone1	Zone 2	Zone 3	Zone 4
Land-based animals*	71.7%	96.2%	94.0%	91.2%
Fresh water fish*	51.7%	80.9%	72.6%	69.5%
Salt water fish**	30.2%	23.7%	41.4%	37.4%
Other water-based foods**	22.0%	13.4%	16.6%	33.1%
Sea-based animals*	1.3%	0.0%	0.0%	3.1%
Game birds*	33.4%	51.4%	81.6%	73.1%
Small game*	34.1%	59.6%	53.1%	53.3%
Berries or other wild vegetation*	62.8%	50.1%	67.1%	79.1%
Bannock/Fry bread*	70.8%	95.7%	90.0%	97.2%
Wild rice**	29.4%	27.3%	41.0%	42.9%
Corn soup**	17.1%	21.3%	34.1%	20.2%

* $p < 0.01$

** $p < 0.05$

3.2.2 Traditional food consumption in youths based on the nation

We also note differences from one nation to another (Table 15). As for the mentioned traditional foods as a whole, we see that the Atikamekw youths eat more land-based animals (97.7%), fresh water fish (78.2%) and small game (55.3%) than youths from other nations. For their part, the Mohawk youths eat corn soup more regularly (65.8%). Innus (30.9%) and Abenakis (29.9%) are proportionally the greatest consumers of water-based foods. As far as the Naskapis are concerned, the consumption of game birds (87.3%) and of bannock and other types of fry bread (100%) is higher than for the other nations. Finally, the Abenaki youths are many to eat berries and wild vegetation (92.8%) as well as wild rice (62.9%), and many Huron-Wendat youths eat salt water fish (72.4%).

Table 15: Proportion of youths eating (sometimes or often) each of the traditional foods, based on the nation (N=3,661)

	Nations							
	Atikamekw	Mi'gmaq	Mohawks	Innus	Naskapis	Abenakis	Algonquins	Hurons-Wendat
Land-based animals	97.7%	55.2%	39.6%	73.1%	86.6%	51.6%	88.8%	72.8%
Fresh water fish	78.2%	52.2%	45.9%	51.8%	59.9%	47.5%	62.6%	76.9%
Salt water fish*	20.9%	37.7%	32.4%	39.5%	13.4%	33.0%	9.2%	72.4%
Other water-based foods	7.6%	24.2%	27.0%	30.9%	12.7%	29.9%	10.5%	27.6%
Sea-based animals	0.0%	1.6%	0.0%	1.7%	0.0%	0.0%	1.0%	0.0%
Game birds*	64.1%	3.1%	0.0%	56.4%	87.3%	7.3%	39.7%	20.8%
Small game*	55.3%	7.1%	0.0%	49.1%	40.1%	0.0%	50.5%	16.7%
Berries or other wild vegetation*	46.3%	26.1%	52.2%	70.4%	86.6%	92.8%	74.6%	92.0%
Bannock/Fry bread	91.8%	21.8%	58.5%	90.8%	100.0%	44.4%	89.9%	40.1%
Wild rice*	25.0%	14.5%	59.5%	33.9%	60.5%	62.9%	33.0%	35.9%
Corn soup	22.8%	6.2%	65.8%	20.2%	20.4%	7.3%	14.4%	35.9%

3.3 Traditional food consumption among adults

Like First Nations children and youths, there are only a few foods considered traditional that adults eat regularly: land-based animals (moose, caribou, bear, etc.) (32.6%), bannock and other types of fry bread (30.6%) and fresh water fish (22.7%). In contrast, adults said that they never or hardly ever eat several other foods: sea-based animals such as whale and seal (96.8%), corn soup (69.1%), water-based foods such as shellfish, eels and clams (58.7%), wild rice (35.5%), salt water fish (46%), small game (43.9%) and game birds (42.1%) (Table 16).

Table 16: Frequency of traditional food consumption in adults (N=19,068)

	Never	Some-times	Often	Refused	Total
Land-based animals	12.0%	55.0%	32.6%	0.4%	100.0%
Fresh water fish	19.0%	57.6%	22.7%	0.7%	100.0%
Salt water fish	46.0%	41.1%	11.3%	1.6%	100.0%
Other water-based foods	58.7%	32.8%	7.2%	1.3%	100.0%
Sea-based animals	96.8%	2.1%	0.3%	0.8%	100.0%
Game birds	42.1%	44.9%	12.0%	1.0%	100.0%
Small game	43.9%	42.3%	12.6%	1.2%	100.0%
Berries or other wild vegetation	22.2%	56.4%	17.2%	4.2%	100.0%
Bannock/Fry bread	11.9%	52.3%	30.6%	5.2%	100.0%
Wild rice	53.5%	35.4%	6.0%	5.1%	100.0%
Corn soup	69.1%	23.5%	2.5%	4.9%	100.0%

The comparison of the data obtained in 2002 and in 2008 reveal that, if some traditional foods were consumed in larger proportions in 2002 (game birds, small game, berries and other vegetation) others are more popular in 2008 (land-based animals, salt water fish and corn soup) (Table 17).

Table 17: Proportion of adults eating (sometimes or often) each of the traditional foods, in 2002 and in 2008

	2002	2008
Land-based animals	84.1%	87.6%
Fresh water fish	81.6%	80.3%
Salt water fish	44.1%	52.4%
Other water-based foods	38.4%	40.0%
Sea-based animals	3.4%	2.4%
Game birds	68.0%	56.9%
Small game	63.5%	54.9%
Berries or other wild vegetation	82.8%	73.6%
Bannock/Fry bread	84.7%	83.0%
Corn soup	20.6%	26.0%

3.3.1 Traditional food consumption in adults based on the geographic zone

Adults who live in the geographic zones 3 and 4 eat traditional foods more often than do the ones from the other two zones (Table 18).

Table 18: Proportion of adults eating (sometimes or often) each of the traditional foods, based on the geographic zone (N=19,068)

	Zone 1	Zone 2	Zone 3	Zone 4
Land-based animals*	84.9%	96.1%	98.1%	98.3%
Fresh water fish*	76.9%	89.6%	92.5%	91.5%
Salt water fish*	53.6%	42.3%	55.7%	60.5%
Other water-based foods*	40.7%	33.0%	34.3%	61.6%
Sea-based animals	2.3%	1.8%	2.5%	6.7%
Game birds*	45.6%	66.5%	88.6%	97.2%
Small game*	48.7%	69.8%	76.4%	67.4%
Berries or other wild vegetation*	70.5%	74.0%	82.4%	88.4%
Bannock/Fry bread*	77.3%	91.0%	93.6%	92.8%
Wild rice*	38.4%	40.2%	48.1%	58.2%
Corn soup*	20.0%	30.5%	43.0%	24.7%

* p < 0.01

3.3.2 Traditional food consumption among adults based on the nation

Differences between nations with regards to the consumption of traditional foods by adults are statistically significant (p < 0.01), except for the consumption of sea-based animals (Table 19).

Table 19: Proportion of adults eating (sometimes or often) each of the traditional foods, based on the nation (N=19,068)

	Nations							
	Atikamekw	Mi'gmaq	Mohawks	Innus	Naskapis	Abenakis	Algonquins	Hurons-Wendat
Land-based animals*	98.7%	76.1%	27.5%	94.8%	92.4%	79.4%	88.5%	78.5%
Fresh water fish*	89.5%	76.1%	38.4%	85.7%	88.6%	73.7%	75.0%	79.3%
Salt water fish*	38.1%	69.1%	32.9%	67.6%	13.2%	59.7%	23.8%	87.5%
Other water-based foods*	22.3%	47.6%	30.9%	56.1%	37.9%	55.8%	15.1%	54.1%
Sea-based animals	1.3%	1.9%	0.0%	4.3%	0.0%	4.9%	0.8%	0.0%
Game birds*	80.0%	1.7%	5.9%	78.1%	100.0%	27.2%	37.7%	35.7%
Small game*	76.1%	10.9%	0.0%	74.6%	21.0%	24.9%	46.3%	25.0%
Berries or other wild vegetation*	72.9%	34.8%	50.5%	82.3%	77.8%	80.5%	77.5%	85.5%
Bannock/Fry bread*	94.2%	28.9%	80.7%	91.1%	77.8%	91.3%	88.4%	65.8%
Wild rice*	39.4%	18.2%	59.9%	45.7%	22.8%	60.9%	35.3%	60.8%
Corn soup*	32.5%	3.2%	67.4%	24.5%	21.8%	30.8%	15.5%	52.6%

* $p < 0.01$

3.4 Traditional food consumption based on the household income

Moreover, the regular consumption of traditional foods seems correlated with the household income. We note that children from households earning more than \$70,000 per year are often more likely to eat land-based animals, fresh water fish, salt water fish, other water based foods as well as berries and wild vegetation compared to children from households earning less than \$20,000 per year. For the latter, the consumption of bannock is more frequent. Similar observations were made for adults.

3.5 Sharing traditional foods

Like with the other aboriginal groups, the sharing of meals is part of the First Nations' traditions. The concept of sharing illustrates in particular the sense of responsibility towards the entire community. Besides preventing food waste, the sharing of foods from hunting, fishing and gathering strengthens social ties (Food Security Network, 2009).

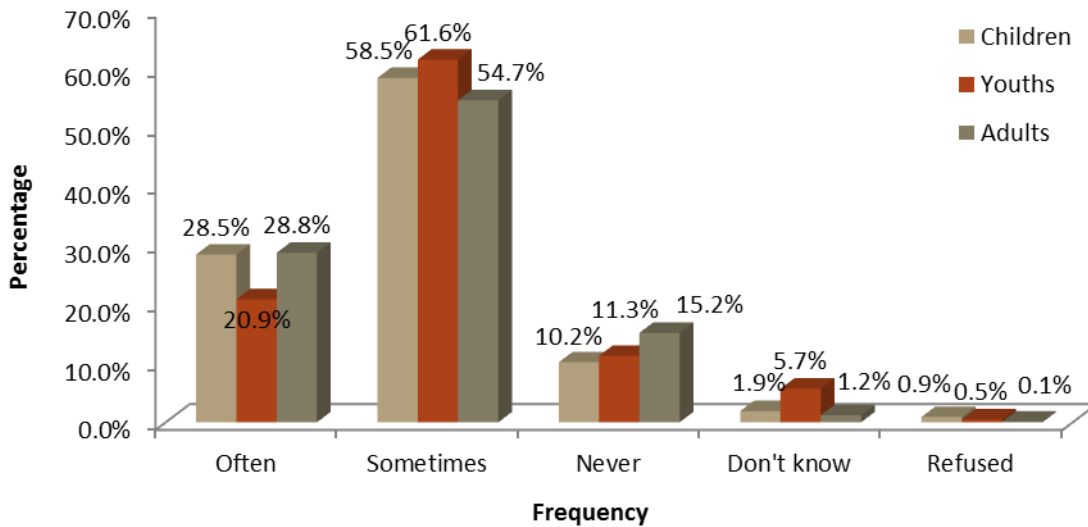
The data from the survey reveal that the sharing of traditional foods is declining among Quebec First Nations as, for most of the population, this practise is not frequent for their household (58.5% of children, 61.6% of youths and 54.7% of adults). However, the sharing of traditional foods often occurs in 28.5% of households with children, 20.9% of households with youths and 28.8% of adult households. It should be noted that in 15.2% of adult households, no one ever shares traditional



foods with members of the household. The data available on the sharing of traditional foods do not help us understand if this low proportion of people sharing foods between households is caused by the decline of this practise or by the fact that some households do not participate in traditional hunting, fishing and gathering activities any longer. However, a review of tables 18 and 20 leads us to believe that the zones where the consumption of traditional foods is the lowest are also the ones where the sharing of traditional foods is less common.

Only among the elderly do we see that the sharing of traditional foods with members of the household is frequent (27.5%), occasional (47.3%) or inexistent (25.2%).

Figure 17: Frequency of traditional food sharing with household members, among children (N=6,288), youths (N=3,661) and adults (N=19,068)



3.5.1 Sharing of traditional food consumption based on the geographic zone

Geographic isolation seems to influence food sharing between members of the community. Table 20 indeed shows that adults living in the geographical zones 2, 3 and 4 often live, in greater proportions, in a situation of traditional food sharing compared to adults living in zone 1.

Table 20: Traditional food sharing with household members – adults, based on the geographic zone (N=19,068)

	Zone 1	Zone 2	Zone 3	Zone 4
Often	23.8%	42.9%	43.2%	39.9%
Sometimes	57.8%	53.9%	47.8%	43.5%
Never	17.2%	2.3%	6.9%	16.6%
Don't know/Refused	1.2%	0.9%	2.1%	0.0%
Total	100.0%	100.0%	100.0%	100.0%

Comparable conclusions can be drawn with regards to traditional food sharing in households with youths and children. Hence, we note that traditional food sharing is more frequent in zones 3 and 4 than in zones 1 and 2.

3.5.2 Traditional food sharing based on the nation

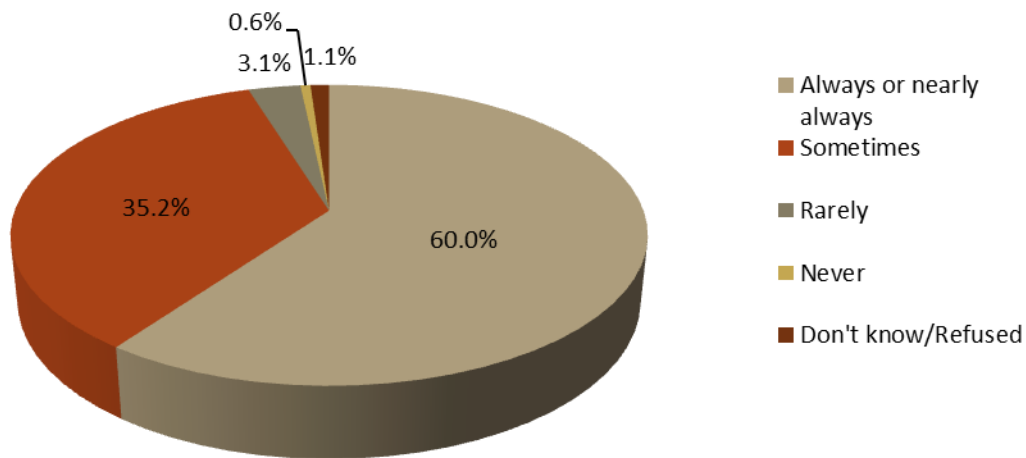
Based on the nations, traditional food sharing in adult households is more or less frequent. In the Naskapi and Atikamekw nations, traditional food sharing respectively occurs in 47.7% and 42.3% of adult households, and it occurs in only 5.8% of Mohawk adult households. It has been observed that 39.5% of Naskapi households with youths and 24.1% of Innu households with youths often experience traditional food sharing, whereas this practise never occurs in 44.4% of the Abenaki households with youths. As for children, it is also in the Naskapi households with children (47.3%) that traditional food sharing is most common, whereas this practise never occurs in almost half of Mohawk households with children.

4. PERCEPTIONS WITH REGARDS TO FOOD

4.1 Perception of the child's diet

Parents of children less than 12 years old consider in a proportion of 60% that their child's diet is always or almost always balanced, whereas 3.7% of parents believe that their child's diet is never or rarely balanced (Figure 18).

Figure 18: Parent's perception of a balanced diet for his child (N=6,288)



By comparison, during the survey conducted in 2002, 62.6% of parents had indicated that their child's diet was always or almost always balanced, and 3.7% had indicated that their child's diet was never or rarely balanced. These data reveal that there is no significant difference with regards to the perception of the child's diet between the 2002 and the 2008 surveys.

No significant difference was noted between the perception of parents with children aged 0 to 5 and that of parents with children aged 6 to 11 with regards to their child's diet. Thus, 63.3% of parents with children aged 0 to 5 consider that their child's diet is always or almost always balanced, whereas 58.4% of parents with children aged 6 to 11 perceive their child's diet the same way.

4.1.1 Perception of the child's diet based on household income

As for the way parents perceive their child's diet, based on their household income, we note that the higher the household income, the more favourable the parent's perception of his child's diet seems to be (however, these differences are not statistically significant ($p > 0.05$)). In households earning more than \$70,000, 74.3% of parents consider that their child's diet is always or almost always balanced, whereas 57% of parents from households earning less than \$20,000 gave the same answer (Table 21).

Table 21: Parents' perception that their child's diet is balanced, based on household income (N=6,288)

	Less than \$20,000	From \$20,000 to \$39,999	From \$40,000 to \$69,999	More than \$70,000
Always or nearly always	57.0%	60.8%	68.2%	74.3%
Sometimes	37.5%	34.8%	27.6%	23.2%
Rarely	3.1%	2.7%	4.2%	2.5%
Never	1.5%	0.0%	0.0%	0.0%
Don't know/Refused	0.9%	1.7%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%

4.1.2 Perception of the child's diet based on the nation

Differences were observed between the perceptions of parents, depending on the nation they belong to, with regards to the extent to which their child's diet is balanced. However, the collated data do not allow us to determine if these differences are statistically significant. The Hurons-Wendat (96.4%), Mohawks (86.1%), Mi'gmaq (82.2%) and Abenakis (80.5%) are the nations where a largest proportion of parents believe that their children always or nearly always have a balanced diet. In contrast, 49.9% of Atikamekw parents and 53.1% of Algonquin parents consider that their children always or nearly always have a balanced diet (Table 22).

