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Aboriginal Peoples Survey, 2012

Social determinants of health for the off-reserve First Nations population, 15 years of age and older, 2012

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^{r} revised
x suppressed to meet the confidentiality requirements of the *Statistics Act*
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* significantly different from reference category ($p < 0.05$)

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Highlights

- In 2012, half (49%) of First Nations people aged 15 and older living off reserve reported excellent or very good health; the comparable figure for the total population of Canada was 62% (age standardized).

- Three in five (60%) off-reserve First Nations people aged 15 and older reported excellent or very good mental health, compared with 72% of the total Canadian population.

- Nearly two-thirds (63%) of off-reserve First Nations people aged 15 and older reported being diagnosed by a health professional with at least one chronic condition, compared with 49% of the total Canadian population.

- After controlling for various factors including age, health behaviours, education, employment, and income, off-reserve First Nations females were significantly more likely than males to report having at least one chronic condition.

- After controlling for multiple social factors, the following variables were predictive of a poor health outcome (defined as reporting at least one chronic condition, or self-rating one's general or mental health as fair or poor):

    - Daily smoking; being overweight or obese; living in a home in need of major repairs; having less than a high school education; being unemployed; having an annual household income in the lowest tercile; experiencing food insecurity; having unmet health needs; and having no one to turn to for support in a time of need.

- These social determinants of health have a compounding effect: the greater the number of social determinants of poor health that off-reserve First Nations people experience, the more likely they are to report poor health outcomes.

- The inverse of the results presented in this paper should equally be considered: the absence of social determinants of poor health translates to the presence of protective factors than can contribute to positive health outcomes.

Textbox 1: About this study

Unless otherwise indicated, the data in this report pertain to the First Nations population living off reserve aged 15 and older. The analysis is based on a sample of 8,801 First Nations people, representing an estimated population of 405,475 First Nations people living in Canada in private households. Where available and applicable, comparable data are presented for the total population of Canada. Health data for the total population is derived from the Canadian Community Health Survey (CCHS). All health figures presented are age standardized to fit the younger age structure of the First Nations population, unless otherwise stated.

'First Nations' in this study includes persons who self-identified on the 2012 Aboriginal Peoples Survey (APS) as either single-identity First Nations (North American Indian), or as First Nations along with another Aboriginal identity, either Métis or Inuit (includes multiple and single-identity First Nations peoples). This definition includes both registered Status and Non-Status Indians.

A multi-variate analysis was conducted for this paper, producing predicted probabilities which are calculated on the basis of a logistic regression model. Estimates were considered statistically different from their respective reference categories (ref.) at $p < 0.05$. Bi-variate analysis results (unadjusted probabilities) are available in Appendix A. Some bi-variate figures were used to present an overview of health outcome and social determinant prevalence estimates.

Responses of "don't know", "refusal", and "not stated" were excluded from the denominators used in calculating proportions (see Appendix B for item non-response rates). However, they were combined in a separate category for each of the regression estimates of probabilities in order to maintain a robust sample size (but are not included in the tables of this report). A small number of records were removed for technical reasons in the multi-variate analysis stage (less than 1% of the original sample size).

Estimates with coefficients of variation equal to or greater than 16.6% and less than 33.3% should be interpreted with caution; these are noted (E) throughout the report. Estimates with coefficients of variation greater than or equal to 33.3% were suppressed and are noted with an (F).

Sampling weights were applied to all analyses to account for the sample design, non-response and known population totals. A bootstrapping technique, available on the APS master file, was used for estimating variance.

For information on survey design, target population, survey concepts and response rates, consult http://www.statcan.gc.ca/APS or the Aboriginal Peoples Survey, 2012: Concepts and Methods Guide, http://www5.statcan.gc.ca/olc-cel/olc.action?lang=en&ObjId=89-653-X2013002&ObjType=46.

Introduction

This study explores relationships between selected social determinants of health and health outcomes for the off-reserve First Nations population aged 15 and older. The data are from the 2012 Aboriginal Peoples Survey (APS), and cover topics such as chronic conditions, smoking, alcohol consumption, access to health care, food insecurity, housing conditions and overall general health.

Health is heavily influenced by the social conditions in which people live, work, grow and are born into (World Health Organization 2013). This includes the lived experiences of Aboriginal people and the influence of their cultural contexts. The Integrated Life Course and Social Determinants Model of Aboriginal Health framework (Reading and Wien 2009) is applied as an analytical guideline in this paper in exploring the relationships between social determinants of health and health outcomes for First Nations people living off reserve. This framework examines health determinants using the following categories: proximal (health behaviours, physical and social environment), intermediate (community infrastructure, resources, systems and capacities), and distal (historic, political, social and economic) determinants of health.

First Nations population

In the 2011 National Household Survey (NHS), 851,560 people identified as First Nations people (Table 1). This represents 61% of the Aboriginal population and approximately 3% of the total population in Canada[1]. Over a third (38%) of First Nations people lived on an Indian reserve or settlement.

Table 1
Distribution of on- and off-reserve First Nations people (single identity), by age group, 2011

	Total		On-reserve		Off-reserve	
	number	percent	number	percent	number	percent
Total Population	**851,560**	**100**	**320,030**	**100**	**531,530**	**100**
Under 15 years	258,795	30	105,230	33	153,560	29
15 years of age and older	592,765	70	214,805	67	377,960	71
15 to 24 years	156,865	18	60,105	19	96,760	18
25 to 54 years	325,100	38	115,175	36	209,925	39
55 years and older	110,800	13	39,520	12	71,275	13
Median age (years)	**25.9**		**23.9**		**27.1**	

Note: Cells may not add up exactly to the corresponding totals because totals are rounded independently from individual cells.
Source: Statistics Canada, National Household Survey, 2011.

The current study uses 2012 APS data, whose sample frame was derived from the 2011 NHS. The results presented herein apply only to the off-reserve First Nations population aged 15 and older and are not intended to represent the health characteristics of all First Nations people in Canada. See Textbox 1: About this study for more information about the population of study.

Chronic conditions

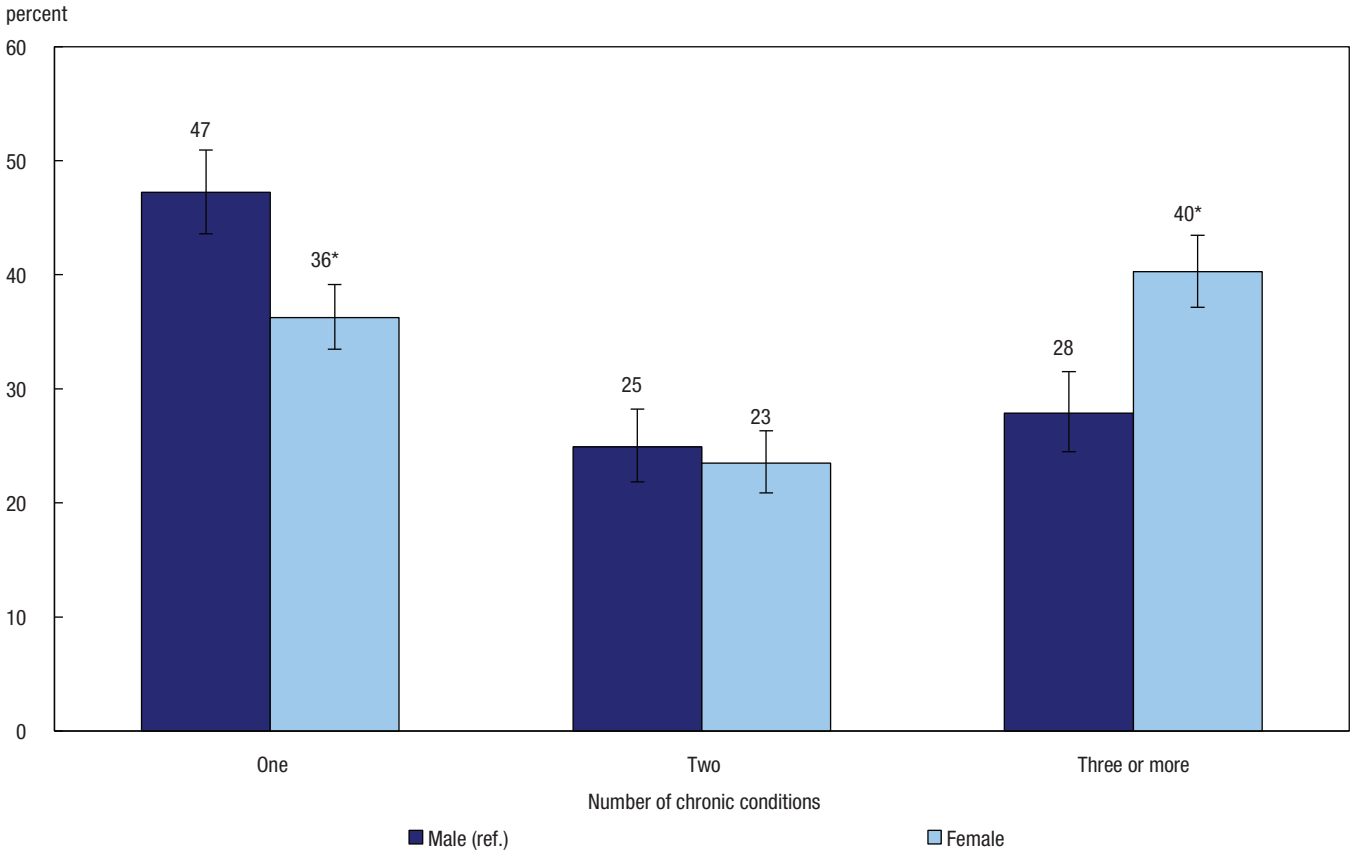
On the APS, a chronic condition is defined as a long-term condition that is diagnosed by a health professional and is expected to last or has already lasted at least six months[2]. In 2012, 63% of off-reserve First Nations people aged 15 and older reported having at least one chronic condition, compared with 49% of the total population of Canada (Canadian Community Household Survey [CCHS] 2012)[3]. Chronic condition prevalence rates are contingent on the respondent reporting a diagnosis, and on the respondent having seen or talked to a health care professional to confirm the diagnosis. Of all those with a chronic condition, 41% reported one condition, 24% reported two conditions, and 35% reported three or more chronic conditions.

