Living In Balance: Gender, Structural Inequalities, And Health Promoting Behaviors In Manitoba First Nation Communities ©

by

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Executive Summary

The intent of this report is to describe health promoting behaviors, such as engaging in more physical activity, positive dietary changes, quitting smoking, and stop drinking for a time, as positive attributes that cluster in First Nation peoples. To understand the contribution that social determinants can make to positive health behaviors, this project investigates these health-promoting behaviors in relation to age, gender, socio-economic status, economic security, social conditions, and health behaviors. Reporting on health promoting behaviors in First Nation peoples illustrates that research which takes a positive approach can contribute to a more balanced understanding of health and health behaviors in First Nation communities.

This study examined characteristics that distinguish Manitoba First Nation women and men in terms of health behaviors (i.e., more physical activity, positive dietary changes, quit smoking, and stop drinking for a time). Data used for this study was derived from the Manitoba First Nations Regional Health Survey. This survey was a general health survey, which included questions on health promoting behaviors, health risk history, structural material factors, and household social environment.

For this survey, the target population was all First Nation People living in a Manitoba First Nation community as of 1997. The sampling approach was a sentinel community design. All eight Tribal Councils and eight Independent Communities were represented in the selection process. Altogether, seventeen communities agreed to participate. In each community, households were then randomly selected

from a community map and all adults and one child or youth under 18 years of age (proxy) were interviewed in each house.

The overall response rate was 81%, and a majority of the communities reported 100% completion of questionnaires. The total sample achieved was 1,948 adults and 870 children. Because more women (59%) than men (41%) answered the survey, the survey data was weighted using age and sex within each population-sampling unit (Tribal Council). After this adjustment, the sample reflected the age and sex distribution of the First Nation population.

The analysis for this paper was based on a sample of 1,870 adults representing a population of 32,030 Manitoba First Nation people. Descriptive analysis involved reporting percentages and chi-square tests of significance. A p-value of less than 0.05 was considered significant. Logistic regression modeling was used to adjust for significant characteristics. The Odds Ratio was used to summarize the association between the determinants of health, gender, and health promoting behaviors.

Three-quarters of First Nation people (75%) reported two or more positive health behaviors. Significantly more men than women (80% vs. 76%) stopped drinking. Men were also more likely to be physically active (27% vs. 16%), whereas women made appreciably more positive dietary changes (79% vs. 66%). There were little to no differences between women and men for quitting smoking or practicing two or more positive health behaviors.

Health promoting behaviors were important attributes of other health promoting behaviors. Individuals who stopped drinking had made positive dietary changes (X^2=16.1, p=0.001) and were more likely to be physically active (X^2=4.4, p=0.036). They were less likely, but not significantly so, to quit smoking (X^2=3.79, p=0.052). People who made positive dietary changes were more likely to stop drinking (X^2=4.4, p=0.036), quit smoking (X^2=20.26, p=0.001) and to be more physically active (X^2=8.8, p=0.003). Individuals who quit smoking made more positive dietary changes (X^2=20.26, p=0.001). Individuals who were more physically active tended to quit drinking (X^2=4.4, p=0.036) and to make positive dietary changes (X^2=8.8, p=0.003).

First Nation individuals who stopped drinking were more likely to report dietary changes (OR 1.51). They were more likely to be middle aged (OR 1.51) or older (OR 1.94). They tended to smoke (OR1.51) and to have a history of substance use (OR 1.51), mental health (OR1.88) or drinking problems (OR 2.38). They were less likely to report overcrowding as a problem (OR 0.51), but twice as likely to live in homes where there is an addiction problem (OR 2.02).

First Nation people who made positive dietary changes were more likely to be physically active (OR 1.52) and twice as likely to have stopped drinking (OR 2.11). They were two times more likely to be women (OR 2.03) and almost three times as likely to be older (OR 2.76) and to report higher education (OR 2.64). They were less likely to drink (OR 0.48), but more likely to be overweight (OR 1.32) and to have a mental health history (OR 1.70). They also tended not to disclose their household income (OR 1.78).

First Nations individuals who were more physically active than other community members were twice as likely to be older (OR 2.22). They tended to be men (OR 1.81). They were three times more likely to have higher education (OR 3.12) and were twice as likely to have some secondary education (OR 2.03). They tended to obtain a living from traditional land use activities or other economic sources (OR 1.81) and to make positive dietary changes (OR 1.45). They were less likely to be overweight (OR 0.54) or to experience economic insecurity (OR 1.51). First Nation people who quit smoking were twice as likely to have more education (OR 2.4), to be more economically secure (OR 1.66), and to live in households that were addiction free (OR 1.56).