Table 22: Parent's perception of a balanced diet for his child, based on the nation (N=6,288)

	Nations							
	Atikamekw	Mi'gmaq	Mohawks	Innus	Naskapis	Abenakis	Algonquins	Hurons-Wendat
Always or nearly always	49.4%	82.2%	86.1%	61.4%	60.1%	80.5%	53.1%	96.4%
Sometimes	43.5%	13.6%	13.9%	33.9%	34.5%	19.5%	43.2%	3.6%
Rarely	3.2%	4.2%	0.0%	3.5%	5.4%	0.0%	2.6%	0.0%
Never	0.8%	0.0%	0.0%	0.4%	0.0%	0.0%	1.1%	0.0%
Don't know/Refused	3.1%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

4.2 Perception of food by youths and adults

Most of youth and adult respondents believe that their diet is always, nearly always or sometimes balanced. Indeed, 27.6% of youths and 38.4% of adults feel that their diet is always or nearly always balanced, whereas 51.8% of youths and 46.8% of adults consider that their diet is sometimes balanced. In contrast, 16% of youths said that their diet is never or rarely balanced, and 10.9% of adults indicated the same thing (Figure 19 and Figure 20).

In comparison with the data obtained in the RHS 2002, youths and adults have a gloomier perception of their diet in 2008. Indeed, if 31% of youths and 43.4% of adults indicated in 2002 that their diet was always or nearly always balanced, 27.6% of youths and 38.4% of adults indicated the same in 2008 (Figure 19 and Figure 20).

Figure 19: Youths' perception that their diet is balanced, RHS 2002 and RHS 2008

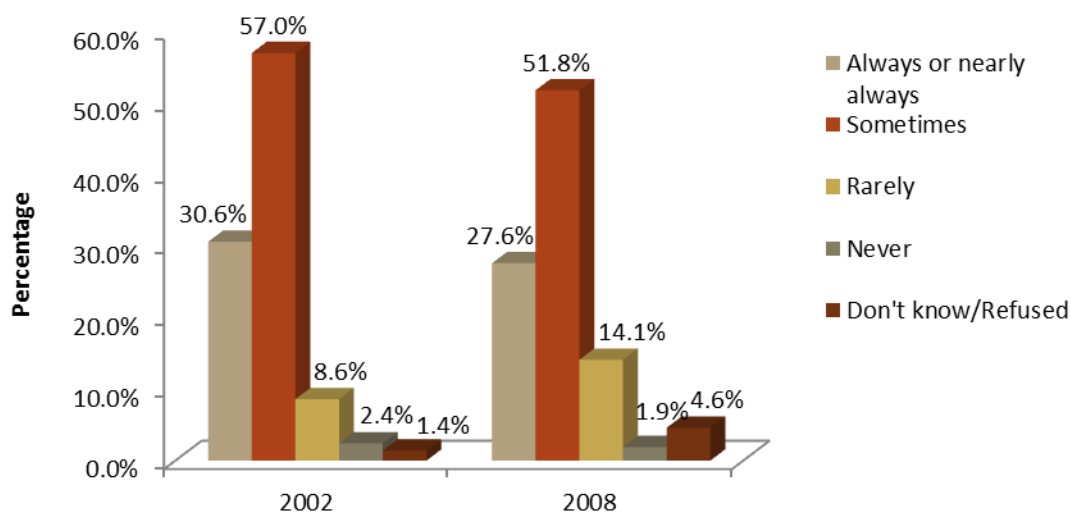
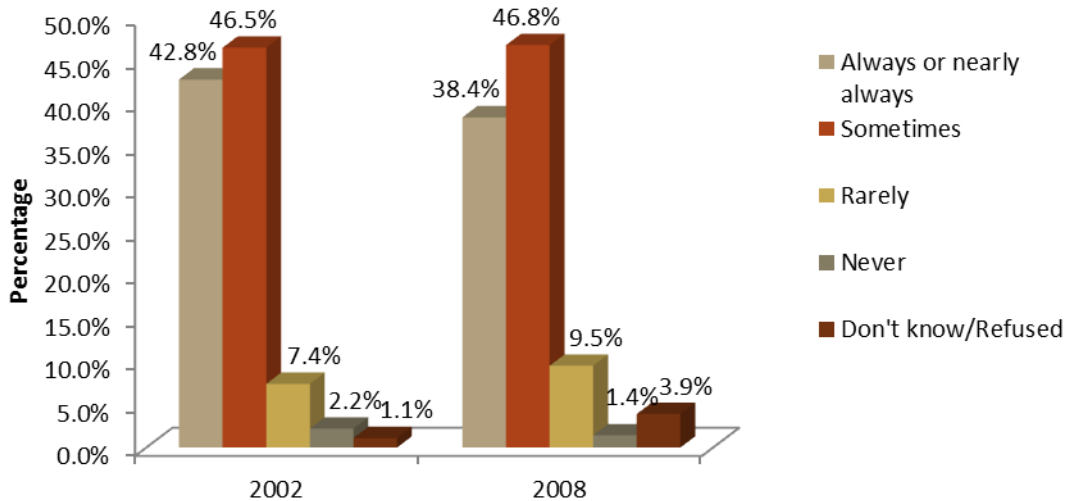


Figure 20: Adults' perception that their diet is balanced, RHS 2002 and RHS 2008



4.2.1 Perception of youths and adults diet based on the nation

Tables 23 and 24 show that adults' and youths' perception that their diet is balanced varies considerably from one nation to another. Thus, for both adults and youths, the highest proportions of individuals who believe their diet is always or nearly always balanced are observed in the Huron-Wendat, Mi'gmaq and Abenaki nations. However, 5.7% of adults from the Abenakis indicated that their diet is never balanced. The differences in the adults' perception between nations are statistically significant ($p < 0.01$).

Table 23: Adults' perception that their diet is balanced, based on the nation (N=19,068)

	Nations							
	Atikamekw	Mi'gmaq	Mohawks	Innus	Naskapis	Abenakis	Algonquins	Hurons-Wendat
Always or nearly always	33.2%	48.4%	25.5%	41.7%	34.1%	45.1%	26.0%	69.9%
Sometimes	48.7%	45.9%	64.8%	43.5%	24.6%	38.7%	56.4%	24.6%
Rarely	9.4%	5.1%	9.7%	10.0%	30.2%	10.5%	9.6%	5.5%
Never	2.0%	0.3%	0.0%	2.0%	0.0%	5.7%	1.0%	0.0%
Don't know/Refused	6.7%	0.3%	0.0%	2.8%	11.1%	0.0%	7.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 24: Youths' perception that their diet is balanced, based on the nation (N=3,661)

	Nations							
	Atikamekw	Mi'gmaq	Mohawks	Innus	Naskapis	Abénakis	Algonquins	Hurons-Wendat
Always or nearly always	22.8%	45.8%	32.4%	29.1%	32.5%	37.1%	17.3%	43.9%
Sometimes	56.7%	45.6%	54.1%	47.7%	33.7%	55.6%	60.8%	44.5%
Rarely	10.8%	5.6%	0.0%	16.9%	27.4%	7.3%	17.9%	7.7%
Never	2.7%	0.0%	0.0%	2.1%	0.0%	0.0%	2.3%	0.0%
Don't know/Refused	7.0%	3.0%	13.5%	4.2%	6.4%	0.0%	1.7%	3.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

4.2.2 Perception of food by youths, based on their satisfaction with their weight

The results obtained reveal that youths' perception of their diet being balanced is related to their satisfaction with regards to their weight. Thus, youths who are satisfied with their weights have a better perception of their diet than the ones who are not satisfied with their weight (Table 25).

Table 25: Perception of having a balanced diet based on satisfaction with regards to weight in youths (N=3,661)

Perception of having a balanced diet	Satisfaction with regards to weight		
	Satisfied*	Neither satisfied nor dissatisfied	Dissatisfied**
Always or nearly always	32.2%	24.7%	10.2%
Sometimes	52.8%	52.2%	57.6%
Rarely	10.1%	18.5%	26.4%
Never	1.7%	1.3%	2.7%
Don't know/Refused	3.2%	3.3%	3.1%
Total	100.0%	100.0%	100.0%

*The choices "Very satisfied" and "Somewhat satisfied" were combined.

**The choices "Very dissatisfied" and "Somewhat dissatisfied" were combined.

4.2.3 Perception of food by youths and adults, based on the perception of their overall health

Among youths, the perception of having a balanced diet also varies according to the perception of their overall health. Indeed, we note that youths who think their health condition is excellent have a better perception of their diet than those who think their health condition is fair or poor. On that point, we see that 37.2% of youths who think their health condition is bad consider that their diet is never balanced, whereas only 11% of youths who believe their health condition is excellence have the same perception of their diet.

Table 26: Perception of having a balanced diet based on perception of overall health, in youths (N=3,661)

Perception of having a balanced diet	Perception of health condition				
	Excellent	Very good	Good	Fair	Poor
Always or nearly always	38.2%	31.5%	17.2%	4.5%	0.0%
Sometimes	54.2%	53.7%	49.6%	38.5%	62.8%
Rarely	5.1%	10.0%	23.4%	39.9%	0.0%
Never	1.1%	0.0%	2.3%	12.6%	37.2%
Don't know/Refused	1.4%	4.8%	7.5%	4.5%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Among adults, a similar conclusion can be drawn. Table 27 shows that the better the perception of their health condition, the more adults consider that their diet is balanced. So, we notice that a large proportion of people who believe their health condition is excellent, think that their diet is always or nearly always balanced (55.8%). This proportion decreases as the perception of the health quality reduces, to reach 23.7% in people who think their health is poor (Table 27).

Table 27: Perception of having a balanced diet based on perception of overall health, among adults (N=19,068)

Perception of having a balanced diet	Perception of health condition				
	Excellent	Very good	Good	Fair	Poor
Always or nearly always	55.8%	37.7%	33.5%	34.0%	23.7%
Sometimes	33.0%	51.7%	51.8%	42.1%	36.3%
Rarely	5.9%	7.0%	8.9%	16.3%	36.9%
Never	0.6%	1.0%	1.2%	4.0%	0.0%
Don't know/Refused	4.7%	2.6%	4.6%	3.6%	3.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

5. BREASTFEEDING

Breastfeeding offers numerous known benefits for the child and mother. Among breastfed children, the risk of suffering from ear or respiratory infections, infantile eczema, gastroenteritis, necrotizing enterocolitis, type II diabetes and sudden infant death syndrome is reduced. As for breastfeeding mothers, they are less at risk of suffering from ovarian cancer and type II diabetes (Centers for Disease Control and Prevention, 2007).

According to the 2009 Canadian Community Health Survey, among mothers who gave birth during the five years before the survey, 87.5% had breastfed their baby, if only for a brief period (Statistics Canada, 2010). The data obtained from the Survey on Breastfeeding in Quebec reveal that in 2005-2006, 85.1% of babies had been breastfed at least during their stay in the hospital or at the birthing centre, and 46.7% of children had been breastfed during at least six months (Institut de la statistique du Québec, 2006).

The data from the RHS indicate that 35.4% of children under 11 had been or were being breastfed at the time of the survey. No significant difference was observed between the proportion of breastfed children in 2002 and 2008. This proportion reaches 35.5% in children aged 0 to 5 and 35.3% in children aged 6 to 11; hence, there is no major difference between these two age groups.

**Table 28: Proportion of breastfed children
(N=6,288)**

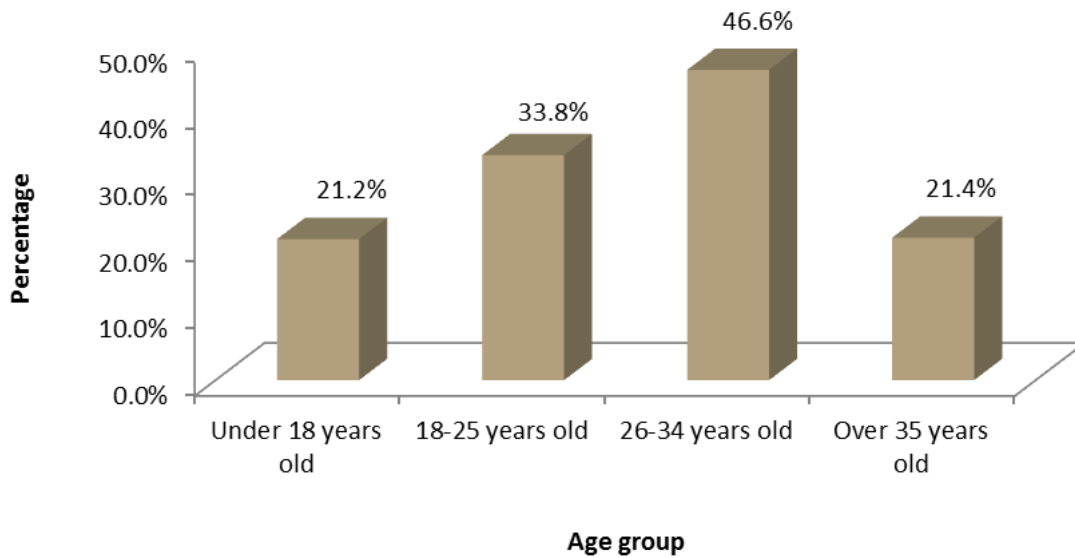
Breastfeeding	N	%
Yes	2,226	35.4
No	3,963	63.0
Don't know/Refused	99	1.6
Total	6,288	100.0

The data from the community survey reveal that a breastfeeding support group is established in nine communities out of the 21 who answered this question. However, this information must be interpreted with caution, since the community surveys were often filled out by only one respondent from the community and does not correspond to an official administrative census.

5.1 Breastfeeding based on the age of the mother

The mother's age seems to influence the choice to breastfeed or not her child. Thus, we notice that mothers aged 26 to 34 at the time their child was born are more likely to choose breastfeeding than younger or older mothers (Figure 21).

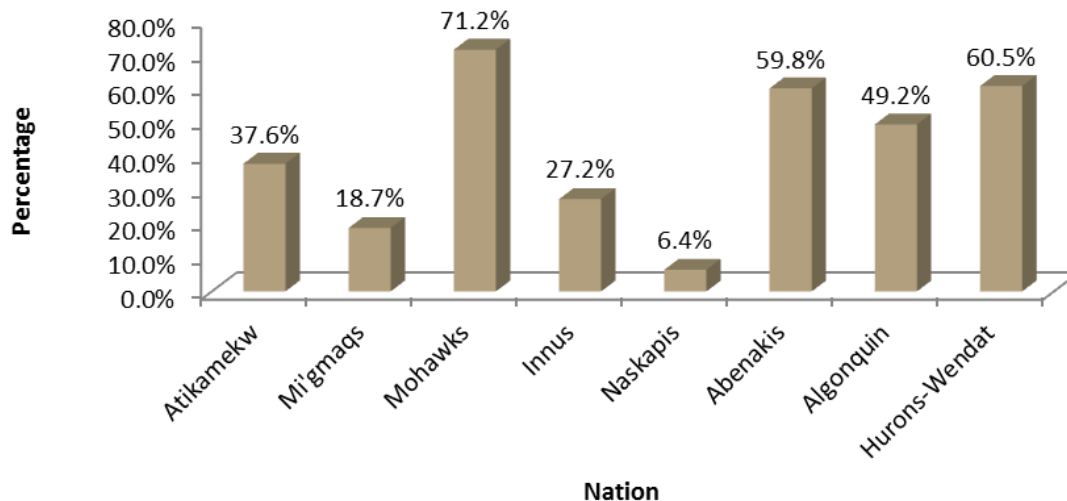
Figure 21: Proportion of breastfed children, based on the mother's age (N=4,585)



5.2 Breastfeeding based on the nation and geographic zone

Children from the Mohawk (71.2%), Huron-Wendat (60.5%) and Abenaki (59.8%) nations were breastfed in higher proportions. As for the Naskapis, only 6.4% of children were breastfed (Figure 22).