In 2012, 67% of off-reserve First Nations females aged 15 and older reported having at least one chronic condition, compared with 58% of males.

1. In the 2011 NHS, 36 of the 863 inhabited reserves were incompletely enumerated because enumeration was either not permitted, was interrupted before completion, or because of natural events (for example, forest fires). Figures are based on single-identity First Nations.
2. Includes the following conditions: Asthma, allergies (food/digestive, respiratory, other allergies), arthritis, bronchitis, diabetes, learning disability, Attention Deficit Disorder (with or without hyperactivity), mental health issues, autism, speech/language difficulties, developmental disability, Fetal Alcohol Spectrum Disorder, tuberculosis, high blood pressure, chronic bronchitis/emphysema/chronic obstructive pulmonary disease, heart disease, intestinal or stomach ulcers, bowel disorders, mood disorder, anxiety disorder, or other long-term condition.
3. Note that the APS and the CCHS have different definitions of chronic condition. On the CCHS, the following conditions are included: Asthma, arthritis, back problems excluding fibromyalgia and arthritis, high blood pressure, migraine headaches, chronic bronchitis, emphysema or chronic obstructive pulmonary disease, diabetes, heart disease, cancer, suffers from the effects of a stroke, bowel disorder, Alzheimer's disease or other dementia, mood disorder, or anxiety disorder.

Off-reserve First Nations females aged 15 and older were significantly more likely than their male counterparts to report three or more chronic conditions, and significantly less likely to report one chronic condition (Chart 1).

Chart 1
Prevalence of chronic conditions diagnosed by a health professional, by number of conditions and sex, First Nations population aged 15 and older with at least one chronic condition, 2012



* significantly different from reference category (ref.) at $p < 0.05$
Note: The lines overlaid on the bars in this chart indicate the 95% confidence interval.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

The likelihood of having a chronic condition increased with age: just under half (47%) of off-reserve First Nations people aged 15 to 24 reported a chronic condition, followed by those aged 25 to 54 (62%), while over four in five (83%) of those aged 55 and older reported having a chronic condition (data not shown).

Off-reserve First Nations people living in the Territories (Yukon, Northwest Territories, and Nunavut) were the least likely to report a chronic condition (52% vs. 63% for the total First Nations population in Canada population; data not shown). This may be due to limited access to health care in the Territories, as health diagnoses are dependent on accessing health care. Remote geography and consequently fewer health care facilities and health professionals in the area have been noted as barriers to health care access in the Territories (Auditor General of Canada 2011).

Most prevalent conditions

The chronic conditions most commonly reported by off-reserve First Nations people aged 15 and older were high blood pressure[4] (22%), arthritis (20%), and asthma (15%). Females were significantly more likely than males to be diagnosed with arthritis, asthma, an anxiety disorder[5], or a mood disorder[6] (Table 2). Diabetes was reported by 10% of First Nations people, of which the vast majority (96%) were Type 2 diabetes.

Table 2
Prevalence of selected chronic conditions diagnosed by health professionals, by population characteristics, off-reserve First Nations population and total population of Canada, aged 15 years and older, 2012

	Chronic conditions					
	High blood pressure	Arthritis	Asthma	Mood disorder	Anxiety disorder	Diabetes
	percent					
Total First Nations population	**22**	**20**	**15**	**15**	**14**	**10**
Men (ref.)	21	15	12	10	10	9
Women	23	23*	18*	19*	18*	11
Age groups						
15 to 24	3*	2[E]*	16	13	14*	1[E]*
25 to 54	21*	17*	15	17*	17*	9*
55 and older (ref.)	50	47	15	11[E]	9	25
Total population of Canada (age standardized)	**18**	**12**	**8**	**7**	**7**	**5**

[E] use with caution
* significantly different from reference category (ref.) at $p < 0.05$.
Note: When the rates of selected chronic conditions for the total population of Canada are compared to the First Nations population, it is necessary to age-standardize the Canadian population to reflect the younger age structure of the First Nations population.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012; Canadian Community Health Survey, 2012.

Self-reported health

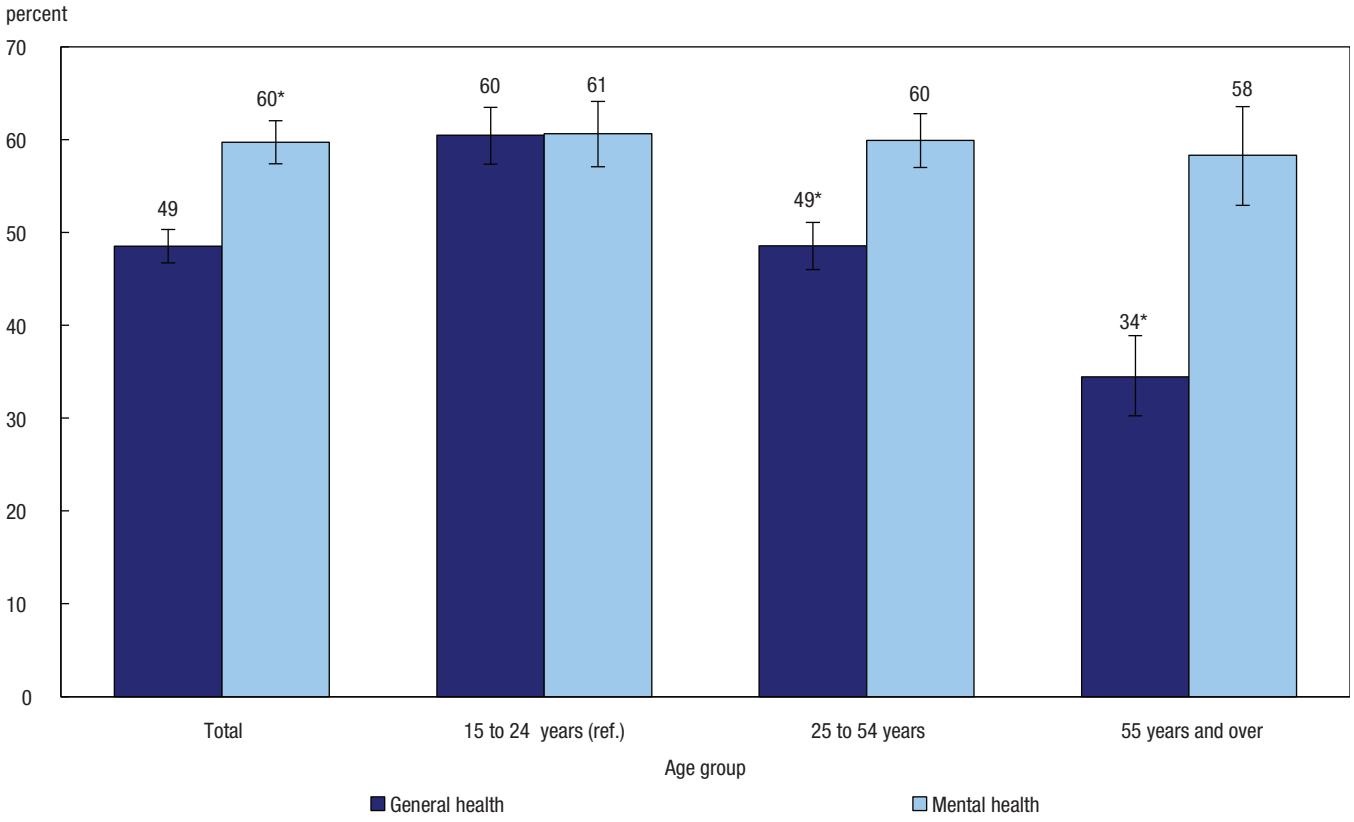
In 2012, nearly half (49%) of off-reserve First Nations people aged 15 and older reported excellent or very good health[7], compared with 62% of the total population of Canada (CCHS 2012). Just under a third (29%) reported good health, and 22% reported fair or poor health. Those aged 15 to 24 were significantly more likely to report excellent or very good health compared with those aged 25 and older (60% vs. 45%). Overall, First Nations males were more likely to report excellent or very good health than females (52% vs. 45%). No significant differences were found between geographical regions[8].