First Nation individuals who reported two or more health promoting behaviors were more likely to be women (OR 1.35). They were two to four time more likely to have higher education (OR 2.11 and OR 3.81) and were more likely to be older (OR 1.56 and OR 2.36). Although they drank (OR 1.58) or had a history of substance use (OR 1.41), mental health problems (OR 1.58), or drinking problems (OR 1.92), they were more likely to report a number of health promoting behaviors.

In summary, individuals making changes were more likely to be women, older, more educated, and to have a history of drug, alcohol, or mental health problems. First Nation people who stopped drinking tended to be older and to have a history of drug and alcohol problems. Individuals who quit smoking were more likely to have higher education and income status, whereas individuals who made dietary changes were older, well educated, and women. More physically active individuals

were more likely to be men, highly educated, or engaged in traditional or other economic activities.

Positive health behaviors tend to cluster within individuals. They are associated with increased age and higher socioeconomic status. Gender differences were apparent in terms of dietary changes and physical activity. Although some First Nation people have a history of drug, alcohol or mental health problems, they were transcending this history and were actively practicing health-promoting behaviors. Education and economic security were critical determinants, as was household environment. Overall, this paper has demonstrated that structural inequalities are a major barrier to healthy living. Although social disparity does exist at the individual and household level, First Nation people are still determined to live a balanced way of life.

In conclusion, the results of this study have demonstrated that First Nation people are working at bringing balance to their lives. Health promotion programs could target younger people, men, women, and individuals from potentially unsettling social circumstances, but these programs have to rest on a First Nation understanding of how to acquire balance. The analysis suggests that elders and individuals that have achieved different levels of success could act as role models in these programs. Gender is also a factor, but very little is known as to how women differ from each other and the same can be said about men.

This paper has also demonstrated that promoting health is a complicated matter, which requires a multidimensional approach to advance a balanced way of

life. Health promotion is also very much about self-governance. Although non-governmental bodies are eager to act on behalf of First Nations by creating opportunities to advance First Nation voices, such actions can still be interpreted as another form of cultural imperialism. Promoting First Nation health from a holistic view is an act of First Nation self-governance, which requires a First Nation perspective. This paper recommends that Manitoba First Nations through their health governance structure initiate negotiations with the federal government to address health risk factors from a social determinant perspective that is based on First Nation perspectives on wellness.

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Introduction

Today, we are aware of the high rates of diabetes and cardiovascular health problems in Aboriginal populations (MadMillian et al 1996; Young et al 2000). We also have a better understanding of the long-term effects of diabetes, obesity, and hypertension, particularly in Aboriginal women (Piettit et al 1991, 1993, and 1998; Charles et al 1994; de Courten et al 1996). Several studies have tried to explain the high chronic disease rates found in the Aboriginal population through the high prevalence of several lifestyle behavioral problems (see Goldberg et al 1991; Lavalee et al 1994; Powel-Griner et al 1997; Becker et al 1993; Band et al 1992). A few Canadian studies have also looked at the health risk behaviors of Aboriginal women, particularly smoking and drinking during pregnancy (Godel et al 1992; Lippman 1995; Burd and Moffatt, 1995).

This approach to understanding health however, has reinforced biological and lifestyle determinism much to the exclusion of a broader understanding of health and wellness (see Susser and Susser 1996; Krieger 1999). In a call to decolonize this image, Aboriginal people, particularly women (Scott, 1998; Dion-Stout, 1998), are demanding research that can demonstrate, through a holistic or relational worldview, a balanced understanding of health and health behaviors in their communities. In particular, there is a need to focus on wellness, of which the clustering of positive health behaviors is one component.

At this time, we know little about Aboriginal women and men who manage to keep themselves healthy in spite of poverty, limited resources, and a poor social environment (Joe 1996). Two noteworthy studies have illustrated the importance of

examining the link between positive health behaviors and wellness. An earlier study conducted by Krick and Sobal (1990) in a non-aboriginal population had found that health protective behaviors tended to cluster in people who practiced other healthy behaviors like not smoking, exercising regularly, drinking moderately, or generally practicing health promoting behaviors. Of particular interest is a recent study conducted by Giuliano and associates (1998) on older Hopi women. In this study, they revealed that older women, as opposed to younger women, were more likely to exercise, maintain a healthy diet, and to engage in traditional Hopi behaviors to keep themselves healthy.