Figure 22: Proportion of breastfed children, based on the nation (N=6,288)

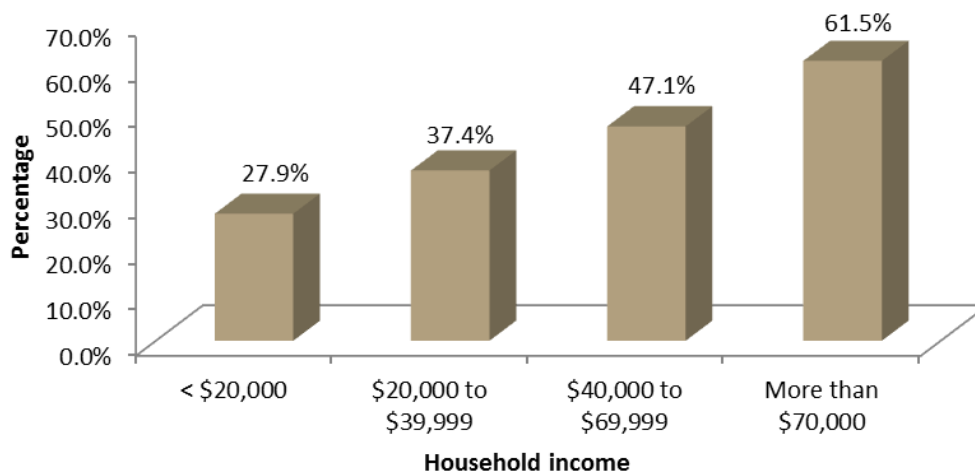


Similarly, the geographic zone in which the child lives also seems to influence the fact that the said child was breastfed or not. More children from zones 1 and 2 (respectively 43.2% and 47.4%) were breastfed than children from zones 3 and 4 (respectively 18.3% and 10.5%) ($p < 0.01$).

5.3 Breastfeeding based on household income

Household income also seems to be a factor that predicts the choice to breastfeed. The proportion of breastfed children increases with the household income ($p < 0.01$); 27.9% of children from households earning less than \$20 000 per year breastfed their child, and the same is true for 61.5% of children from households earning more than \$70 000 (Figure 23).

Figure 23: Proportion of breastfed children, based on household income (N=6,288)



5.4 Duration of breastfeeding


The last recommendations from the World Health Organization (WHO) strongly recommend exclusive breastfeeding for six months, followed by continuous breast feeding combined with the introduction of quality foods that are appropriate and adapted (Sguassero, 2008). The data obtained reveal that among breastfed children, 37.2% were breastfed for at least six months, whereas 62.8% were breastfed for less than six months.

The following table exposes the duration of breastfeeding in breastfed children. Table 29 thus shows that about one out of five children was breastfed for at least nine months, whereas only 8.3% of children were breastfed for over 12 months. If we take into account all First Nations children, 13.2% were breastfed at least six months, as recommended by the WHO.

Table 29: Duration of breastfeeding (N=2,226)*

Duration	N	%
At least 3 months	1 405	63.1
At least 6 months	829	37.2
At least 9 months	461	20.7
At least 12 months	270	12.1
More than 12 months	184	8.3

* Only in breastfed children



A meta-analysis conducted by Harder et al. (2005) states that numerous studies revealed that breastfeeding would also reduce the risk of childhood obesity. Moreover, this meta-analysis stresses the importance of the duration of breastfeeding for reducing the risk of suffering from excess weight.

The data obtained through this survey do not allow us to establish a relationship between the breastfeeding of First Nations children and childhood obesity. However, the high rate of obesity in children under 11 (see Part 3, Section 2.3) could in part be linked to the low proportion of children who were breastfed compared to the overall population of Quebec and Canada.

PART 2 – FOOD SECURITY

The notion of food security was defined in 1996 by the World Health Organization and the United Nations as having "physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (MSSS, 2008). Food security is thus based on the availability, stability, accessibility and use of food. Among First Nations, the concept of food security is also linked to that of access to local and cultural foods. According to the Assembly of First Nations (undated), traditional foods, and therefore the health and food security of its members, are threatened by different external disturbances: climate change, fragmentation of ecosystems and environmental contamination.

According to the information obtained in the questionnaires for adults, in the past 12 months, 11.2% of adults did not have enough to eat because they lacked the money to buy more food. Moreover, in 5.2% of households, it often occurred that the members could not afford to eat a balanced diet, whereas almost a third of adults answered that they are "sometimes" caught in this situation.

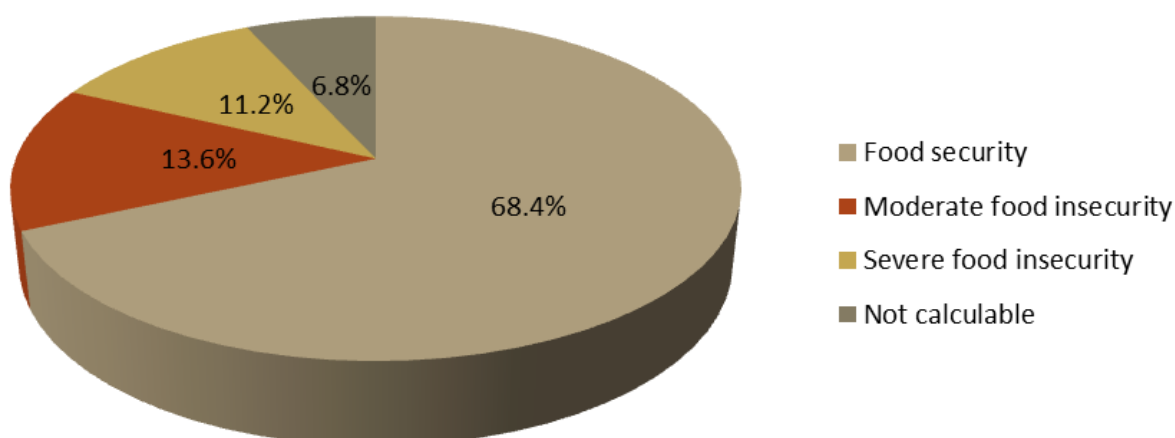
Among adults living in a household with one or more children, 2.1% of adults indicated that they often serve cheap and low diversified food to their children because they do not have enough money, whereas 13% of adults mentioned that they were sometimes caught in this situation.

1. FOOD SECURITY INDEX AMONG ADULTS

The food security index is a measure used to classify the level of food insecurity in households. It is divided in three categories: 1) food security, where there is little or no indication of difficulty to access foods because of the level of income; 2) moderate food insecurity, where there is an indication of compromise in quality and/or quantity of food consumed because of the household income level; and 3) severe food insecurity, where there is an indication of reduced food intake and disrupted eating patterns (Health Canada, 2007b).

The survey's data show that 68.4% of adults live in a household that is food secure, whereas 24.8% of households are suffering from moderate or severe food insecurity (Figure 24). In 2004, in Quebec, 91.9% of adults were food secure, whereas 8.1% were suffering from moderate (5.8%) or severe (2.3%) food insecurity (Institut national de santé publique du Québec, 2011).

Figure 24: Distribution of adults, based on the food security level of their household (N=19,068)

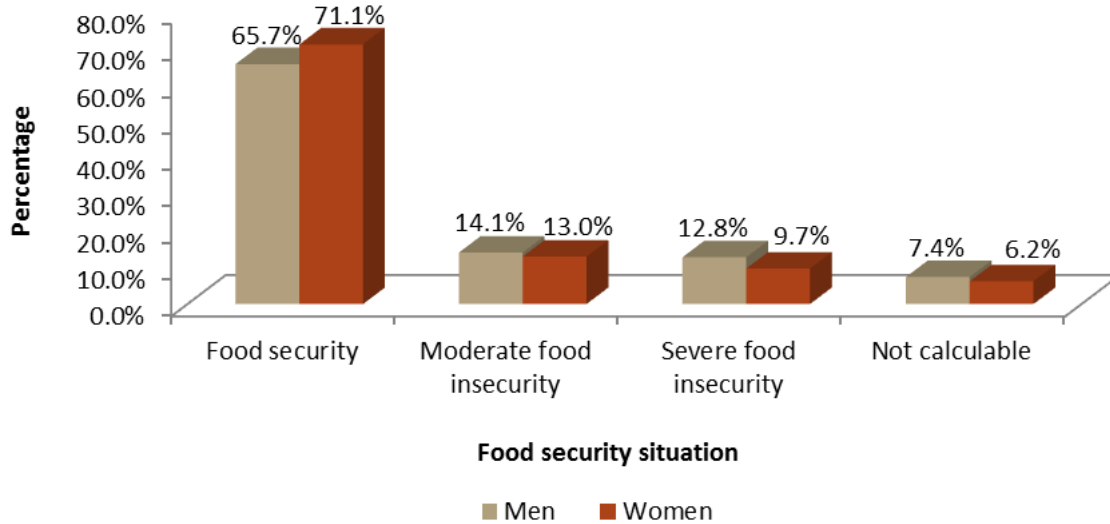


* The food security index includes a series of questions. A missing value for any of the questions asked to the respondent makes it impossible to calculate the food security index for this respondent.

1.1 Food security index in adults, based on sex

The food security index varies with the sex of the adults (however, the difference is not statistically significant at $p > 0.05$). Hence, more women than men are food secure (respectively 71.1% and 65.7%). Also, more men (12.8%) than women (9.7%) are severely food insecure (Figure 25).

Figure 25: Adult food security situation, based on sex (N=19,068)



1.2 Food security index in adults, based on age

We note that food insecurity varies inversely with age ($p < 0.05$); compared to individuals aged 18 to 54, a larger proportion of individuals aged 55 and over are food secure. Similarly, 31.1% of adults aged 25 to 34 suffer from moderate or severe food insecurity, whereas 18% of individuals aged 65 and over are in the same situation (Table 30).

Table 30: Adult food security situation, based on age (N=19,068)

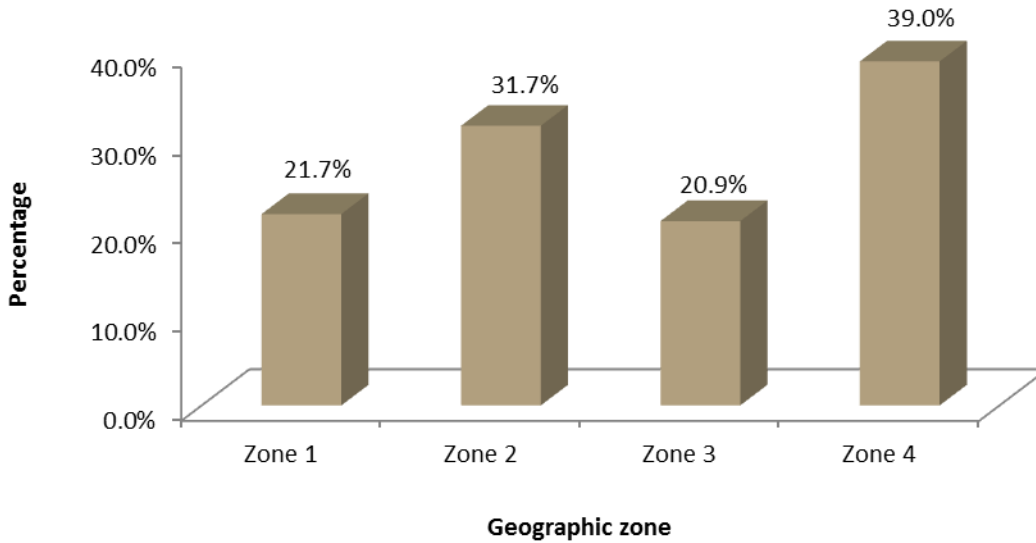
	Age group					
	18-24 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65 years old and up
Food security	61.0%	60.2%	68.9%	73.4%	76.1%	76.2%
Moderate food insecurity	14.6%	18.5%	11.8%	13.0%	11.9%	8.9%
Severe food insecurity	11.0%	12.6%	13.6%	10.1%	9.0%	9.1%
Not calculable*	13.4%	8.7%	5.7%	3.5%	3.0%	5.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

* The food security index includes a series of questions. A missing value for any of the questions asked to the respondent makes it impossible to calculate the food security index for this respondent .

1.3 Food security index in adults, based on geographic zone

Depending on the geographic zone of residence, we see a difference in the proportion of adults who are moderately or severely food insecure ($p < 0.01$). The proportion of adults suffering from food insecurity is higher in zone 4 (39%) than in the other geographical regions (Figure 26).

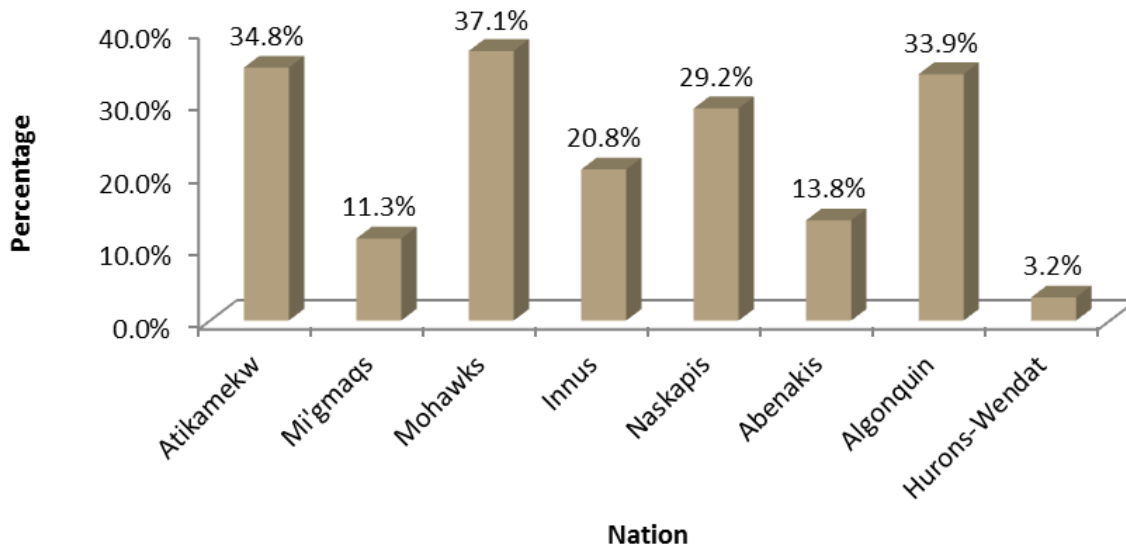
Figure 26: Proportion of adults who are moderately or severely food insecure, based on the geographic zone (N=19,068)



1.4 Food security index in adults, based on nation

Adults from the Mohawk (37.1%), Atikamekw (34.8%) and Algonquin (33.9%) nations are most likely to be moderately or severely food insecure, whereas only 3.2% of Huron-Wendat adults live in such a situation (statistically significant difference at $p < 0.01$) (Figure 27).

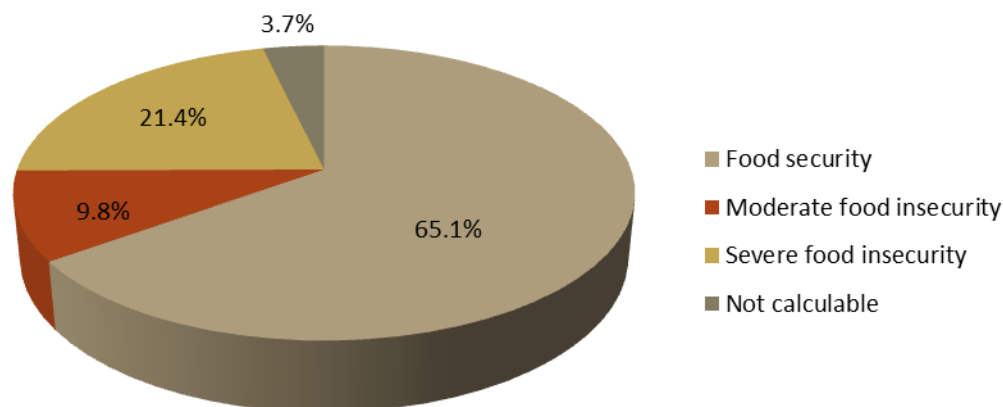
Figure 27: Proportion of adults who are moderately or severely food insecure, based on the nation (N=19,068)



2. FOOD SECURITY INDEX IN CHILDREN

The food security index of children is based on the food security index of adults living in a household with one or more children. The data obtained show that 65.1% of adults living in a household with children were food secure whereas 31.2% of households with children are suffering from moderate or severe food insecurity (Figure 28).