While the proportion of off-reserve First Nations people aged 15 and older reporting excellent or very good general health decreased with age, there were no age-based differences for self-reported mental health.

When asked about their mental health, 60% of First Nations people living off reserve aged 15 and older reported excellent or very good mental health[9], compared with 72% of the total Canadian population. Over a quarter (27%) reported good mental health, and the remaining 14% reported fair or poor mental health. First Nations males were more likely to report excellent or good mental health than females (64% vs. 56%). However, the proportion reporting excellent or very good mental health does not decline with age. Rather, as First Nations people age, they are equally as likely to report excellent or very good mental health as those younger than them (Chart 2).

4. Includes those currently diagnosed with high blood pressure at the time of the interview and those who reported ever being diagnosed with high blood pressure.
5. Anxiety disorders include conditions such as phobia, obsessive-compulsive disorder, or a panic disorder.
6. Mood disorders include conditions such as depression, bipolar disorder, mania or dysthymia.
7. General health and mental health are self-rated out of a 5-point scale where 5 represents excellent, followed by very good, good, fair, and 1 being poor.
8. Regions analyzed include: Atlantic, Quebec, Ontario, Prairies, British Columbia and the Territories.
9. Self-rated mental health responses exclude respondents who were interviewed by proxy (9%); in other words, someone in their household responded on their behalf. Note that because proxy interviews were more common among those under 18 years of age, this group is less represented in the results. For instance, 37% of respondents aged 15 to 18 (or 25% of those in the 15 to 24 age group) were not asked the self-rated mental health question (this is compared with 5% for the 25 to 54 age group and 7% for the 55 and older age group).

Chart 2
Percentage reporting excellent or very good general or mental health, by age group, off-reserve First Nations population aged 15 and older, 2012



* significantly different from reference category (ref.) at $p < 0.05$
Note: The lines overlaid on the bars in this chart indicate the 95% confidence interval.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

Social determinants of health – Health outcomes

Some social determinants have a greater impact than others on the likelihood of having a chronic condition, poor or fair self-rated general health, or poor or fair self-rated mental health. In order to assess this impact, the relationships between selected social determinants of health and three high-level indicators of negative health outcomes are tested, while controlling for all other applicable respective social determinant factors. Multi-variate results are described throughout this paper as adjusted probabilities, while bi-variate (unadjusted probabilities) results are made available in Appendix A.

Demographic characteristics

Among off-reserve First Nations people aged 15 and older, females were significantly more likely than males to report having at least one chronic condition (65% vs. 60%), after controlling for multiple factors (see Table 3 footnote).

First Nations people aged 55 and older were more likely than younger age groups to have at least one chronic condition or rate their general health as poor or fair, after controlling for various factors, but there were no differences across age groups for the likelihood of reporting poor or fair mental health.

Table 3
Predicted probabilities[1] of having selected poor health outcomes, by demographic characteristics, off-reserve First Nations population aged 15 and older, 2012

Demographic characteristics	At least one chronic condition	Fair or poor self-rated general health	Fair or poor self-rated mental health
Male	0.60*	0.21	0.12
Female (ref.)	0.65	0.23	0.15
15 to 24 years of age	0.50*	0.14*	0.12
25 to 54 years of age	0.63*	0.22*	0.14
55 years of age and older (ref.)	0.81	0.30	0.13

* significantly different from reference category (ref.) at $p < 0.05$.
1. Adjusted to account for sex, age group, smoking type, heavy drinking, obesity/being overweight, house repairs needed, moves once or more in the last 12 months, high school education, employment status, income group, food insecurity, unmet health needs, participation in traditional activities, Aboriginal language ability, social support, residential school attendance, and family residential school attendance.

Note: Predicted probabilities are calculated using a logistic regression model, using the covariates at their mean values.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

Proximal determinants of health

According to the Integrated Life Course and Social Determinants Model of Aboriginal Health framework, proximal determinants of health are conditions that have a direct impact on one's physical, emotional, mental or spiritual health (Reading and Wien 2009). This includes health behaviours, physical environments, and institutional resources.

Health behaviours

Smoking

In 2012, one in 10 (10%) First Nations people aged 15 and older living off reserve reported being an occasional smoker, and 29% reported smoking daily. This proportion is greater than the 16% of the total population of Canada aged 15 and older who reported smoking on a daily basis (CCHS 2012).

The negative health risks associated with smoking have been well established in the literature, and include increased risks of developing cancer and cardiovascular diseases among other chronic conditions (Health Canada 2011). According to the APS, compared with those who smoke occasionally or not at all, those who reported smoking daily were significantly more likely to report having at least one chronic condition as well as rate their general health as poor/fair (Table 4). These findings remained after controlling for other social determinants of health including heavy drinking, a recognized correlate of daily smoking (Ryan et al. 2015).

Daily smoking was associated with having at least one chronic condition and poor/fair self-rated general and mental health.

Alcohol consumption

In 2012, one in four (26%) First Nations people aged 15 and older living off reserve reported not consuming alcohol in the previous 12 months, compared to one in five (21%) for the total Canadian population. A quarter (26%) of First Nations people reported heavy drinking – defined as five or more drinks on a single occasion at least once a month (Statistics Canada 2013). This proportion is greater than for the total population of Canada (20%)[10].

Existing research has established an association between alcohol use or alcohol abuse and poor health outcomes, including liver disease, cancer, and prenatal complications (Health Canada 2013). However, the present study did not detect any statistically significant associations with general negative health outcomes once multiple factors were taken into account: those who were classified as heavy drinkers were no more likely than those who were not heavy drinkers to have any one of the three negative health outcomes analyzed (Table 4).

10. As with other health figures presented in this paper, the total Canadian population figures were age-standardized to reflect the younger age structure of the First Nations population given that alcohol consumption is more common among younger age groups. Prior to age-standardization, the prevalence of heavy drinking for the total population of Canada was 18% (CCHS 2012).

It must also be noted that there may be other confounding factors influencing these results. It is possible that those with a chronic condition are not consuming alcohol as a result of their condition, or that those who consider themselves to be in poor or fair health are abstaining from alcohol consumption precisely because of their concern for their general health.

Table 4
Predicted probabilities[1] of having selected poor health outcomes, by social determinants of health experienced, off-reserve First Nations population aged 15 and older, 2012

Proximal determinants - health behaviours	At least one chronic condition	Fair or poor self-rated general health	Fair or poor self-rated mental health
Daily smoker	0.66*	0.26*	0.16
Occasional or non-smoker (ref.)	0.62	0.21	0.12
Heavy drinker	0.62	0.20	0.15
Not a heavy drinker (ref.)	0.64	0.23	0.13
Overweight or obese[2]	0.66*	0.24*	0.14
Normal weight[2] (ref.)	0.59	0.17	0.13

* significantly different from reference category (ref.) at $p < 0.05$.
1. Adjusted to account for sex, age group, smoking type, heavy drinking, obesity/being overweight, house repairs needed, moves once or more in the last 12 months, high school education, employment status, income group, food insecurity, unmet health needs, participation in traditional activities, Aboriginal language ability, social support, residential school attendance, and family residential school attendance.
2. Excludes those 17 years of age or younger. Excludes persons who classifed as underweight (2.2%).

Note: Predicted probabilities are calculated using a logistic regression model, using the covariates at their mean values.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

Obesity

In 2012, one in three (34%) First Nations people living off reserve aged 18 years or older were classified as overweight[11]. Just under a third (31%) were classified as obese, compared with 17% of the total population of Canada (CCHS 2012). Obesity has been established as a risk factor for developing chronic conditions such as Type 2 diabetes, cardiovascular disease, hypertension, and some types of cancer (Navaneelan and Janz 2014).

After controlling for multiple factors, off-reserve First Nations people aged 18 and older classified as obese or overweight were significantly more likely than those of normal weight[12] to have rated their general health as fair or poor and to have at least one chronic condition (Table 4). In accordance with research on the link between health complications and obesity, 2012 APS data found that those who were obese or overweight were more than twice as likely than those of normal weight to have reported ever being diagnosed with high blood pressure (31% vs. 13%), as well as twice as likely to report having heart disease (9% vs. 4%[E]; data not shown).

Obesity was found to be a predictor of having at least one chronic condition, and of self-rated poor or fair general health.

11. Calculated according to Body Mass Index (BMI) standards using self-reported height and weight. Given the fluctuations in weight and height for youth, figures include respondents aged 18 and older only, and exclude female respondents aged 18 to 49 who were pregnant. It should be noted that self-reported height is often overestimated and self-reported weight is often underestimated (Navaneelan and Janz 2014; Connor et al. 2008), and thus the resulting BMI measures are likely conservative ones.
12. Underweight First Nations people were excluded from health outcome analyses due to their low occurrence (2.2% of all First Nations people aged 18 and older were classified as underweight on the 2012 APS) and to simplify comparisons between weight groups.

Proximal determinants – Physical environments and resources

Housing

Inadequate housing conditions are recognized by the literature as determinants of poor health among the Aboriginal population (National Collaborating Centre for Aboriginal Health 2010). One such condition is the physical state of the home and its need for repairs[13]. The 2012 APS found that 13% of First Nations people aged 15 and older living off reserve reported living in dwellings that needed major repairs; for example, with a need to correct defective wiring or plumbing or structural problems with walls, floors and ceilings. Accounting for various factors, those who reported living in a dwelling where major repairs were needed were significantly more likely than those whose homes needed only minor or no repairs to report any of the three negative health outcomes (Table 5).

Living in a dwelling in need of major repairs was associated with poorer health outcomes for off-reserve First Nations people aged 15 and older.

Table 5
Predicted probabilities[1] of having selected poor health outcomes, by social determinants of health experienced, off-reserve First Nations population aged 15 and older, 2012

Proximal determinants - physical environments and resources	At least one chronic condition	Fair or poor self-rated general health	Fair or poor self-rated mental health
House in need of major repairs	0.70*	0.27*	0.18*
House in need of minor/no repairs (ref.)	0.62	0.21	0.13
Moved once or more in the last 12 months	0.62	0.20	0.12
Did not move in the last 12 months (ref.)	0.63	0.23	0.14

* significantly different from reference category (ref.) at $p < 0.05$.
1. Adjusted to account for sex, age group, smoking type, heavy drinking, obesity/being overweight, house repairs needed, moves once or more in the last 12 months, high school education, employment status, income group, food insecurity, unmet health needs, participation in traditional activities, Aboriginal language ability, social support, residential school attendance, and family residential school attendance.

Note: Predicted probabilities are calculated using a logistic regression model, using the covariates at their mean values.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

Mobility

According to the APS, in 2012, 13% of First Nations people aged 15 and older living off reserve reported moving once in the previous year, 2% moved twice in the same period, and 1% moved three or more times. Residential mobility patterns can impact one's health insofar as frequent moves can act as a barrier to health care (Snyder and Wilson 2012). Research has found that in the case of Aboriginal children, the odds of excellent or very good health declined as the number of residential moves increased (Findlay and Janz 2012).

In the present study, no significantly different health outcomes were detected between those who moved once or more in the last 12 months and those who did not move at all[14] (Table 5). It is of note that research in the area of residential mobility and health has largely focussed on barriers to health care (Snyder and Wilson 2012) which APS data did support: in 2012, off-reserve First Nations people aged 15 and older who had moved twice or more in the previous year were significantly less likely to have a regular medical doctor than those who moved only once or not at all (61% vs. 80%; data not shown).

Education and employment

Research has established that lower levels of education and/or unemployment is often associated with poorer social and health outcomes (Mikkonen and Raphael 2010).

13. Crowding in the home is also widely recognized as a contributor to ill health in Aboriginal populations (Assembly of First Nations; National Collaborating Centre for Aboriginal Health 2009). However, in this study, crowding was (weakly) negatively associated with having any of the three selected negative health outcomes. This is counterintuitive based on the literature, and is explained by positive and negative interactions with other social determinants in the model such as social support, age, and housing repairs. The global effect may include "cancelling out effects," which cannot be measured by the data, and as such, crowding was removed from the model.
14. A parallel model was run for those who moved twice or more in the last 12 months in aim of analyzing a more frequent mobility category with greater potential for life disruption. However, no significant differences in health outcomes were detected (data not shown).

Data from the 2012 APS indicate that three quarters (76%) of First Nations people aged 25 and older living off reserve had attained a high school diploma or higher[15]. When controlling for various other factors including age and employment, First Nations people whose highest level of education was less than high school were significantly more likely to report having at least one chronic condition in addition to fair or poor self-rated general health than those with high school or higher education (Table 6).

According to the NHS, the 2011 unemployment rate for single identity First Nations people aged 15 and older living off reserve was 15.3%. This is compared with a 7.8% unemployment rate for the total population in Canada (NHS 2011). On the 2012 APS, the unemployment rate was 13%. It should be noted that 35% of First Nations people aged 15 and older were not in the labour force (e.g., retired, unavailable to work, or did not look for work in the previous month).

Having less than a high school education or being unemployed were associated with fair or poor self-rated general health.

Table 6
Predicted probabilities[1] of having selected poor health outcomes, by social determinants of health experienced, off-reserve First Nations population aged 15 and older, 2012

Proximal determinants - physical environments and resources	At least one chronic condition	Fair or poor self-rated general health	Fair or poor self-rated mental health
Less than high school education	0.66*	0.26*	0.15
High school education or higher (ref.)	0.61	0.21	0.13
Unemployed[2]	0.61	0.25*	0.17*
Employed[2] (ref.)	0.60	0.15	0.10
Annual household income in lowest tercile[3]	0.64	0.26*	0.16*
Annual household income above lowest tercile[3] (ref.)	0.62	0.20	0.12
Food insecure	0.71*	0.28*	0.19*
Food secure (ref.)	0.61	0.20	0.12

* significantly different from reference category (ref.) at $p < 0.05$.
1. Adjusted to account for sex, age group, smoking type, heavy drinking, obesity/being overweight, house repairs needed, moves once or more in the last 12 months, high school education, employment status, income group, food insecurity, unmet health needs, participation in traditional activities, Aboriginal language ability, social support, residential school attendance, and family residential school attendance.
2. Excludes those not in the labour force.
3. The lowest tercile includes those whose after-tax household income (adjusted for household size) was $22,162.07 or below (from NHS).

Note: Predicted probabilities are calculated using a logistic regression model, using the covariates at their mean values.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

After controlling for multiple factors, among off-reserve First Nations people aged 15 and older in the labour force, those who were unemployed were significantly more likely to report their self-rated general and mental health as fair or poor compared with those who were employed (Table 6).

Income

According to the 2011 NHS, First Nations people living off reserve aged 15 years and older had a median after-tax household income of $30,679 whereas the median household income for non-Aboriginal people was $40,051 (both adjusted for household size). Research has consistently found that lower income is associated with poor health outcomes (Canadian Medical Association 2013).

Another way to measure income levels and focus on those at greatest economic disadvantage is by looking at income percentiles. In the present study, the lowest tercile (a third of the off-reserve First Nations population aged 15 and older) includes those whose after-tax household income (adjusted for household size) was $22,162.07 or below. Off-reserve First Nations people aged 15 and older whose annual household income level fell within the lowest tercile were significantly more likely to have rated their general health as fair or poor, and their mental health as fair or poor, than those whose household income was above the lowest tercile (Table 6).

15. Attaining a high school diploma or higher includes having completed one of the following: a secondary school diploma or equivalent, some postsecondary education, a postsecondary certificate or diploma below the bachelor level, a Bachelor's degree, a university certificate/diploma/degree, or a university certificate/diploma/degree above the Bachelor level.

Food insecurity

The 2012 APS defines food insecurity as situations when food that was purchased does not last, there is not enough money to buy more, when a household cannot afford to eat balanced meals, or when household members cut the size of their meals or skip meals because there is not enough money for food. Research has established that when an individual is food insecure, they are at risk for a number of health issues including chronic conditions, poor mental health, and restricted mobility (Tarasuk 2009).

In 2012, one in five (20%) First Nations people aged 15 and older living off reserve experienced household food insecurity. This is compared with 8% of the total population of Canada (CCHS 2012).

In 2012, household food insecurity was disproportionately experienced by First Nations people (compared with the total Canadian population). Being food insecure significantly increased the likelihood of having poorer health outcomes.

After controlling for various factors, off-reserve First Nations people aged 15 and older who experienced household food insecurity in the previous 12 months were significantly more likely than those who were food secure to report any of the three negative health outcomes (Table 6). These findings align with other Aboriginal-focused research which explain that even when factors such as age, gender and education are accounted for, Aboriginal people living in food-insecure households have significantly higher odds of poor general health, high stress, and life dissatisfaction (Willows et al. 2011).