Figure 28 : Distribution of adults living with children, based on the food security level of their household (N=10,707)



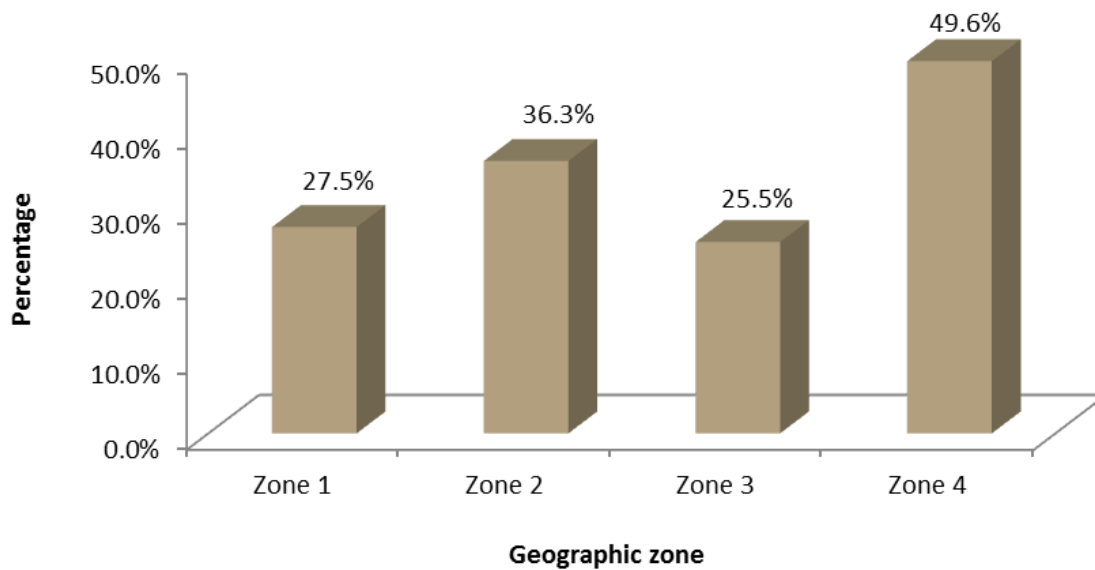
* The food security index includes a series of questions. A missing value for any of the questions asked to the respondent makes it impossible to calculate the food security index for this respondent.

If we compare the food security index of adults with that of children, we see a larger proportion of adults living with children (21.4%) who suffer from severe food insecurity versus adults who do not live with children (11.2%).

2.1 Food security index in children, based on geographic zone

Almost half (49.6%) of adults living with children in zone 4 are moderately or severely food insecure; this proportion is nearly twice as high as the proportion observed in zones 1 and 3 (Figure 29). The differences noted between the geographic zones are statistically significant ($p < 0.01$).

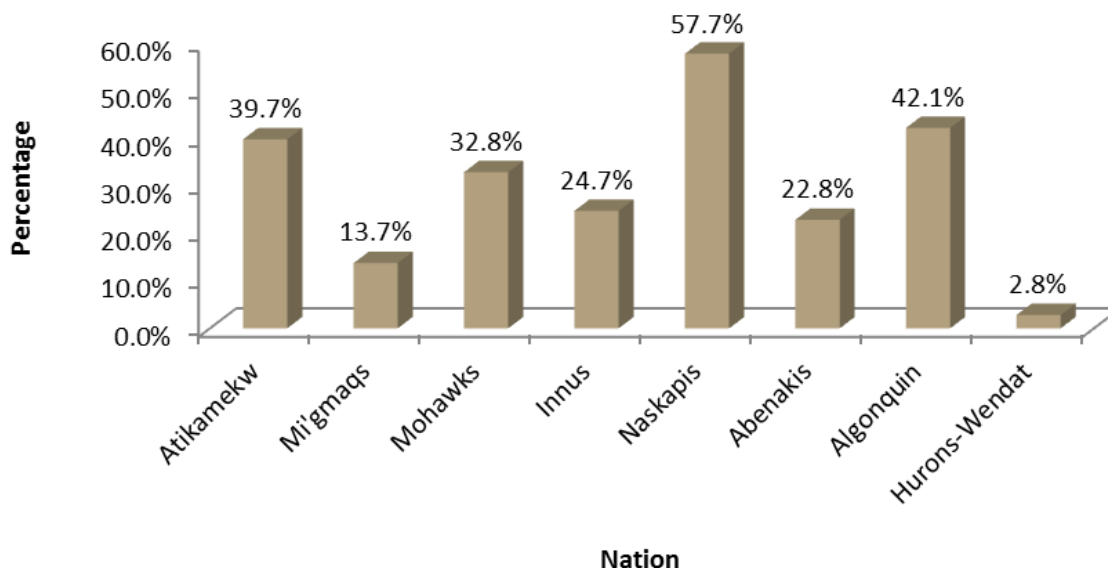
Figure 29: Proportion of adults living with children who are moderately or severely food insecure, based on the geographic zone (N=10,828)



2.2 Food security index in children, based on nation

Adults living with children from the Naskapi (57.7%), Algonquin (42.1%), Atikamekw (39.7%) and Mohawk (32.8%) nations are more likely to suffer from moderate or severe food insecurity. In contrast, 2.8% of Hurons-Wendat are moderately or severely food insecure (significant difference at $p < 0.01$) (Figure 30).

Figure 30: Proportion of adults living with children who are moderately or severely food insecure, based on the nation (N=10,707)



PART 3 – HEIGHT, WEIGHT AND BODY MASS INDEX

1. HEIGHT AND WEIGHT

The following tables (31, 32 and 33) show the average height and weight as well as medians for First Nations children, youths and adults. These tables indicate that, among children, there are few significant differences between the two sexes. In youths and adults, men respondents are taller and heavier than their women counterparts.

Table 31: Children average height and weight, and medians, based on sex

	Boys		Girls	
	Average	Median	Average	Median
Height (cm)	119.6	121.0	121.1	121.0
Weight (kg)	30.5	27.0	30.7	27.0

Table 32: Youths average height and weight, and medians, based on sex

	Boys		Girls	
	Average	Median	Average	Median
Height (cm)	171.1	172.0	164.1	165.0
Weight (kg)	68.7	65.0	63.8	61.0

Table 33: Adults average height and weight, and medians, based on sex

	Men		Women	
	Average	Median	Average	Median
Height (cm)	175.2	175.0	162.7	162.0
Weight (kg)	90.0	86.0	78.7	76.0

2. BODY MASS INDEX

The body mass index (BMI) is an indicator of health risks associated with being overweight or underweight. Its calculation takes into account the individual's height and weight (Health Canada, 2003). However, for children and youth, besides height and weight, the calculation also takes into account age and sex. For the BMI of children and youths, the Cole et al. (2000) calculation method was used.

2.1 Adult body mass index

According to the data obtained for adults (with the exception of pregnant women), the BMI indicates that 26.3% of adults have a normal weight or are underweight, 33.1% are overweight and 40.6% suffer from various degrees of obesity (Figure 31).

We also note that the BMI of 6.1% of adults indicate a class III obesity directly related to extremely high risks of developing health problems (Health Canada, 2003) (Table 34).

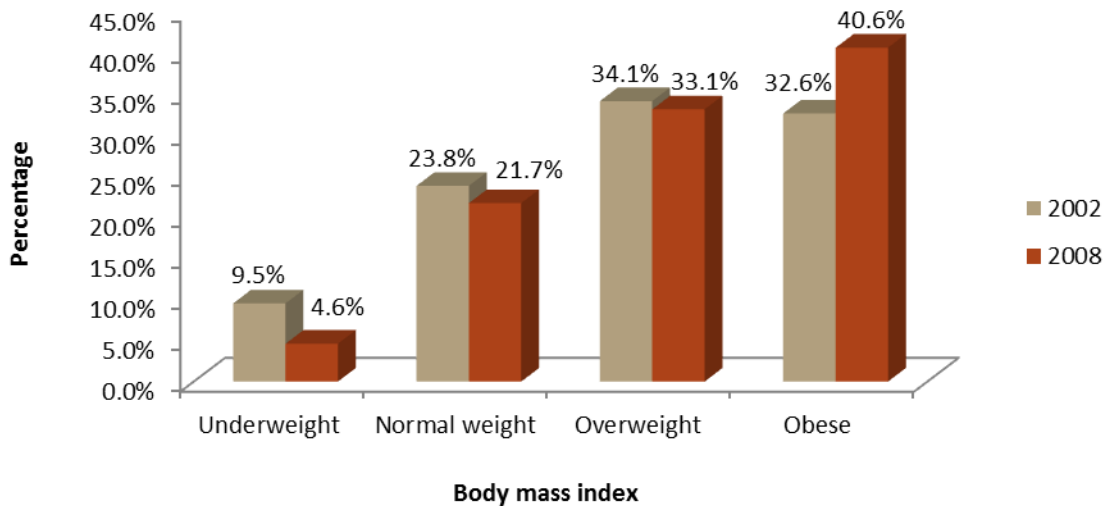
Table 34: Adult body mass index (N=18,321)

BMI	N	%
BMI < 18.5 (Underweight - Increased risk of developing health problems)	844	4.6
BMI between 18.5 and 24.9 (Normal weight - Least risk of developing health problems)	3 972	21.7
BMI between 25 and 29.9 (Overweight - Increased risk of developing health problems)	6 053	33.1
BMI between 30 and 34.9 (Obese class I - High risk)	4 622	25.2
BMI between 35 and 39.9 (Obese class II - Very high risk)	1 705	9.3
BMI ≥ 40 (Obese class III - Extremely high risk)	1 125	6.1
Total	18,321	100.0

* According to the Canadian Guidelines for Body Weight Classification in Adults (2003)

The data obtained in the RHS 2002 indicated that 32.6% of adults were obese and that 34.1% of adults were overweight. We note that, whereas the proportion of overweight adults has remained roughly the same, the proportion of obese adults has increased by 8% ($p < 0.01$).

Figure 31 : Adult body mass index, RHS 2002 (N=16,408) and RHS 2008 (N=18,321)



2.1.1 Adult body mass index, based on sex

The difference in adult BMI based on sex is statistically significant ($p < 0.01$). It has been observed that more women than men have a normal weight. However, if more men are moderately obese (class I), women are more likely to suffer from class II and class III obesity (Table 35).

Table 35: Adult body mass index, based on sex (N=18,321)

BMI	Men		Women	
	N	%	N	%
BMI < 18,5 (Underweight)	316	3.4	528	5.9
BMI between 18.5 and 24.9 (Normal weight)	1,888	20.2	2,085	23.2
BMI between 25.0 and 29.9 (Overweight or excess weight)	3,232	34.6	2,821	31.5
BMI between 30 and 34.9 (Obese class I)	2,815	30.1	1,807	20.2
BMI between 35 and 39.9 (Obese class II)	650	7.0	1,055	11.8
BMI \geq 40 (Obese class III)	451	4.8	673	7.5
Total	9,352	100.0	8,969	100.0

2.1.2 Adult body mass index, based on geographic zone

Adult BMI also varies according to the geographic zones (significant difference at $p < 0.01$). We notice as well that individuals' BMI is proportional to the geographic isolation of the communities; 35.1% of adults from zone 1 suffer from obesity, whereas 56.5% of adults from zone 4 have a substantial excess weight (Table 36).

Table 36: Adult body mass index, based on zone (N=18,389)

BMI	Zone 1	Zone 2	Zone 3	Zone 4
BMI < 18,5 (Underweight)	3.7%	5.6%	8.9%	4.6%
BMI between 18.5 and 24.9 (Normal weight)	25.5%	15.1%	12.2%	17.0%
BMI between 25.0 and 29.9 (Overweight or excess weight)	35.7%	33.5%	30.6%	21.9%
BMI between 30 and 34.9 (Obese class I)	23.1%	26.9%	25.2%	30.9%
BMI between 35 and 39.9 (Obese class II)	8.3%	8.7%	12.5%	13.9%
BMI \geq 40 (Obese class III)	3.7%	10.2%	10.6%	11.7%
Total	100.0%	100.0%	100.0%	100.0%

2.1.3 Adult body mass index, based on household income

A correlation can also be made between adults BMI and their household income ($p < 0.01$). We indeed see that more adults living in a household earning less than \$20,000 (26.6%) have a BMI indicating a normal weight than adults living in a household earning over \$70,000 (11%). As for obesity (three classes combined), the higher the adult's household income, the larger the population of obese individuals (Table 37).

Table 37: Adult body mass index, based on household income (N=18,321)

BMI	Household income			
	Less than \$20,000	From \$20,000 to \$39,999	From \$40,000 to \$69,999	Over \$70,000
BMI < 18.5 (Underweight)	4.0%	4.3%	8.2%	1.3%
BMI between 18.5 and 24.9 (Normal weight)	26.6%	21.6%	18.1%	11.0%
BMI between 25.0 and 29.9 (Overweight or excess weight)	31.9%	35.9%	33.2%	31.2%
BMI between 30 and 34.9 (Obese class I)	19.6%	24.6%	27.0%	36.3%
BMI between 35 and 39.9 (Obese class II)	10.5%	9.1%	8.1%	11.1%
BMI ≥ 40 (Obese class III)	7.4%	4.6%	5.4%	9.1%
Total	100.0%	100.0%	100.0%	100.0%

2.1.4 Adult body mass index, based on nation

Adult BMI also varies according to the nation (significant difference at $p < 0.01$). We find in both the Huron-Wendat (30.9%) and Mi'gmaq (30.9%) nations the largest proportions of adults with a normal weight. In contrast, the largest proportions of obese (three classes combined) individuals are observed in the Naskapi (63.5%), Abenaki (48.8%), Innu (47.2%), Mohawk (42.1%) and Algonquin (41.5%) nations. It should be noted that in the Naskapi nation, 25.6% of adults have a BMI indicating class III obesity (Table 38).

Table 38: Adult body mass index, based on nation (N=18,321)

BMI	Nations							
	Atikamekw	Mi'gmaq	Mohawks	Innus	Naskapis	Abenakis	Algonquins	Hurons-Wendat
Underweight	6.6%	0.9%	2.0%	5.4%	1.7%	10.9%	2.3%	9.7%
Normal weight	17.9%	30.9%	18.0%	21.1%	16.2%	5.7%	21.8%	30.9%
Overweight	36.4%	52.0%	37.9%	26.3%	18.6%	34.6%	34.4%	33.9%
Obese class I	26.5%	12.6%	28.0%	27.2%	32.0%	28.5%	26.3%	18.8%
Obese class II	6.9%	3.3%	10.5%	12.5%	5.9%	4.9%	8.8%	6.7%
Obese class III	5.7%	0.3%	3.6%	7.5%	25.6%	15.4%	6.4%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

2.1.5 Adult body mass index, based on age

Finally, the variation of the BMI based on age indicates that excess weight increases progressively with age, going from 30.5% for the 18-34 age group to 41.3% for the 65 and over age group. Moreover, class I and class II obesity is most likely to affect adults of the 35-54 and 55-64 age groups, whereas class III obesity is more frequent in the 18-34 age group (however, these differences are not statistically significant if all BMI categories are taken into account) (Table 39).

Table 39: Adult body mass index, based on age (N=18,321)

BMI	18-34 years old	35-54 years old	55-64 years old	65 years old and up
BMI < 18.5 (Underweight)	5.8%	3.8%	3.4%	5.5%
BMI between 18.5 and 24.9 (Normal weight)	25.5%	20.8%	15.5%	19.7%
BMI between 25.0 and 29.9 (Overweight or excess weight)	30.5%	31.7%	38.5%	41.3%
BMI between 30 and 34.9 (Obese class I)	22.1%	28.4%	26.6%	20.1%
BMI between 35 and 39.9 (Obese class II)	8.4%	9.6%	11.2%	8.8%
BMI ≥ 40 (Obese class III)	7.7%	5.6%	4.8%	4.7%
Total	100.0%	100.0%	100.0%	100.0%

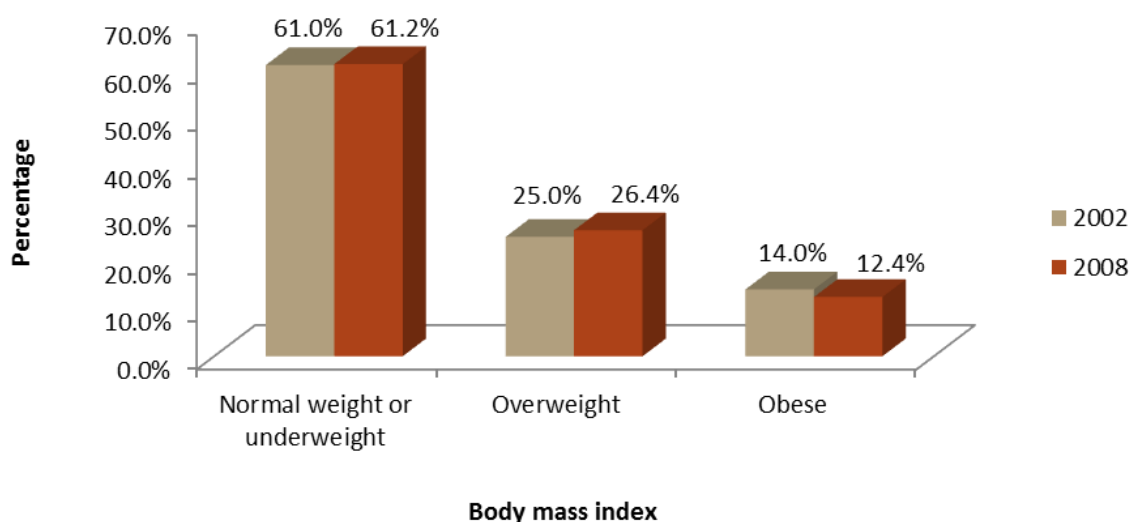
2.2 Youth body mass index

As mentioned previously, the calculation of the BMI in youths takes into account age and sex. Three categories of BMI are established: one BMI indicating obesity, one BMI indicating an excess weight and one category for normal weight or insufficient weight.