Intermediate determinants of health

Intermediate determinants of health are considered the origin of proximal determinants of health; for example, poverty and smoking are rooted in broader social systems, such as community structure (Reading and Wien 2009). Barriers to accessing resources towards attaining good health or knowledge about positive health are an example of such community structures, in addition to barriers that may have limited traditional and community practices of renewed relationship to the land (Reading and Wien 2009). According to the Integrated Life Course and Social Determinants Model of Aboriginal Health framework (Reading and Wien 2009), this includes access to health care, cultural continuity, and social supports.

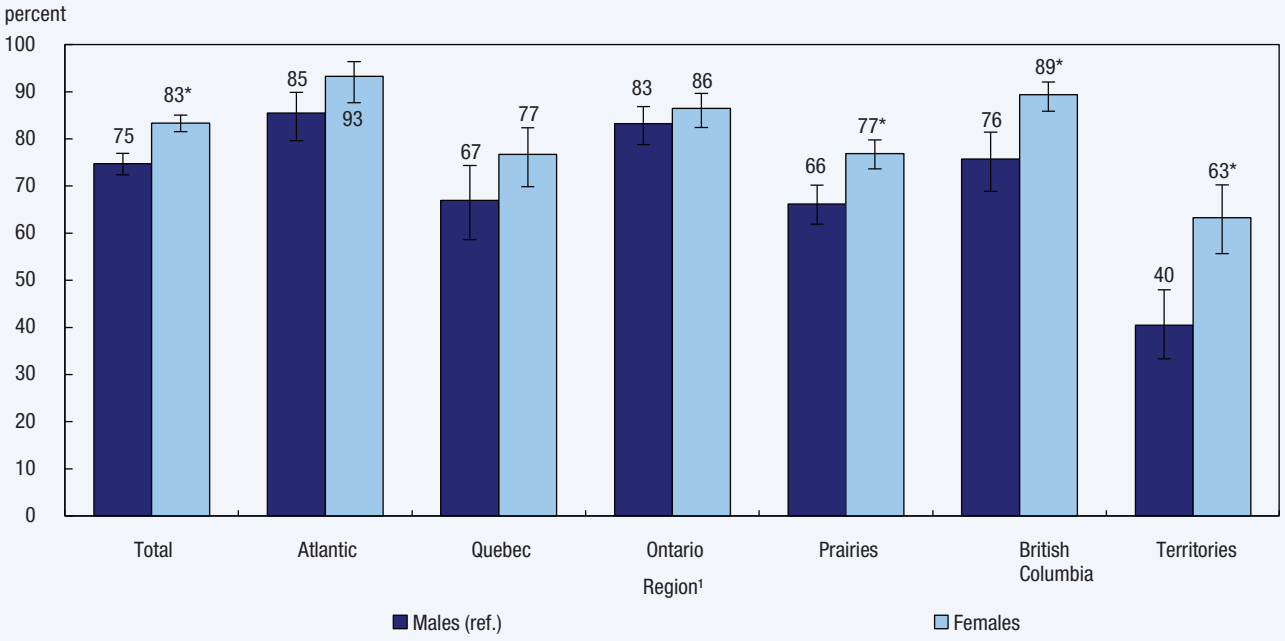
Access to health care variables were not included in the regression model when predicting health outcomes given that reporting a chronic condition (or being aware or informed by a health professional of one's general or mental health state) is dependent on accessing health services. For example, off-reserve First Nations people aged 15 and older were more likely to report being in fair or poor general health if they had a regular medical doctor than those who did not (24% vs. 17%; see Appendix A), which is expected given that seeing a health professional would be required to gain insight into one's general health. Univariate and bi-variate analyses are thus presented to illustrate the proportions of First Nations people aged 15 and older living off reserve who accessed various health care services in 2012 in **Textbox 2: Access to health care**.

Textbox 2: Access to health care

Regular medical doctor

Four in five (80%) First Nations people living off reserve aged 15 and older reported having a regular medical doctor (family doctor, pediatrician or general practitioner); slightly less than the 85% of the total population of Canada (CCHS, 2012). Those who resided in the Territories were significantly less likely than those in any other region to have a regular medical doctor (54%; data not shown). Of note is the disparity between females and males. Overall, First Nations females were significantly more likely to have a regular medical doctor than males (83% vs. 75%); however, this gap varied by region (Chart 3).

Chart 3
Percentage of First Nations population aged 15 and older with a regular medical doctor, by sex and region, 2012



* significantly different from reference category (ref.) at $p < 0.05$
1. Regions are defined as including the following provinces: Atlantic (Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick), Quebec, Ontario, Prairies (Manitoba, Saskatchewan, Alberta), British Columbia, Territories (Yukon, Northwest Territories, Nunavut).
Note: The lines overlaid on the bars in this chart indicate the 95% confidence interval.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

Of those who did not have a regular medical doctor, one third (33%) reported the reason as they hadn't tried to contact one, followed by doctors in their area not taking new patients (21%).

Contact with health professionals

In 2012, 84% of off-reserve First Nations people aged 15 and older reported seeing or talking to at least one health professional (excluding dental professionals) in the previous 12 months about their physical, emotional or mental health. Just over three in four (78%) off-reserve First Nations people aged 15 and older had seen or talked to a family doctor or general practitioner, and 29% had seen or talked to a nurse. By comparison, 79% of the total Canadian population had consulted a medical doctor and 12% had consulted a nurse (CCHS 2012; data not shown).

Contact with dental professionals

According to the 2012 APS, 62% of First Nations people aged 15 and older living off reserve had seen a dental professional in the previous year. Another 21% had seen a dental professional between one and three years earlier, and for 17%, their last contact had been three or more years earlier, or never (data not shown).

Unmet health care needs

Another way to examine access to health care is to look at perceived unmet health needs. In 2012, 14% of First Nations people aged 15 and older living off reserve experienced a time when they felt they needed health care but did not receive it, compared with 11% of the total population of Canada (CCHS 2012)[16]. First Nations females were more likely to report having unmet needs than males (17% vs. 12%; data not shown). The most commonly reported reasons for why care was not received were that waiting times were too long (24%) and reasons related to the cost of care (23%; data not shown).

Unmet needs were included in the multi-variate modelling for this paper given that it is important to consider whether people feel as if their health needs are not being met when analyzing their health outcomes. For instance, if an individual feels like they needed mental health counselling but did not receive it, this may influence how they respond when asked to rate their mental health.

After controlling for multiple factors, off-reserve First Nations people aged 15 and older who reported having an unmet health care need were significantly more likely than those who did not report an unmet need to have any of the three negative health outcomes (Table 7). While it may be an expected result that people whose health care needs aren't being met have poorer health, it is nonetheless an important finding to underscore when looking at the broader picture of health for the First Nations population.

Table 7
Predicted probabilities[1] of having selected poor health outcomes, by social determinants of health experienced, off-reserve First Nations population aged 15 and older, 2012

Intermediate determinants - access to health resources	At least one chronic condition	Fair or poor self-rated general health	Fair or poor self-rated mental health
Has unmet health care needs	0.76*	0.36*	0.23*
Does not have unmet health care needs (ref.)	0.61	0.20	0.11

* significantly different from reference category (ref.) at $p < 0.05$.

1. Adjusted to account for sex, age group, smoking type, heavy drinking, obesity/being overweight, house repairs needed, moves once or more in the last 12 months, high school education, employment status, income group, food insecurity, unmet health needs, participation in traditional activities, Aboriginal language ability, social support, residential school attendance, and family residential school attendance.

Note: Predicted probabilities are calculated using a logistic regression model, using the covariates at their mean values.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

Intermediate determinants – Cultural continuity

According to the life course component of the Social Determinants Model of Aboriginal Health framework (Reading and Wien 2009), cultural continuity is an important component of Aboriginal health and can be described as the degree of social and cultural cohesion within a community. While the APS only offers data on community networks from the perspective of an individual, the variables available do provide insight on selected cultural activities and interpersonal relationships. This includes the maintenance of selected Aboriginal traditions across generations (traditional activities), in addition to connectedness and support passed between Aboriginal families and communities (language and social support).

Traditional activities

Participation in selected activities such as hunting, fishing, trapping or gathering of wild plants is not a definitive indicator of cultural continuity or connectedness; it is only indicative of a respondent's participation in a given activity. However, this variable is used as a proxy for cultural connectedness because it does provide insight on participation in activities that are recognized as integral to First Nations cultural and spiritual practices (Reading 2009).

16. Unmet health care needs was part of an optional 2012 CCHS module delivered only in the following provinces/territories: Nova Scotia, Ontario, British Columbia, Northwest Territories and Nunavut. As such, the cited figure does not reflect national estimates.