The data obtained from youths of the 12-17 age group reveal that 61.2% have a normal weight or are underweight, 26.4% are overweight and 12.4% are obese (Figure 32).

In 2002, the data collected indicated that 25% of youths were overweight and 14% were obese (Figure 32). No significant difference was observed between the BMI of youths in 2002 and 2008.

Figure 32: Youth body mass index, RHS 2002 (N=2,174) and RHS 2008 (N=3,312)



2.2.1 Youth body mass index, based on sex

According to the data, 11.6% of boys and 13.4% of girls aged 12 to 17 have a BMI indicating the presence of obesity. Furthermore, 29.4% of boys and 23.1% of girls are overweight (Table 40).

Table 40: Youth body mass index, based on sex (N=3,312)

BMI	Boys		Girls	
	N	%	N	%
Obese	201	11.6	211	13.4
Overweight	511	29.4	363	23.1
Normal weight or underweight	1,025	59.0	1,001	63.5
Total	1,737	100.0	1,575	100.0

2.2.2 Youth body mass index, based on geographic zone

Youths' BMI also varies depending on their geographic zone of residence. Youths living in zone 4 are more likely to suffer from obesity and excess weight than youths from the other three zones (Table 41).

Table 41: Youth body mass index, based on zone (N=3,336)

BMI	Zone 1	Zone 2	Zone 3	Zone 4
Obese	11.0%	16.0%	12.0%	20.6%
Overweight	23.7%	25.6%	23.5%	38.8%
Normal weight or underweight	65.3%	58.4%	64.5%	40.6%
Total	100.0%	100.0%	100.0%	100.0%

2.2.3 Youth body mass index, based on nation

According to the nation, the BMI of youths varies greatly. Whereas in the Mohawk and Abenaki nations the proportion of individuals aged 12 to 17 who are obese seems inexistent, we find that 17% of Innu youths and 14% of Naskapi youths suffer from obesity. The percentage of overweight individuals also varies from 22.9 (Innus) to 49.5% (Abenakis). The BMI of youths based on the nation to which they belong is not statistically significant ($p > 0.05$) (Table 42).

Table 42: Youth body mass index, based on nation (N=3,312)

BMI	Nations							
	Atikamekw	Mi'gmaq	Mohawks	Innus	Naskapis	Abenakis	Algonquins	Hurons-Wendat
Obese	8.7%	8.8%	0.0%	17.0%	14.0%	0.0%	12.7%	8.0%
Overweight	25.7%	19.9%	37.5%	22.9%	39.5%	49.5%	31.8%	28.5%
Normal weight or underweight	65.6%	71.3%	62.5%	60.1%	46.5%	50.5%	55.5%	63.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

2.2.4 Youth body mass index, based on age

Youths aged 12 to 14 and 15 to 17 have comparable BMI values; no significant difference was observed (Table 43).

Table 43: Youth body mass index, based on age (N=3,312)

BMI	12-14 years	15-17 years
Obese	10.9%	13.4%
Overweight	25.6%	26.9%
Normal weight or underweight	63.5%	59.7%
Total	100.0%	100.0%

2.3 Children body mass index

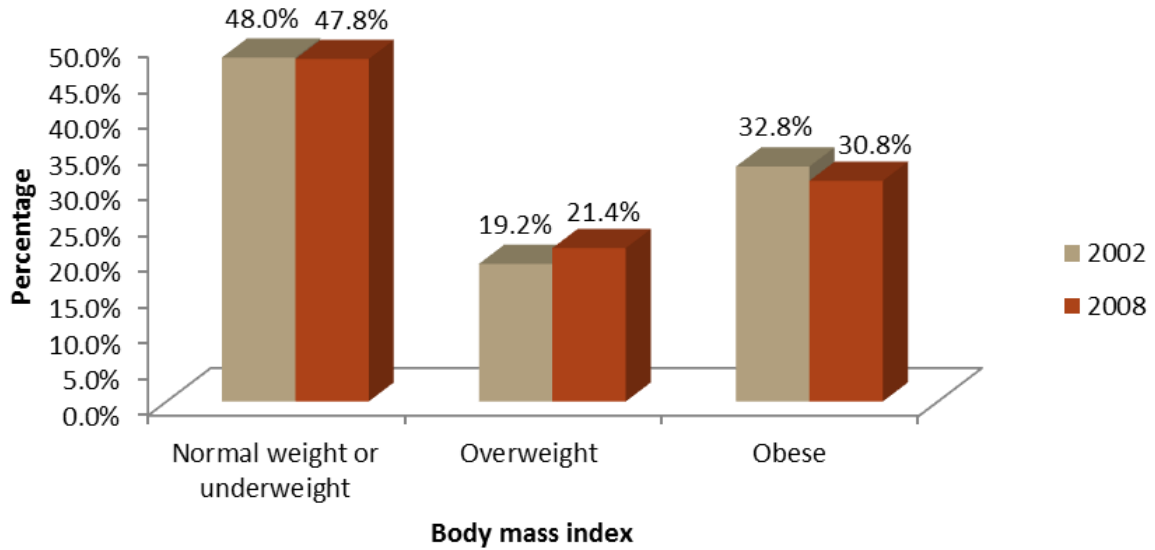
Excess weight in First Nations children is related to multiple factors, both individual (high fat and high sugar foods, insufficient physical activity, time spent in front of the TV or computer) and environmental (access to healthy and varied foods that are affordable) (Willows, 2005; Willows et al., 2012).

As for youths, the BMI of children is calculated according to the age and sex of individuals and is divided into three categories: obesity, excess weight and normal or insufficient weight. One cannot calculate the BMI of children under 2 years old.

The data obtained from children of the 2-11 age group reveal that 47.8% have a normal weight or are underweight, 21.4% are overweight and 30.8% are obese (Figure 33).

In 2002, 19.2% of children were overweight and 32.8% were obese (Figure 33). No significant difference was observed between the BMI of children in 2002 and 2008.

Figure 33: Children body mass index, RHS 2002 (N=1,113) and RHS 2008 (N=5,432)



2.3.1 Children body mass index, based on sex

No major difference was observed between the BMI of boys and girls aged 11 or under (Table 44).

Table 44: Children body mass index, based on sex (N=5,432)

BMI	Boys		Girls	
	N	%	N	%
Obese	866	30.5	806	31.1
Overweight	597	21.0	566	21.8
Normal weight or underweight	1,378	48.5	1,219	47.1
Total	2,841	100.0	2,591	100.0

2.3.2 Children body mass index, based on geographic zone

Children living in the geographic zone 3 (42.6%) and 4 (38.6%) are more likely to have a BMI indicating obesity, whereas the children from zone 1 (53.7%) have a normal weight or are underweight (Table 45).

Table 45: Children body mass index, based on zone (N=5,494)

BMI	Zone 1	Zone 2	Zone 3	Zone 4
Obese	25.7%	36.4%	42.6%	38.6%
Overweight	20.6%	26.0%	12.7%	27.0%
Normal weight or underweight	53.7%	37.6%	44.7%	34.4%
Total	100.0%	100.0%	100.0%	100.0%

2.3.3 Children body mass index, based on nation

Significant differences were observed between the children's BMI based on the nations. Hence, if 39.9% of the Naskapi children and 39.7% of the Atikamekw children have a BMI indicating obesity, only 7.4% of the Huron-Wendat children and 8.3% of the Abenakis children have the same BMI (Table 46).

Table 46: Children body mass index, based on nation (N=5,432)

IMC	Nations							
	Atikamekw	Mi'gmaq	Mohawk	Innus	Naskapis	Abénakis	Algonquins	Hurons-Wendat
Obese	39.7%	23.4%	28.5%	34.2%	39.9%	8.3%	20.3%	7.4%
Overweight	22.1%	21.7%	7.1%	19.8%	42.9%	15.3%	22.4%	26.0%
Normal weight or underweight	38.2%	54.9%	64.4%	46.0%	17.2%	76.4%	57.3%	66.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

2.3.4 Children body mass index, based on age

The study of the body mass index of children based on their age reveals that more children aged 2 to 5 are obese (35.0% vs. 28.7%), whereas more children aged 6 to 11 are overweight (25.7% vs. 13.0%) ($p < 0.01$) (Table 47).

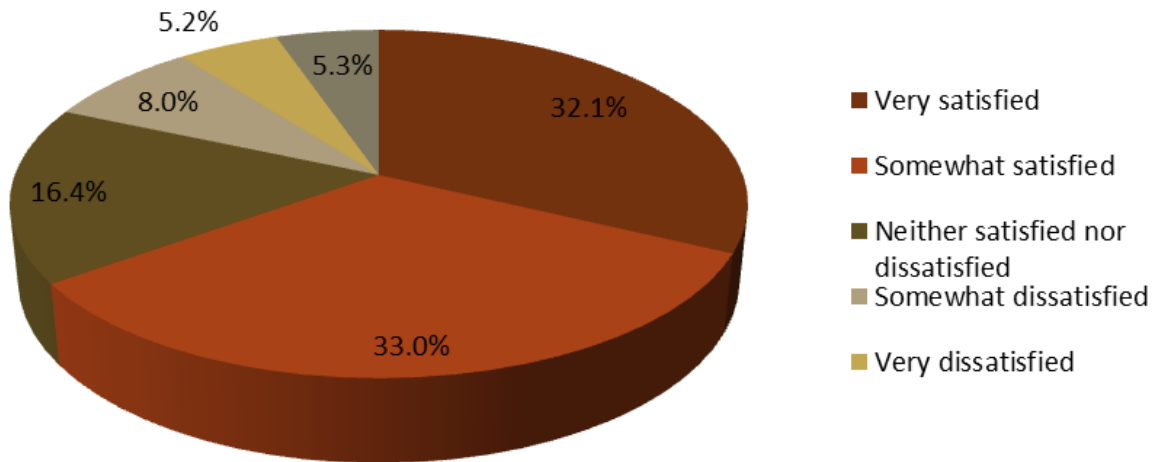
Table 47: Children body mass index, based on age (N=5,432)

BMI	2-5 years old	6-11 years old
Obese	35.0%	28.7%
Overweight	13.0%	25.7%
Normal weight or underweight	52.0%	45.6%
Total	100.0%	100.0%

3. YOUTHS' PERCEPTION OF THEIR WEIGHT

The survey of youths show that 65.1% of youths are very satisfied or somewhat satisfied with their weight, whereas 13.2% of youths said they were somewhat dissatisfied or very dissatisfied with their weight.

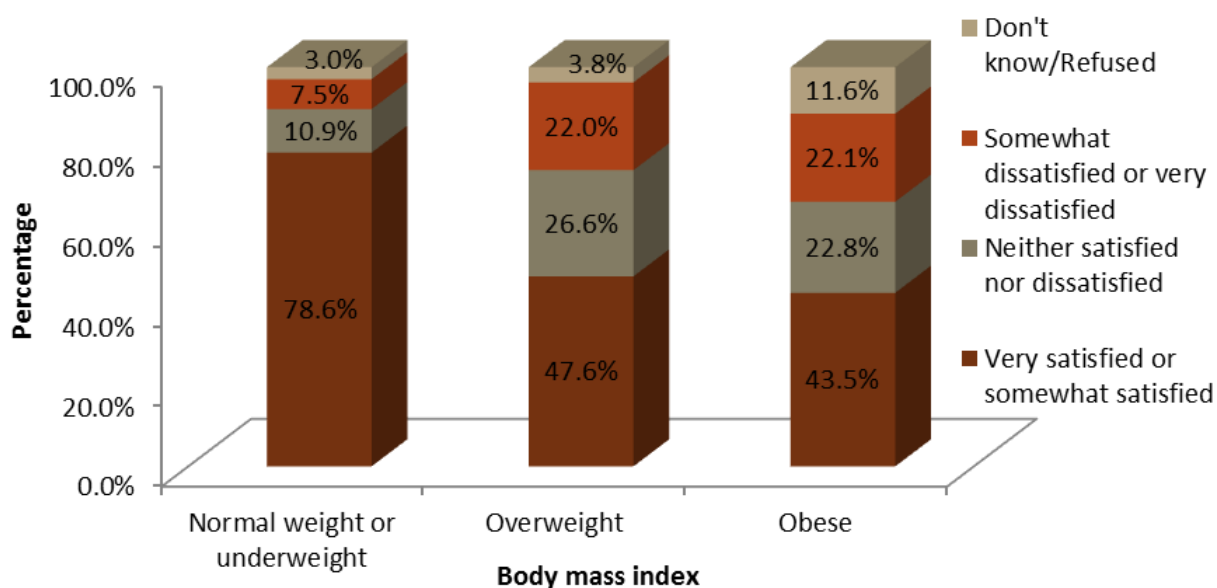
Figure 34: Youths' level of satisfaction with their weight (N=3,661)



We notice that more boys (70.6%) than girls (59.3%) said they were very satisfied or somewhat satisfied with their weight. Also, twice as many girls (18.0%) than boys (8.6%) said they were very dissatisfied or somewhat dissatisfied with their weight.

In addition, the data reveals a relation between the satisfaction with weight in youths and their body mass index ($p < 0.01$). Hence, 78.6% of youths having a normal weight or being underweight indicated that they were very or somewhat satisfied with their weight, compared to 47.6% of overweight youths and 43.5% of obese youths. Obese youths are somewhat or very dissatisfied with their weight in a proportion of 22.1% (Figure 35).

Figure 35: Youths' level of satisfaction with their weight based on their body mass index (N=3,311)



PART 4 – PHYSICAL ACTIVITY

Regular physical activity offers numerous benefits: reducing stress; preventing chronic illnesses such as diabetes, cancer and heart disease; strengthening the body; and maintaining functional autonomy in the elderly. The Canadian recommendations encourage children aged 5 to 11 and youths to participate in physical activities of a moderate or high intensity for at least 60 minutes per day. As for adults and the elderly, two and a half hours of physical activity could generate health benefits (Public Health Agency of Canada, 2011).

1. TYPES OF PHYSICAL ACTIVITIES

1.1 Children's physical activities

Among children, the most popular activities during the past twelve months are: walking (81.7%); biking (60.5%); skating (41.7%); swimming (38.4%), competitive or team sports (hockey, baseball, tennis, etc.) (35.7%); running (32.5%) and berry picking or other food gathering (30.4%). Among all children, 4.1% are not physically active, according to the responding parent.

1.2 Youths' physical activities

Among youths, walking (85%), competitive or team sports (59%), biking (46.5%), running (38.6%), fishing (31.4%) and swimming (31%) are the most popular physical activities. Only 0.7% of youths said that they did not take part in any physical activity during the past twelve months.

1.3 Adults' physical activities

As for adults, a large proportion prefers walking (79.6%), fishing (39.2%), hunting and trapping (33%), berry picking and other food gathering (29.9%), biking (23.9%) as well as gardening and yard work (23.4%). However, we note that 8.5% of adults said that they were not physically active.

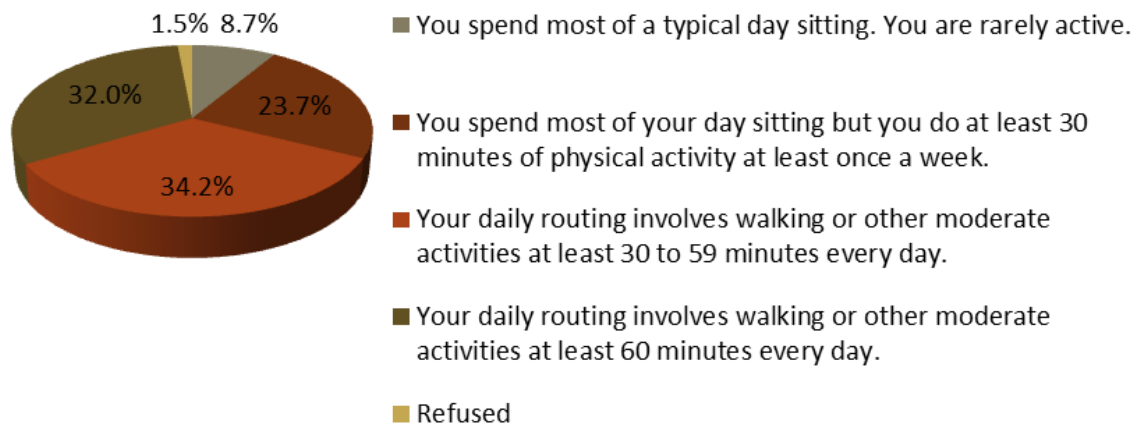
If we only take into account the elderly (65 and older), we see that the most popular physical activities in this age group are: walking (67.7%), fishing (26.8%), berry picking and other food gathering (26.5%), hunting (21.2%) and gardening or other yard work (19.5%). Yet, only 15.4% of the elderly said that they did not take part in any physical activity during the past twelve months.