According to the 2012 APS, nearly two in three (62%) off-reserve First Nations people aged 15 and older reported engaging in at least one of the following activities in the previous year: making clothing or footwear; making arts or crafts (for example, carvings, drawings, or jewellery); going hunting, fishing, or trapping; or gathering wild plants (for example, berries, rice or sweet grass). The most common activity to participate in was hunting, fishing or trapping, with 35% of First Nations people aged 15 and older taking part in the previous year.

Participation in traditional activities was not found to be a protective factor against the three negative health outcomes analyzed in this paper.

While some research on Indigenous populations in Australia has found that participation in activities linked to cultural or spiritual practices such as hunting or crafts can positively contribute to overall health (Dockery 2010; 2012), results concerning Aboriginal populations in Canada have been mixed (Wilson and Rosenberg 2002). In the present study, after controlling for various social factors, results suggest that those who participated in a traditional activity were more likely to have a chronic condition (Table 8). This may be explained by other factors at play; for example, some traditional activities require a certain level of physical/manual strength (e.g., hunting and fishing) or a degree of manual dexterity (e.g., sewing and crafts). The element of physical strain involved in some traditional activities may explain why there is an increased likelihood of having a chronic condition among those that take part.

Aboriginal languages

According to the 2012 APS, 43% of off-reserve First Nations people aged 15 and older reported that they could speak an Aboriginal language, even if only a few words, while 8% said that they could speak an Aboriginal language very well or relatively well. Despite a low proportion reporting they could speak an Aboriginal language very well or relatively well, six in ten (59%) felt that speaking or understanding an Aboriginal language was either somewhat or very important to them (data not shown).

Although some research has suggested that speaking an Aboriginal language is a protective factor against poor health (Chandler 2000; McIvor et al. 2009), the present study did not demonstrate a significant association between Aboriginal language speaking abilities and any of the three negative health outcome variables analyzed after controlling for various factors (Table 8). These results may be impacted by reduced access to health care in cases where households who only speak an Aboriginal language experience a language barrier in accessing health services (McIvor et al. 2009). For example, a significantly lower proportion of off-reserve First Nations people aged 15 and older who spoke an Aboriginal language most often at home had a regular medical doctor compared with those who spoke English, French or another language most often at home (59% vs. 80%, data not shown). This may explain why there was no positive relationship detected between speaking an Aboriginal language – as a proxy for cultural connectedness – and the health outcomes analyzed in this paper.

Table 8
Predicted probabilities[1] of having selected poor health outcomes, by social determinants of health experienced, off-reserve First Nations population aged 15 and older, 2012

Intermediate determinants - cultural continuity	At least one chronic condition	Fair or poor self-rated general health	Fair or poor self-rated mental health
Did not participate in a traditional activity in the last 12 months	0.60*	0.23	0.12
Participated in a traditional activity in the last 12 months (ref.)	0.64	0.22	0.14
Can speak an Aboriginal language very well or relatively well	0.60	0.21	0.12
Can speak with effort or only a few words, or not at all (ref.)	0.63	0.22	0.14
No one to turn to for support	0.63	0.31*	0.16
Has at least a family member or non-relative to turn to for support (ref.)	0.63	0.22	0.13

* significantly different from reference category (ref.) at $p < 0.05$.

1. Adjusted to account for sex, age group, smoking type, heavy drinking, obesity/being overweight, house repairs needed, moves once or more in the last 12 months, high school education, employment status, income group, food insecurity, unmet health needs, participation in traditional activities, Aboriginal language ability, social support, residential school attendance, and family residential school attendance.

Note: Predicted probabilities are calculated using a logistic regression model, using the covariates at their mean values.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

Social support

Having a strong social support system has been associated with positive health outcomes (Canadian Institute for Health Information 2012). According to the 2012 APS, when asked who they could turn to for support in a time of need, 95% of off-reserve First Nations people aged 15 and older reported they could turn to either family, non-relatives, or both. The majority reported being able to turn only to family (68%), while 19% reported being able to turn to both family and non-relatives. Finally, 5% reported not having anyone to turn to.

Social support was a protective factor against self-rated poor or fair general health for off-reserve First Nations people aged 15 and older.

After controlling for multiple factors, those who reported having no one to turn to for social support in a time of need were significantly more likely to rate their general health as poor or fair than those who had someone (whether family, non-relatives, or both) to turn to (Table 8).

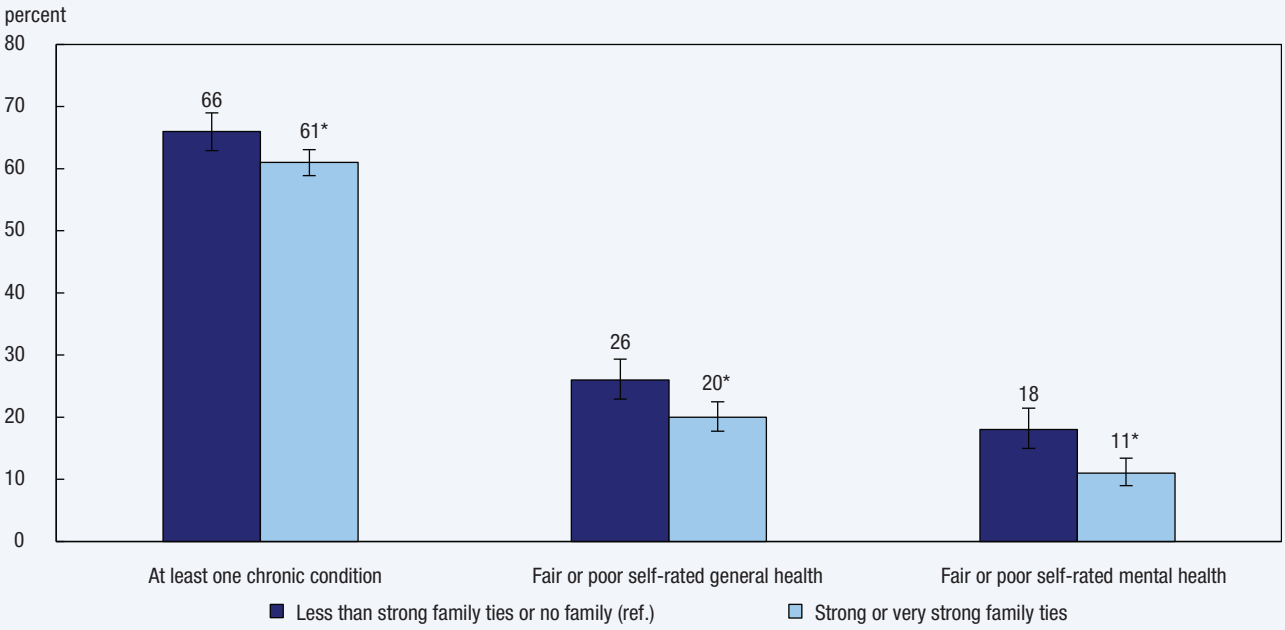
Textbox 3: Family ties as a source of support

Family ties – as defined by the APS – is the relationship between an individual and members of their family living in the same city, town or community but in another household, and is an important indicator of access to emotional support, in addition to the social support variable discussed above. However, due to the interaction between family ties and support variables in a multi-variate model where one is inherently related to the other, family ties was excluded from the regression model to eliminate collinearity. Nonetheless, given the Integrated Life Course and Social Determinants Model of Aboriginal Health framework's (Reading and Wien 2009) emphasis on cultural continuity which includes family support, there is value in exploring it descriptively.

When asked how strong the ties among members of one's family living in their city, town or community but in another household were, 68% of First Nations people reported that their family ties were strong or very strong. A small proportion (11%) indicated that they had weak or very weak family ties, and 9% indicated that they did not have any family members living in another household in their city, town, or community (data not shown).

When examined independently of other variables explored in this paper, off-reserve First Nations people aged 15 and older who reported strong or very strong family ties were significantly less likely than those with less than strong family ties to report any of the three high-level negative health outcomes (Chart 4; see Appendix A).

Chart 4
Selected self-reported health outcomes by strength of family ties,[1] off-reserve First Nations population aged 15 and older, 2012



* significantly different from reference category (ref.) at $p < 0.05$
1. Family ties are defined as the strength of relationship between the respondent and members of their family living in the same city, town or community but in another household and is rated on a scale of 1 (very weak) to 5 (very strong). 'Less than strong family ties or no family' includes those who reported not having any family living in the same city, town or community and in another household, as this is equally indicative of lack of family support.
Note: The lines overlaid on the bars in this chart indicate the 95% confidence interval.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

Distal determinants

Distal determinants of health stem from political, economic, and social circumstances and include colonialism, racism, and social exclusion. Some of these concepts are difficult to measure quantitatively, and not all variables of interest are available on the 2012 APS. The APS offers data on residential school attendance, which has been identified as an indicator of the effects of colonialism given the impact of assimilation on Aboriginal culture and values (Reading and Wien 2009).