1.4 Perception of the chosen physical activity

1.4.1 Youths' perception of the chosen physical activity

More than one third of youths said that they were taking part in a moderate intensity physical activity for 30 to 59 minutes every day, and another third stated being physically active at least one hour a day. However, almost a quarter of youths spends most of the day sitting down, but is physically active for 30 minutes at least once a week. Finally, 8.7% of youths are rarely physically active (Figure 36).

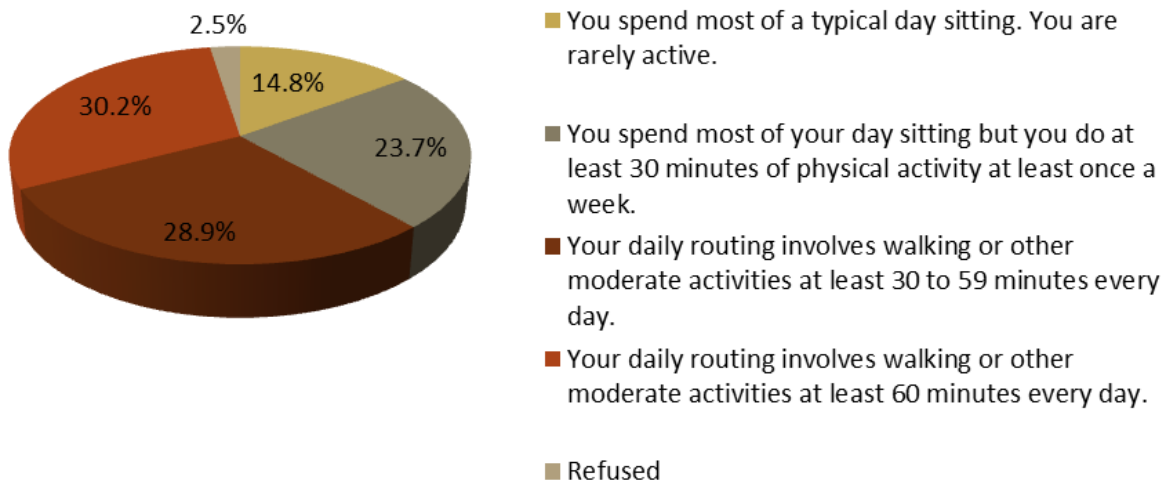
Figure 36: Youths' perception of their habits in terms of physical activity (N=3,661)



1.4.2 Adults' perception of the chosen physical activity

A third of the adults said they were physically active at least one hour a day, and another third is physically active between 30 to 59 minutes every day. Also, 14.8% of adults mentioned spending most of their day sitting down, and being only rarely physically active (Figure 37).

Figure 37: Adults' perception of their habits in terms of physical activity (N=19,068)



2. PHYSICAL ACTIVITY LEVEL

According to the physical activity level (which depends on the duration and frequency of the physical activities and on the energy spent doing these activities), individuals 6 years and up can be linked to one of the three following categories:

- 1) *active*, which represents an energy expenditure for children, adults and youths corresponding to at least 3 kilocalories spent by kilogram of body weight, per day;
- 2) *moderately active*, which represents an energy expenditure for adults and youths corresponding to 1.5 to 2.9 kilocalories per kilogram per day and between 1 to 2.9 kilocalories per kilogram per day for children;
- 3) *inactive*, which represents an energy expenditure of under 1.5 kilocalorie per kilogram per day for adults and youths and under 1 kilocalorie per kilogram per day for children.

In order to calculate the energy expenditure related to each activity, the calculation method developed by Ainsworth et al. (2000) was used. The activity level is thus calculated according to the total level of energy spent per day (EE), i.e. by cumulating the energy expenditure associated with each of the activities in which the individual takes part, with the following formula:

$$EE = \Sigma (Nx*Dx*METx / 365 \text{ days})$$

N_x = Number of times the activity x was done during the year

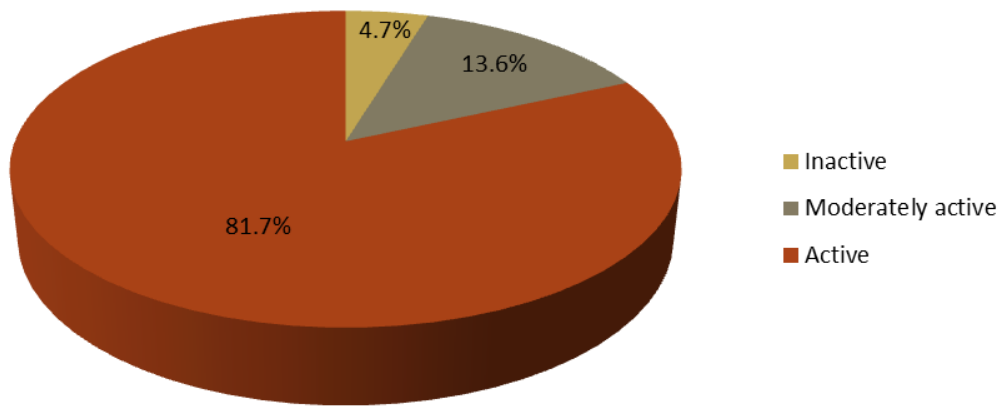
D_x = Average duration in hours of activity x

MET_x = Constant value of the energy cost of activity x

2.1 Children's physical activity level

According to the data obtained, 81.7% of children aged 6 to 11 are considered active, 13.6% are considered moderately active and 4.7% are inactive (Figure 38).

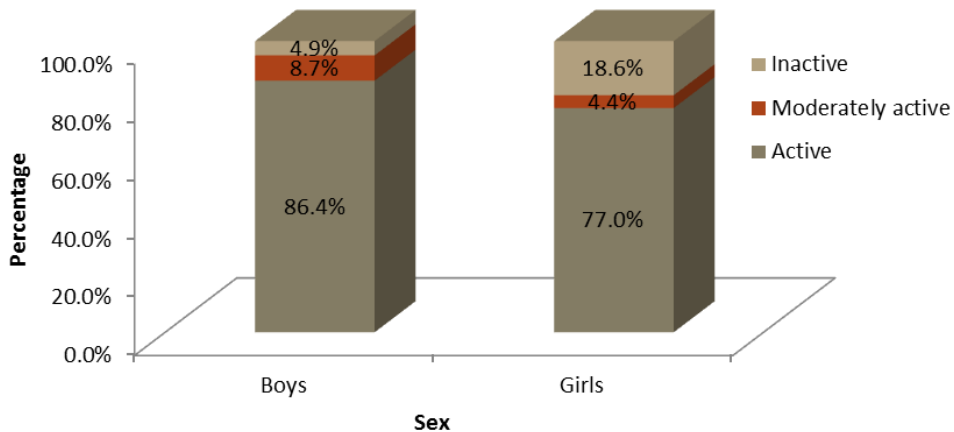
Figure 38 : Distribution of children aged 6 to 11 based on their physical activity level (N=3,805)



2.1.1 Physical activity level in children based on sex

A significant difference is observed between the physical activity levels in children based on sex ($p < 0.05$). Boys aged 6 to 11 (86.4%) are more active than girls of the same age (77%). Furthermore, only 4.9% of boys are considered inactive, compared to 18.6% of girls (Figure 39).

Figure 39: Physical activity level of children aged 6 to 11, based on sex (N=3,779)



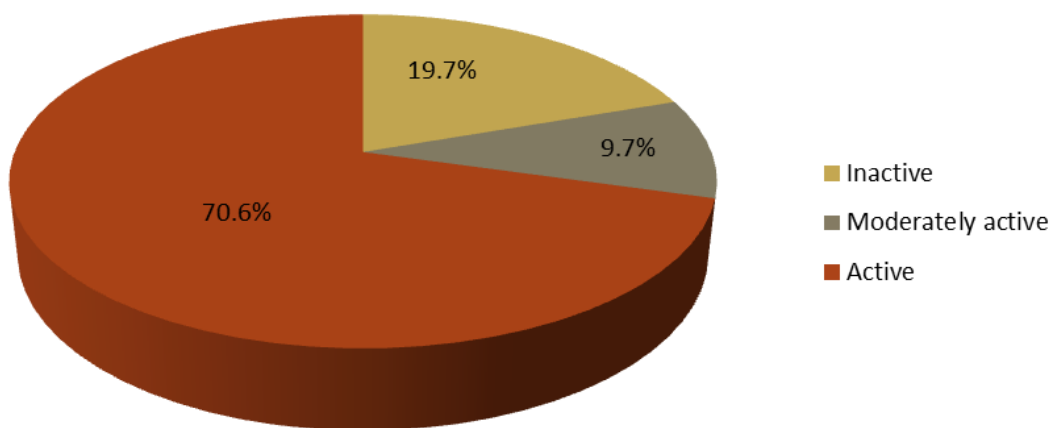


No statistically significant difference is observed with regards to the physical activity level of children based on their nation, their geographic zone of residence and their body mass index.

2.2 Youths' physical activity level

Seventy percent (70.6%) of youths are active, 9.7% are moderately active and 19.7% are inactive (Figure 40).

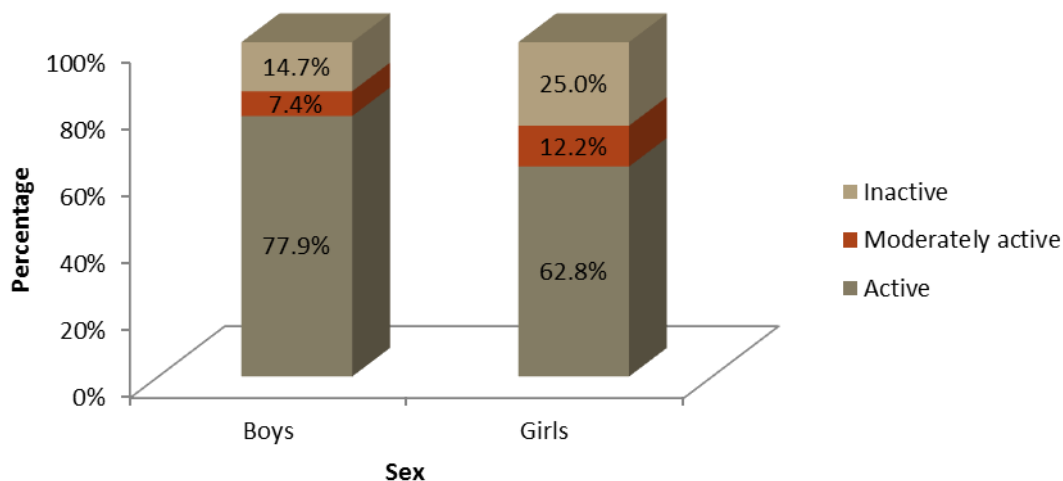
Figure 40: Distribution of youths based on their physical activity level (N=3,648)



2.2.1 Physical activity level among youths based on sex

Among youths, boys (77.9%) are more likely to be active than girls (62.8%). Similarly, 14.7% of boys aged 12 to 17 are inactive, compared to 25% of girls of the same age (Figure 41). The difference in the physical activity level between sexes is statistically significant at $p < 0.01$.

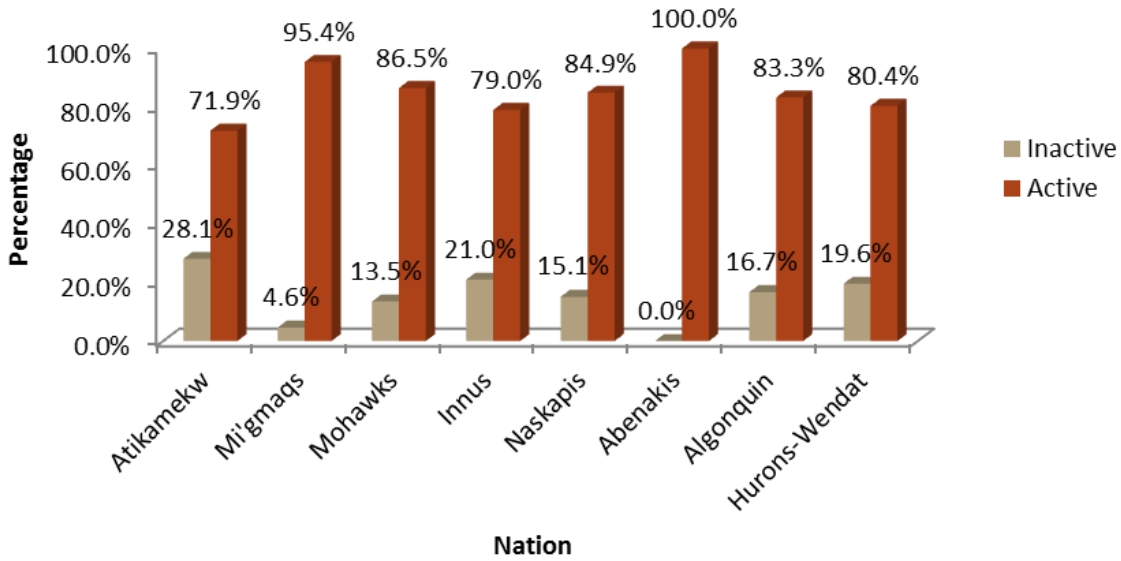
Figure 41: Physical activity level of youths, based on sex (N=3,648)



2.2.2 Physical activity level in youths based on nation

Youths from the Abenakis (100%) and Mi'gmaq (95.4%) nations are more active (active and moderately active categories combined) than youths from other nations ($p < 0.05$). Atikamekw and Innu youths are considered as the least active, with respectively 28.1% and 21% of their youths considered inactive (Figure 42).

Figure 42: Physical activity level of youths, based on nation (N=3,648)

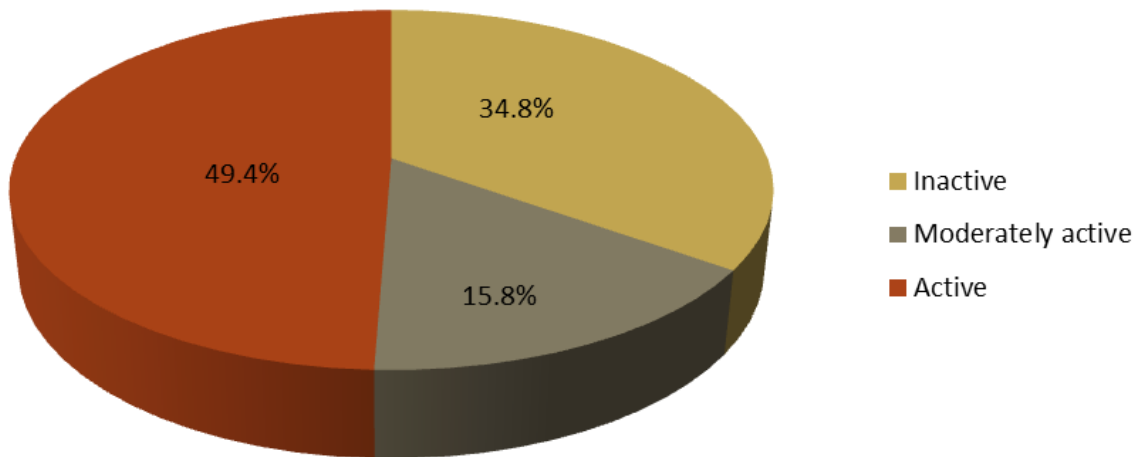


It should be noted that no statistically significant difference is observed concerning the physical activity level of youths based on their age (12-14 years old or 15-17 years old), their geographic zone of residence, their level of education and their body mass index.

2.3 Adults' physical activity level

Compared to children and youths, a greater number of adults can be considered inactive (34.8%) (Figure 43).

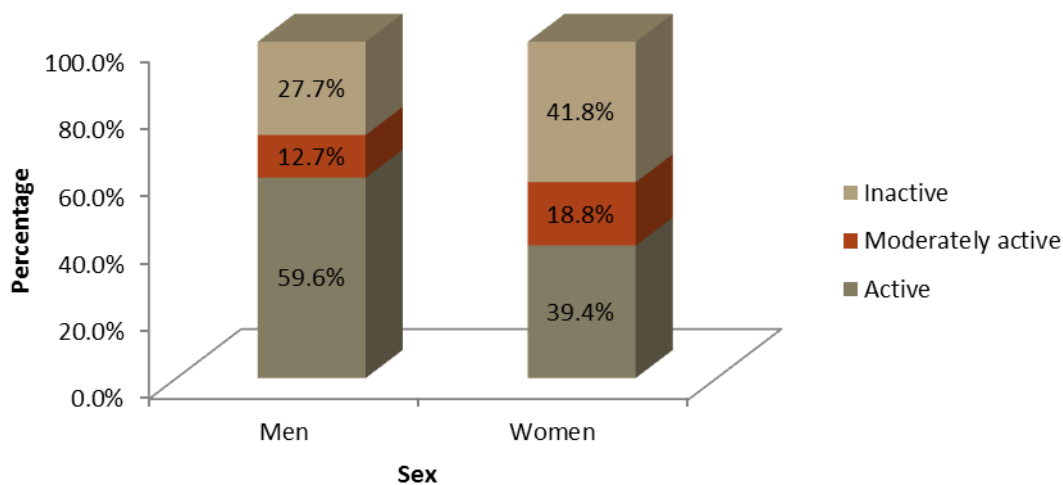
Figure 43: Distribution of adults based on their physical activity level (N=19,042)



2.3.1 Physical activity level in adults based on sex

Men (59.6%) are more likely to be active than women (39.4%) (Figure 44). The difference between men's and women's physical activity levels is statistically significant ($p < 0.01$).