According to the 2012 APS, 9% of off-reserve First Nations people aged 20 years and older reported having attended a residential school at some point in their lives. Of those aged 55 years and older, 17% had attended a residential school. Overall, for more than half (60%) of First Nations people aged 15 and older living off reserve, at least one known family member[17] had attended a residential school[18].

While there is an abundance of literature on the negative social and health outcomes of residential school attendance, the present study did not detect any significant differences with respect to selected health outcomes analyzed.

Literature has long documented both the negative health effects of residential school attendance (First Nations Regional Longitudinal Health Survey 2005), as well as its intergenerational effects (Bombay et al. 2009; Bougie and Senécal 2010; The Truth and Reconciliation Commission of Canada 2015). In the current study, residential school attendance was not significantly associated with any of the three selected high-level negative health outcomes. Although there were significant differences prior to modelling where those who attended a residential school were more likely to have a chronic condition or report poor or fair general health (Appendix A), these differences were no longer significant after controlling for multiple factors (Table 9).

Table 9
Predicted probabilities[1] of having selected poor health outcomes, by social determinants of health experienced, off-reserve First Nations population aged 15 and older, 2012

Distal determinants	At least one chronic condition	Fair or poor self-rated general health	Fair or poor self-rated mental health
Attended residential school[2]	0.67	0.26	0.15
Did not attend residential school (ref.)[2]	0.63	0.22	0.13
Family member attended residential school	0.61	0.23	0.12
Family member did not attend residential school (ref.)	0.63	0.21	0.14

* significantly different from reference category (ref.) at $p < 0.05$.

1. Adjusted to account for sex, age group, smoking type, heavy drinking, obesity/being overweight, house repairs needed, moves once or more in the last 12 months, high school education, employment status, income group, food insecurity, unmet health needs, participation in traditional activities, Aboriginal language ability, social support, residential school attendance, and family residential school attendance.
2. Universe includes respondents aged 20 years and older.

Note: Predicted probabilities are calculated using a logistic regression model, using the covariates at their mean values.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

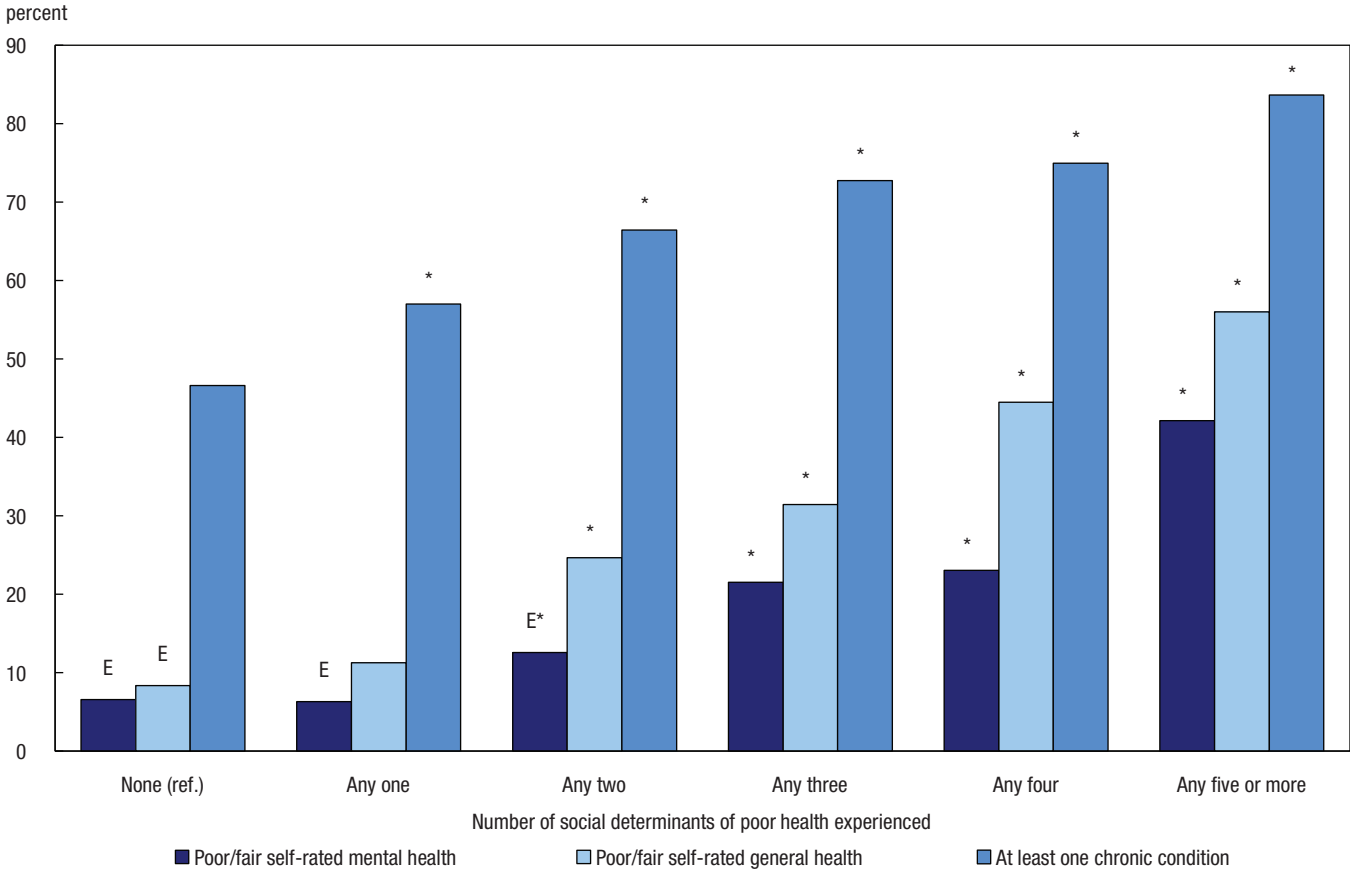
Intersecting social determinants of health

Thus far, this report has presented an overview of selected health outcomes for the off-reserve First Nations population aged 15 and older, and explored how various social determinants of health impact such health outcomes. It is clear that certain social determinants of health have a greater impact on the likelihood of experiencing poor health outcomes than others. But what are the health outcomes of First Nations people who experience *multiple* social determinants of poor health?

Referred to as 'intersectionality theory', research has explained how the compounding effects of multiple points of social disadvantage yield increasingly negative life outcomes (Siltanen and Doucet 2008). The upwards trends in Chart 5 illustrate the exacerbating effects of intersecting social determinants of health: The greater the number of social determinants of poor health that off-reserve First Nations people aged 15 and older experience, the greater the likelihood of having a poor health outcome (in the form of a chronic condition, poor or fair self-rated general health, or poor or fair self-rated mental health). The social determinants selected for inclusion in this model were those that were statistically significant predictors of at least one of the poor health outcomes discussed above in this paper.

17. Family members include grandparents, mother, father, spouse/partner, brothers or sisters, aunts or uncles, cousins, or any other relatives.
18. Note that non-response rates for residential school attendance of a family member were high (24%; Appendix B).

Chart 5
Self-reported health outcomes (proportions) by number of selected social determinants of poor health experienced,[1] off-reserve First Nations population, 15 years and older, 2012



[E] Use with caution
* significantly different from reference category (ref.) at $p < 0.05$
1. Social determinants of poor health include: being a daily smoker, overweight or obese, living in a house in need of major repairs, less than high school education, unemployed, annual household income within the lowest tercile for the selected population ($22,162.07 and below), experienced food insecurity in the last 12 months, and has no one to turn to for support in time of need.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

As the number of social determinants of poor health experienced increases, the likelihood of poor health outcomes increases.

It must be noted that the figures presented above include any combination of social determinant of health variables. Further, as presented throughout this paper, some determinants are more influential than others in predicting poor health outcomes. Readers are cautioned to note that when interpreting Chart 5, the percentages along the vertical axis should not be used as precise indicators of proportions given that the social determinants of health included in the model have varying degrees of impact on the health outcomes analyzed in this paper[19]. Rather, the take-away message is that the likelihood of reporting any of the three self-reported negative health outcomes increases as the number of social determinants of poor health increase. For example, someone who is unemployed, a daily smoker, living in a house in need of major repairs, *and* experienced food insecurity in the last 12 months has a significantly greater likelihood of having at least one chronic condition, poor or fair self-rated general health, or poor or fair self-rated mental health than someone who did not experience any of these negative social conditions (see footnote in Chart 5 for full list of determinants included).

The rate at which the proportions increase by number of social determinants of poor health experienced are similar for each of the three health outcomes analyzed. This suggests that irrespective of the selected health outcome, the greater number of social determinants of poor health experienced, the greater the risk of overall poor health outcomes.

19. The graph presented in Chart 5 assumes that the social determinants of health included in the model are of similar impact on selected health outcomes.

Textbox 4: Limitations

Under the Aboriginal-focused health framework used in this paper (Reading and Wein 2009), not every social determinant of health outlined by the framework was available for analysis on the 2012 APS. This includes variables that fall under the intermediate determinants of health domain: environmental stewardship (defined by the framework as ownership of traditional land), community infrastructure (community funding and access to programs), and educational systems (funding of Aboriginal Head Start programs and availability of education with Aboriginal content and focus on Aboriginal learning styles). Further, some APS variables such as participation in traditional activities and knowledge of Aboriginal language(s) were used as proxies for cultural connectedness even though it is recognized that these variables alone may not fully represent a connection to culture in the truest sense. The current study also lacked APS variables for distal determinants of health, such as self-determination (i.e., mastery or resilience), and racism and social exclusion. Further, it is acknowledged that while the APS does not include variables on victimization and childhood experiences of maltreatment, there concepts are important in examining health outcomes, particularly mental health.

Finally, the 2012 APS is a cross-sectional data source, and as such it is not possible to infer a causal relationship between the social determinants of health and the three health outcomes analyzed in this paper.

Conclusions and future research

Conceptualized within an Aboriginal health framework (Reading and Wien 2009), this report presented an overview of the social determinants of health for the First Nations population aged 15 and older living off reserve. Links were made between health outcomes and varying social determinants of health, including proximal determinants of health such as health behaviours and institutional status (e.g., education, employment, income), intermediate determinants (access to health care and cultural continuity), and distal determinants (residential school attendance).

In the present study, the following social determinants had a significant impact on selected negative health outcomes: smoking daily, being overweight or obese, living in a house in need of major repairs, having less than high school education, being unemployed, having an annual income in the lowest tercile for the selected population ($22,162.07), experiencing food insecurity in the previous 12 months, having unmet health needs, and having no one to turn to for support in a time of need. A supplementary analysis revealed that the likelihood of having a negative health outcome increased as the number of social determinants of poor health experienced increased.

Health behaviours as well as environmental and social conditions impact the health outcomes of First Nations people.

Future research on the First Nations population would benefit from more in-depth analysis of mental health information; for example, by exploring trends in reported mood and anxiety disorders. Analyzing First Nations mental health trends using other data sources such as the CCHS is one area of future exploration, or potential future iterations of the APS whose themes can accommodate more content on physical and mental health.

Furthermore, research on the social determinants of health that contribute to mortality is an important area of health research. Recent research has found that avoidable mortality rates are significantly higher for First Nations people compared with non-Aboriginal Canadians (Park et al. 2015). In other words, First Nations people were significantly more likely to die prematurely than non-Aboriginal people. A detailed exploration of social determinants of health that lead to mortality and of preventative factors to reduce avoidable mortality is an area ripe for future research.

Finally, although this paper has largely presented social determinants as linked to negative health outcomes, it is important to recognize the inverse of this message: social determinants of health can equally act as protective factors for First Nations people when adequate proximal, intermediate, and distal conditions and support systems are established.

Appendix A

Table A1
Proportions (unadjusted) with selected poor health outcomes, by social determinants of health experienced, off-reserve First Nations population aged 15 and older, 2012

	At least one chronic condition	Fair or poor self-rated general health	Fair or poor self-rated mental health
Demographic characteristics			
Male	0.58*	0.18*	0.10*
Female (ref.)	0.67	0.25	0.16
15 to 24 years of age	0.47*	0.10*	0.11
25 to 54 years of age	0.62*	0.22*	0.14
55 years of age and older (ref.)	0.83	0.37	0.13[E]
Proximal determinants - health behaviours			
Daily smoker	0.70*	0.30*	0.20*
Occasional or non-smoker (ref.)	0.60	0.19	0.11
Consumed alcohol in the past 12 months	0.60*	0.18*	0.12*
Did not consume alcohol in the past 12 months (ref.)	0.72	0.33	0.17
Heavy drinker	0.58*	0.18*	0.14
Not a heavy drinker (ref.)	0.65	0.23	0.13
Overweight or obese[1]	0.68*	0.26*	0.14
Normal weight[1] (ref.)	0.58	0.17	0.13
Proximal determinants - physical environments and resources			
House in need of major repairs	0.77*	0.36*	0.26*
House in need of minor/no repairs (ref.)	0.61	0.20	0.12
Moved once or more in the last 12 months	0.59	0.19	0.13
Did not move in the last 12 months (ref.)	0.64	0.23	0.14
Less than high school education	0.74*	0.36*	0.20*
High school education or higher (ref.)	0.61	0.19	0.12
Unemployed[2]	0.58	0.24*	0.20*
Employed[2] (ref.)	0.57	0.13	0.09
Annual household income in lowest tercile[3]	0.69*	0.34*	0.22*
Annual household income above lowest tercile[3] (ref.)	0.60	0.16	0.09
Social benefits main source of personal income	0.75*	0.43*	0.32*
Employment/other as main source of personal income (ref.)	0.61	0.19	0.11
Food insecure	0.76*	0.39*	0.28*
Food secure (ref.)	0.59	0.18	0.10
Intermediate determinants - access to health resources			
Does not have a regular medical doctor	0.49*	0.17*	0.14
Has a regular medical doctor (ref.)	0.67	0.24	0.14
Did not see or talk to a health professional in past year	0.37*	0.10*	0.06*[E]
Saw or talked to a health professional in past year (ref.)	0.68	0.24	0.15
Visited dental professional in past year	0.67*	0.29*	0.16*
Have not visited dental professional in past year (ref.)	0.60	0.18	0.12
Has unmet health care needs	0.81*	0.44*	0.32*
Does not have unmet health care needs (ref.)	0.60	0.18	0.10
Intermediate determinants - cultural continuity			
Did not participate in a traditional activity in the last 12 months	0.61	0.24	0.12
Participated in a traditional activity in the last 12 months (ref.)	0.64	0.21	0.15
Can speak an Aboriginal language very well or relatively well	0.70*	0.32*	0.16
Can speak with effort or only a few words, or not at all (ref.)	0.62	0.21	0.13
Less than strong family ties	0.66*	0.26*	0.18*
Strong or very strong family ties (ref.)	0.61	0.20	0.11
No one to turn to for support	0.73*	0.44*	0.22[E]
Has at least a family member or non-relative to turn to for support (ref.)	0.62	0.21	0.13
Distal determinants			
Attended residential school[1]	0.77*	0.36*	0.17
Did not attend residential school (ref.)[1]	0.64	0.23	0.13
Family member attended residential school	0.61	0.23	0.13
Family member did not attend residential school (ref.)	0.62	0.20	0.12[E]

* significantly different from reference category (ref.) at $p < 0.05$.
1. Excludes those 17 years of age or younger. Excludes persons who classifed as underweight (2.2%).
2. Excludes those not in the labour force.
3. The lowest tercile includes those whose after-tax household income (adjusted for household size) was $22,162.07 or below (from NHS).
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

Appendix B

Table B1
Item non-response rates, off-reserve First Nations population aged 15 years and over, 2012

Variable	Description	percent
DCHRCON	Chronic health condition status - At least one chronic condition	3.9
GH1_01	Health status - Self-perceived	3.2
MH_01	Mental health - Self-perceived	3.4
SMK_01	Smoking - Type of smoker	3.7
ALC_01	Alcohol - Drank in past 12 months	4.0
ALC_03	Alcohol - Drank in past 12 months - Five or more drinks one occasion - Frequency	5.5
DBMISTD	Body Mass Index - International standard	6.0
DPERSRM	Crowding - Persons per room	3.9
DNMOV5YR	Mobility - Number of moves - Past five years	0.5
DNMOV1YR	Mobility - Number of moves - Past 12 months	0.2
DFOODSEC	Level of food security in household	4.2
FS_06	Food security - Hungry but could not afford food - Past 12 months	3.9
GH2_01	Regular medical doctor	3.4
DCONSULT	Consulted health professional - Past 12 months	3.4
GH2_04	Dental professional - Last time visited	4.2
GH2_06	Health care needed but not received - Past 12 months	3.6
DTRACTYR	Traditional activities done during past year	2.9
DTRACTIN	Traditional activities done for money/supplement income	3.3
LAN_01	Language - Speak Aboriginal language	1.8
LAN_04	Language - Ability to speak primary Aboriginal language	3.3
LAN_09	Language - Importance of speaking/understanding Aboriginal language	2.1
CS_02	Strength of family ties - Family in different household in same community	5.6
DCOMMSUP	Person to turn to for support	4.3
RS_01	Personal residential school attendance	2.1
DRSCHATT	Family residential school attendance	23.9

Note: Non-response percentages are based on weighted estimates. Includes “don’t know”, “refusal”, and “not stated”.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012

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