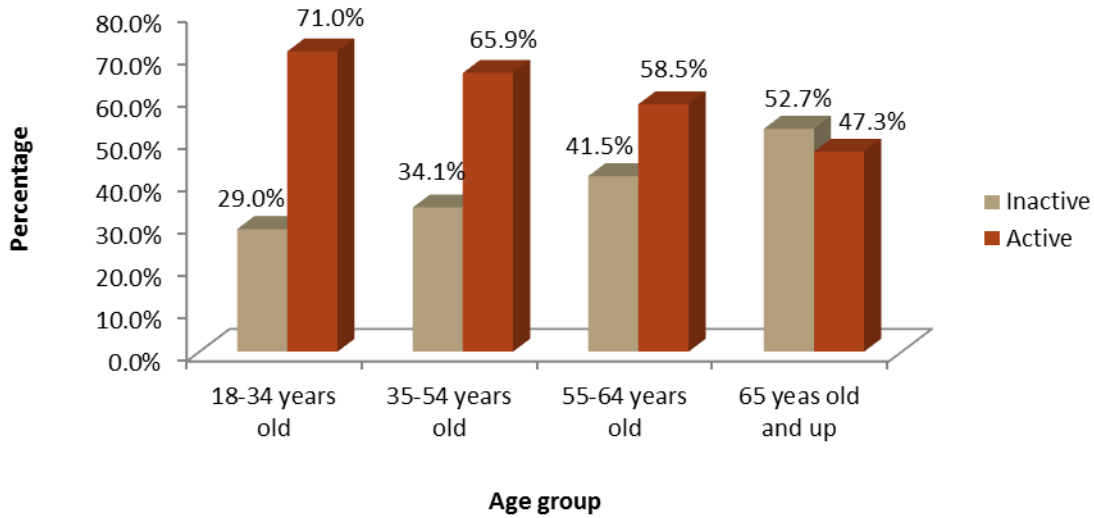
Figure 44: Physical activity level of adults, based on sex (N=19,042)



2.3.2 Adults' physical activity level based on age

The data obtained indicate an inversely proportional relation between the age and the physical activity level of individuals ($p < 0.01$). Adults aged 18 to 34 are active (active and moderately active categories combined) at 71%, and adults 65 and older at 52.7% (Figure 45).

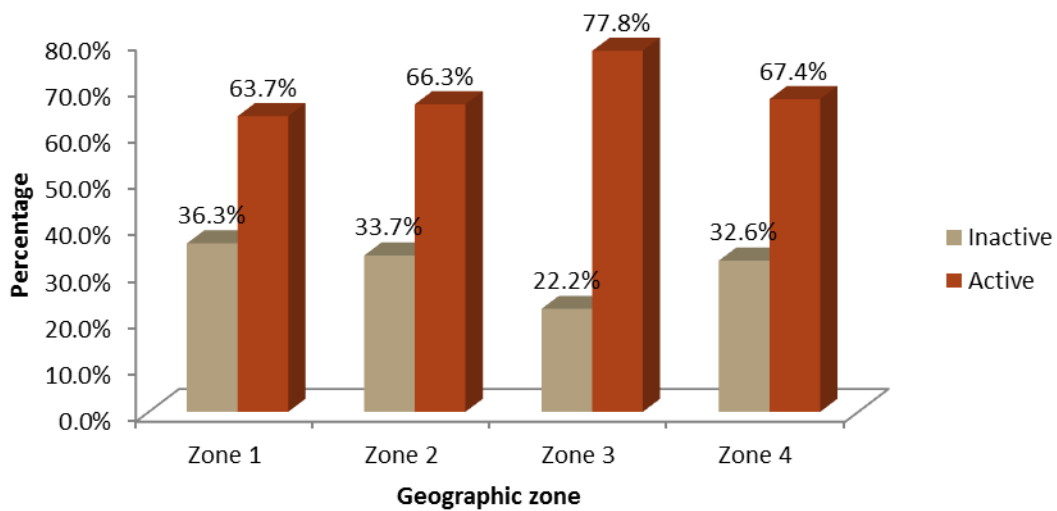
Figure 45: Physical activity level of adults, based on age (N=19,042)



2.3.3 Physical activity level of adults, based on geographic zone

Adults living in zone 3 are the most active (77.8%)⁵. In the other three zones, we noticed that between 63.7% and 67.4% of individuals are active. The differences are statistically significant at $p < 0.01$ (Figure 46).

Figure 46: Physical activity level of adults, based on geographic zone (N=19,050)

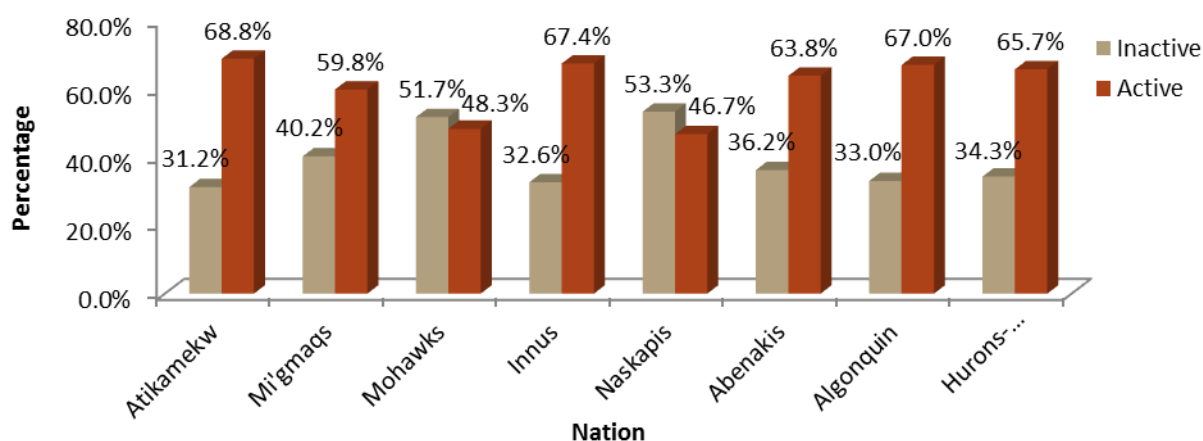


⁵ Because of the sampling plan, this result must be interpreted with caution.

2.3.4 Physical activity level of adults, based on nation

We can see significant differences in the physical activity level of adults, based on their nation ($p < 0.01$). In the Mohawk and Naskapi nations, there are more adults considered inactive than there are adults considered active. Indeed, 51.7% of Mohawks and 53.3% of Naskapis aged over 18 are inactive. However, the largest proportion of active adults was observed in the Atikamekw nation (68.8%) (Figure 47).

Figure 47: Physical activity level of adults, based on nation (N=19,042)



No statistically significant difference is observed with regards to the physical activity level of adults based on their education, household income and their body mass index.

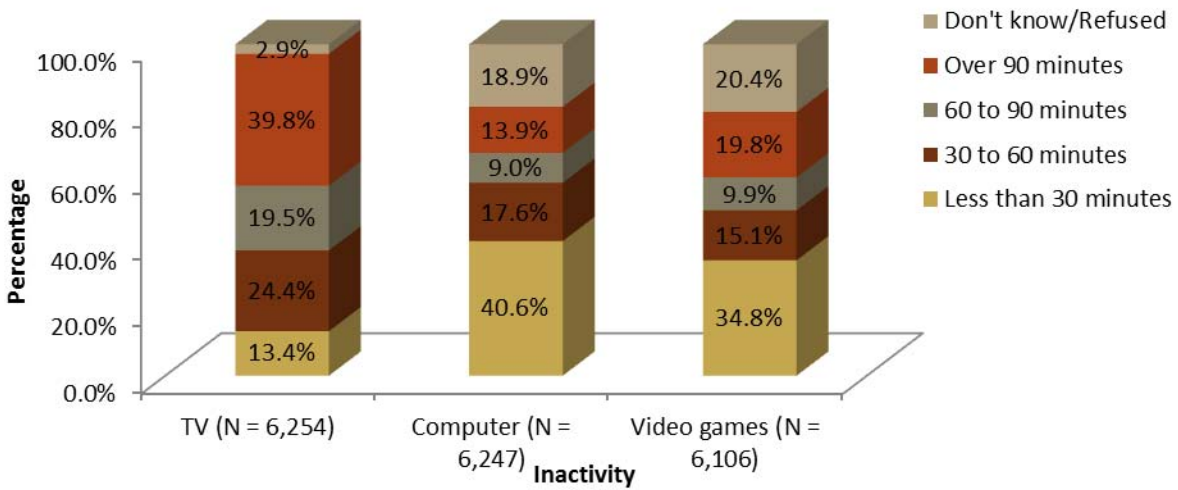
3. SEDENTARY ACTIVITIES

Among youths and children, sedentary activities, such as watching TV, playing on the computer or playing video games, can generate problems like excess weight (Statistics Canada, 2006).

3.1 Sedentary activities practised by children

The data reveal that almost two out of five children (39.8%) watch TV over 90 minutes per day on average, and that one out of five children (19.5%) watch it between 60 to 90 minutes per day. Moreover, 19.8% of children play video games over 90 minutes per day (Figure 48).

Figure 48: Number of minutes spent daily watching TV, playing on the computer or playing video games, among children



3.1.1 Sedentary activities practised by children based on sex

As for the differences in the time spent watching TV, playing on the computer and playing video games based on sex, boys are greater consumers of video games compared to girls. Hence, 31.6% of boys spend over 90 minutes per day doing these activities, compared to only 7.4% of girls. As for TV and computer, similar proportions of boys and girls spend over 90 minutes daily in front of them.

Table 48: Percentage of boys and girls watching TV, playing on the computer and playing video games over 90 minutes per day

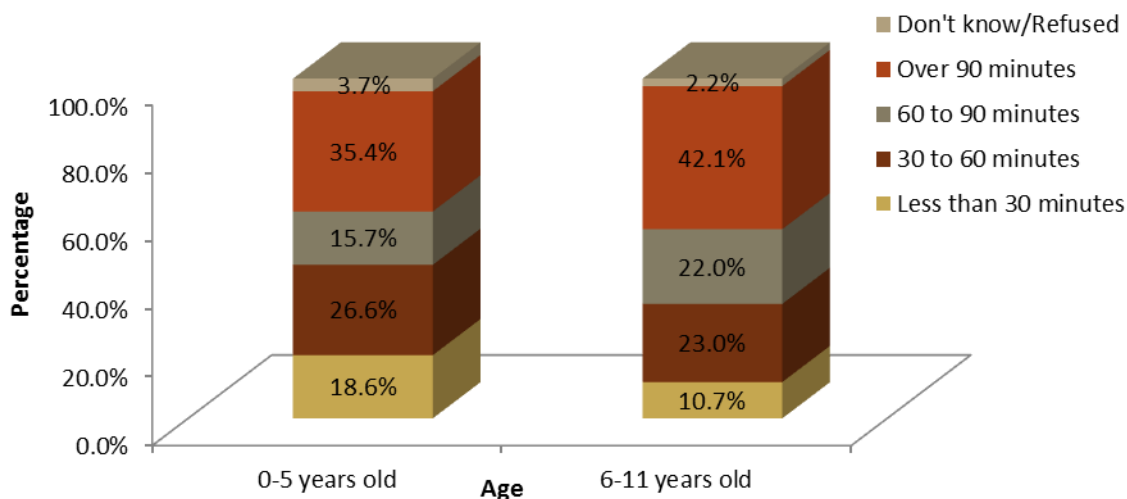
	Boys		Girls	
	N	%	N	%
Television	1,285	40.3	1,194	39.4
Computer	419	13.8	413	13.9
Video games*	979	31.6	221	7.4

* p < 0.01

3.1.2 Sedentary activities practised by children based on age

Children aged 6 to 11 are more likely to watch TV over 90 minutes per day than children aged 0 to 5 (42.1% vs. 35.4%) ($p < 0.01$). Children aged 0 to 5 are also twice as many to watch TV less than 30 minutes per day (Figure 49).

Figure 49: Number of minutes spent by children every day watching TV, based on age (N=5,985)



Time spent in front of the computer or playing video games is also significantly more important in children aged 6 to 11 than in children 5 years and under ($p < 0.01$).

3.1.3 Sedentary activities practised by children based on geographic zone

Time spent in front of the TV or the computer screen differs from one geographic zone of residence to another. Children in zone 4 are more likely to spend over 90 minutes per day in front of the TV or the computer. There is no difference with regards to the time spent by children playing video games, based on the zone of residency (Table 49).

Tableau 49: Percentage of children watching TV, playing on the computer and playing video games over 90 minutes per day, based on zone

	Zone 1	Zone 2	Zone 3	Zone 4
Television*	40.0%	27.8%	42.5%	52.0%
Computer*	14.8%	12.1%	7.9%	19.0%
Video games	19.6%	15.0%	22.6%	21.8%

* $p < 0.01$

3.1.4 Sedentary activities practised by children based on nation

Children from the Huron-Wendat nation watch TV over 90 minutes per day in a much larger proportion than children from the other nations. We also note that no Mohawk or Naskapi (0%) children spend over 90 minutes per day in front of the computer (Table 50).

Tableau 50: Percentage of children watching TV, playing on the computer and playing video games over 90 minutes per day, based on nation

	Nations							
	Atikamekw	Mi'gmaq	Mohawks	Innus	Naskapis	Abenakis	Algonquins	Hurons-Wendat
Television*	41.7%	30.2%	35.3%	39.5%	10.8%	80.5%	37.1%	82.2%
Computer*	12.5%	24.8%	0.0%	15.9%	0.0%	20.7%	7.2%	32.3%
Video games**	22.1%	37.0%	14.6%	19.1%	21.6%	6.1%	10.8%	28.7%

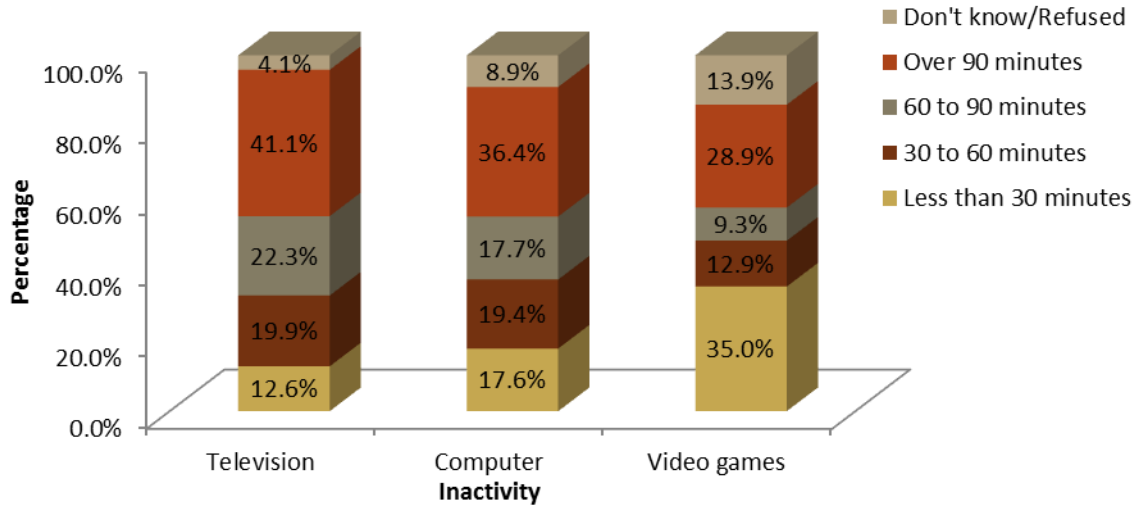
* $p < 0.01$

** $p < 0.05$

3.2 Sedentary activities practised by youths

Watching TV for more than 90 minutes per day is part of the normal routine for 41.1% of youths. Also, more than a third of them spend more than 90 minutes per day in front of a computer (Figure 50).

Figure 50: Number of minutes youths spend daily in front of the TV, computer and video games (N=3,661)



3.2.1 Sedentary activities practised by youth based on sex

As noticed among children, youth boys are more likely to play video games and spend more time doing this activity; 47% of youth boys play over 90 minutes of video games per day ($p < 0.01$). Also, more boys than girls spend over 90 minutes watching TV every day (44.5% vs. 37.5%). Among young girls, working or playing on the computer is the activity on which the strongest proportion of them spends over 90 minutes daily.

Table 51: Percentage of boys and girls aged 12 to 17 watching TV, playing on the computer and playing video games over 90 minutes per day

	Boys		Girls	
	N	%	N	%
Television	843	44.5	663	37.5
Computer	625	33.0	709	40.1
Video games	890	47.0	167	9.5

3.2.2 Sedentary activities practised by youths based on geographic zone

Significant differences are observed with regards to the time youths spend daily in front of the TV and computer, based on their geographic zone of residence. However, no major difference is noted concerning the time spent playing video games. Youths in zone 1 are much more likely to spend over 90 minutes per day in front of the TV or the computer (Table 52).

Table 52: Percentage of youths watching TV, playing on the computer and playing video games over 90 minutes per day, based on the zone (N=3,661)

	Zone 1	Zone 2	Zone 3	Zone 4
Television**	45.9%	27.7%	34.0%	34.8%
Computer*	45.1%	30.1%	19.4%	26.0%
Video games	32.5%	25.3%	26.9%	17.9%

* $p < 0.01$

** $p < 0.05$

3.2.3 Sedentary activities practised by youths based on nation

Depending on the nation youths belong to, significant differences are noted. Hence, over half of youths from the Mohawk, Abenakis and Huron-Wendat nations spend over 90 minutes per day in front of the TV. In the Mi'gmaq nation, 63.7% of youths spend over 90 minutes per day on the computer and 57.7% playing video games (Table 53).

Table 53: Percentage of youths watching TV, playing on the computer and playing video games over 90 minutes per day, based on nation (N=3,661)

	Nations							
	Atikamekw	Mi'gmaq	Mohawks	Innus	Naskapis	Abenakis	Algonquins	Hurons-Wendat
Television**	30.0%	35.1%	53.2%	43.4%	19.7%	55.7%	49.9%	59.9%
Computer*	28.4%	63.7%	40.6%	42.8%	6.4%	41.2%	23.6%	43.9%
Video games*	27.8%	57.7%	13.5%	26.6%	12.7%	33.0%	28.9%	16.7%

* $p < 0.01$

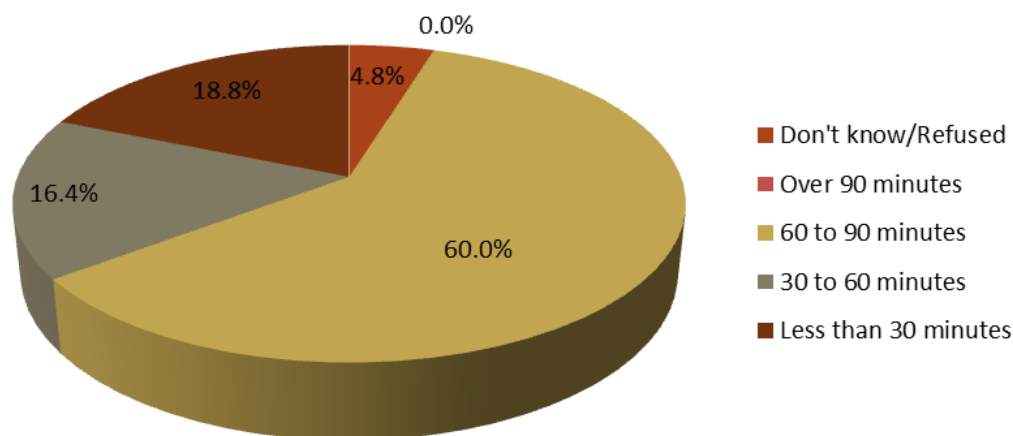
** $p < 0.05$

With regards to sedentary activities, no statistically significant difference is observed based on the age of youths (12 to 14 years old vs. 15 to 17 years old).

3.3 Sedentary activities practised by adults

Six out of ten (60%) adults spend between one to one and a half hour per day watching TV, reading, playing bingo or video games, or working on the computer, whereas 16.4% spend between 30 and 60 minutes doing so, and 18.8% less than 30 minutes. No adult indicated spending over 90 minutes per day doing sedentary activities (Figure 51).

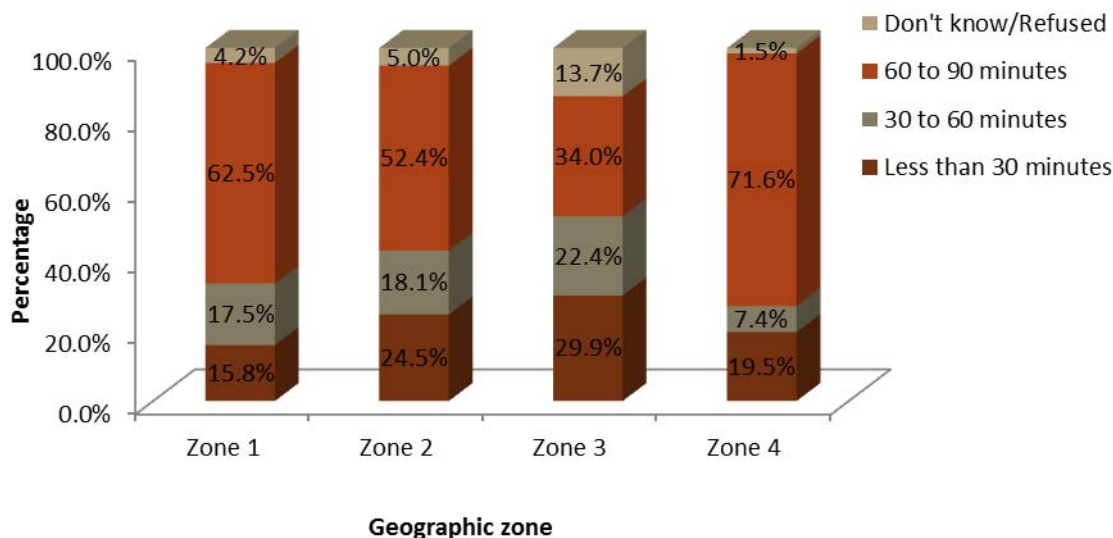
Figure 51: Number of minutes adults spend daily doing sedentary activities (N=19,068)



3.3.1 Sedentary activities practised by adults based on geographic zone

Adults living in geographic zone 4 are more likely to spend between 60 to 90 minutes per day doing sedentary activities than adults living in the other zones. This observation differs from what is seen in youths, where the ones living in zone 4 spend less time doing sedentary activities than the one living in zone 1.

Figure 52: Number of minutes adults spend daily doing sedentary activities, based on geographic zone (N=19,068)



3.3.2 Sedentary activities practised by adults based on nation

Significant differences are noted with regards to the practise of sedentary activities based on the nation the adults belong to ($p < 0.01$). Huron-Wendat (71.6%) and Algonquin (67.4%) adults are the ones who indicated being more likely to spend between 60 to 90 minutes per day doing sedentary activities, whereas the proportion of Atikamekw adults doing the same is 54.2% (Table 54).

Table 54: Number of minutes adults spend daily doing sedentary activities, based on nation (N=19,068)

	Nations							
	Atikamekw	Mi'gmaq	Mohawks	Innus	Naskapis	Abenakis	Algonquins	Hurons-Wendat
Less than 30 minutes	17.9%	11.8%	5.7%	24.2%	22.1%	14.7%	16.5%	14.9%
30 to 60 minutes	18.1%	17.4%	28.3%	16.4%	15.5%	21.4%	12.2%	11.2%
60 to 90 minutes	54.2%	64.8%	62.0%	55.7%	62.4%	63.9%	67.4%	71.6%
Don't know/Refused	9.8%	6.0%	4.0%	3.7%	0.0%	0.0%	3.9%	2.3%

As for the practise of sedentary activities by adults, no statistically significant difference is noted based on sex.

DISCUSSION

This chapter addressed three closely related concepts: food, food security and physical activity. The data obtained through this survey revealed numerous alarming findings on the Quebec First Nations' lifestyle. In the Quebec *First Nations Health and Social Services Blueprint 2007-2017, Closing the gaps... Accelerating change*, several points reviewed are part of the priorities of action for the years to come. We also see that in this blueprint, we aim to reduce by 50% the prevalence of obesity in children. Hence, this discussion focuses on the different points addressed in light of a central concept: obesity.

The results obtained showed that in adults, a third of individuals are overweight and more than 40% are obese. The data collected with children and youths also suggest an alarming situation. In children, almost a third is obese, and one out of five children is overweight. In youths, almost a third are obese and a quarter are overweight. Obesity in childhood is of special concern since it has a great impact on the weight prognosis in youth and possibly up to adulthood (Charles, 2007).

With regards to food, the first major factor influencing body weight, we see that all individuals do not follow the recommendations issued in the *Eating Well with Canada's Food Guide - First Nations, Inuit and Métis* (Health Canada, 2007). Indeed, the frequencies of healthy food consumption are under the recommended threshold, and it is so for all food groups, among children, youths and adults as well. One limitation in this survey makes impossible to determine the quality and quantity of the food eaten by the First Nations living in a community.

The frequent consumption of junk food by the First Nations seems to be quite common. We also notice that half of children and adults, and over half of youths, eat fast food several times a week and that a third of youths consume soft drinks every day. Moreover, a quarter of children and youths eat sweets daily.

The bad eating habits of the First Nations are known in the literature as being closely related to the change in their lifestyle and the transition from a traditional diet based on fishing, hunting and gathering to a diet largely composed of processed foods (Seto, 2006). On that account, the survey's results showed that the consumption of traditional foods, as well as the sharing of traditional foods with members of the household, is not common in a large part of the population.

A second factor closely related to obesity is physical activity. The physical activity level identified revealed that over eight out of ten children, seven out of ten youths and almost half of adults are considered active. The number of inactive individuals goes from 4.7% in children to 19.7% in youths and 34.8% in adults. The frequent practise of sedentary activities seems to be another problem affecting children, youths and adults. Among children, we see that almost 40% of them spend over 90 minutes per day watching TV. The same is true for youths. Over one third of youths spend also more than 90 minutes in front of the computer every day.

These alarming proportions corroborate the data obtained on the BMI of youths from the First Nations. Therefore, it seems essential to take action in order to encourage children and youths to adopt a healthy lifestyle, including a healthy diet and the regular practise of physical activities.



The food insecurity from which numerous First Nations households suffer can also be associated to the high prevalence of obesity. We indeed notice that more than a quarter of adults, and over a third of those living with children, are moderately or severely food insecure. According to a report published by Statistics Canada (Che & Chen, 2001) on the issue of food insecurity in Canadian households, a bad diet can have adverse effects on the individuals' health as well as on the health system. Hence, malnourished individuals are more prone to infections and illnesses, need more time to heal and are hospitalized for longer periods, thus adding to the financial burden of the health system.

CONCLUSION


The results of the *Regional Survey on the Health of First Nations of Quebec, 2008* (RHS 2008), show troubling life habits in children, youths and adults who live within the communities. Factors related to the demographic and socioeconomic characteristics, such as the remoteness of urban centres and low household income, have a major impact on the First Nations' lifestyle.

Several avenues for future research can be drawn from this chapter's main findings. Hence, the data obtained show a low consumption of traditional foods, despite the health benefits generated from the inclusion of this type of food in the diet. More studies should be conducted to help understand the reasons why the First Nations abandoned this type of food and to identify acceptable actions to be made in order to further the return to a traditional diet. Furthermore, the low proportion of children who were breastfed should justify the carrying out of a study to understand why First Nations parents choose not to breastfeed their infant.

The results obtained support the rationale of various programs implemented in the First Nations communities of Quebec in order to improve individuals' life habits, such as the Kirano project, an eight-week program based on helping individuals choose a healthier diet and be more physically active, or the On the path to health project, which is an education program on nutrition offered in the elementary schools and communities of the Quebec First Nations. Such innovative projects must be pursued and aligned with the *Quebec First Nations Health and Social Services Blueprint 2007-2017. Closing the gaps... Accelerating change*. The results of this survey confirm the importance of taking action in early childhood, in order to re-establish a healthy and active lifestyle in the communities, hoping for a trend reversal, in light of these results, for the future of First Nations youths.

BIBLIOGRAPHY

- Aboriginal Affairs and Northern Development Canada (2011) First Nations in Canada. <http://www.aadnc-aandc.gc.ca/eng/1307460755710/1307460872523>
- Public Health Agency of Canada (2011). Physical activity.
<http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/pa-ap/index-eng.php>
- Ainsworth, B.E., Haskell, W.L., Whitt, M.C., Irwin, M.L., Swartz, A.M., Strath, S.J., O'Brien, W.L., Bassett, D.R., Schmitz, K.H., Emplaincourt, P.O., Jacobs, D.R. & Leon, A.S. (2000). Compendium of physical activities: an update of activity codes and MET intensities. *Med. Sci. Sports Exerc.*, 32 (9), Suppl., S498-S516.
- Assembly of First Nations (undated) Traditional foods.
<http://64.26.129.156/article.asp?id=5008>
- Assembly of First Nations (2007) Traditional Foods: Are they Safe for First Nations Consumption? 13 pages.
- Centers for disease control and prevention (2007). Does breastfeeding reduce the risk of pediatric overweight? Research to Practice Series, No. 4, 8 pages.
- Charles, M.-A. (2007). Épidémiologie de l'obésité infantile : le passé, le présent, l'avenir. *Médecine thérapeutique / Pédiatrie*, 10 (6), 360-364.
- Che, J. & Chen, J. (2001). Food insecurity in Canadian households. *Health reports*, 12(4), 11-24.
- Cole, T. J., Bellizzi, M. C., Flegal, K. & Dietz, W. H. (2000). Establishing a standard definition for child overweight and obesity worldwide: international survey, *British Medical Journal*, 320, 1240-1243.
- FNQLHSSC (2011). Scan on Diabetes among the First Nations communities of Quebec, 107 pages.
- Evers, S., Doran, L. & Schellenberg, K. (1998). Influences on Breastfeeding Rates in Low Income Communities in Ontario. *Canadian Journal of Public Health*, 89 (3), 203-207.
- Harder, T., Bergmann, R., Kallischnigg, G. & Plagemann, A. (2005). Duration of Breastfeeding and Risk of Overweight: A Meta-Analysis. *American Journal of Epidemiology*, 162, 397-403.
- Institut de la statistique du Québec (2006). Recueil statistique sur l'allaitement maternel au Québec, 2005-2006, 85 pages.
- Institut de la statistique du Québec (2012). L'enquête québécoise sur la santé des jeunes du secondaire 2010-2011 : Le visage des jeunes d'aujourd'hui : leur santé physique et leurs habitudes de vie (Tome 1), 257 pages.
- Institut national de santé publique du Québec (2011). Sécurité et insécurité alimentaire chez les Québécois : une analyse de la situation en lien avec leurs habitudes alimentaires, 58 pages.



MSSS (2008). Cadre de référence en matière de sécurité alimentaire, 37 pages.

Food Safety Network (2009). Préparation et conservation sécuritaires des aliments autochtones traditionnels : analyse bibliographique, 180 pages.

Health Canada (2003). Canadian Guidelines for Body Weight Classification in Adults, 43 pages.

Health Canada (2007). Eating Well with Canada's Food Guide - First Nations, Inuit and Métis

Health Canada (2007a). Canada's Food Guide. Beverages. <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/choix-choix/beverage-boisson/index-eng.php>

Health Canada (2007b). Enquête sur la santé dans les collectivités canadiennes cycle 2.2, Nutrition (2004) : Sécurité alimentaire liée au revenu dans les ménages canadiens, 118 pages.

Seto, C. (2006). Protéger nos enfants et assurer notre avenir. Les enfants des Premières Nations et l'obésité : Une épidémie en constante progression, 29 pages.

Sguassero Y. (2008). Durée optimale de l'allaitement maternel exclusif : Commentaire de la BSG (latest revision: March 28th 2008). Bibliothèque de Santé Génésique de l'OMS, Genève : World Health Organization.

Statistics Canada (2006). Childhood obesity: A troubling situation

http://www41.statcan.gc.ca/2006/2966/ceb2966_004-eng.htm

Statistics Canada (2010). Breastfeeding, 2009

<http://www.statcan.gc.ca/pub/82-625-x/2010002/article/11269-eng.htm>

Willows, N.D. (2005). Overweight in First Nations Children : Prevalence, Implications, and Solutions. *Journal of Aboriginal Health*, pp. 76-88.

Willows, N.D., Hanley, A.J.G., Delormier, T. (2012). A socioecological framework to understand weight-related issues in Aboriginal children in Canada. *Applied Physiology, Nutrition and Metabolism*, 37, pp.1-13.



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