This paper builds on this work and looks at the way Manitoba First Nation people are keeping themselves healthy in spite of poor social economic conditions and a disadvantaged social environment. The intent of this paper is to describe such health promoting behaviors like more physical activity, positive dietary changes, quitting smoking, and stop drinking for a time as positive attributes that can cluster in First Nation people. To understand the multiple contribution determinants can make to these positive health behaviors, the paper investigates health-promoting behaviors by age, gender, socio-economic status, economic security, household social conditions, and health behaviors. A model, which best describes First Nation peoples with health promoting behaviors, illustrates that research which takes a positive approach can contribute to a more balanced understanding of health and health behaviors in Manitoba First Nation communities.

Methods

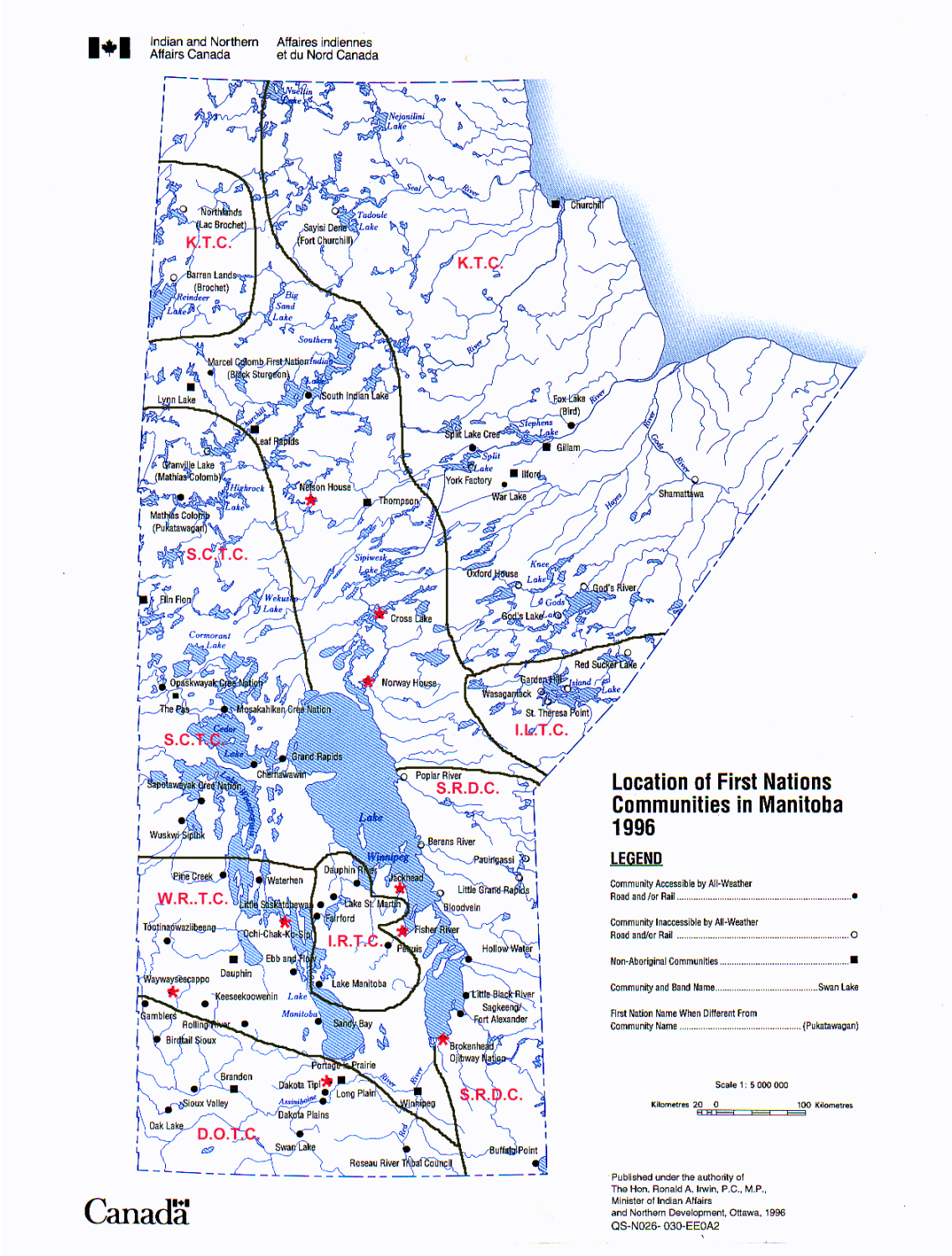
Data for this analysis was obtained from the Manitoba First Nations Regional Health Survey, which was conducted in 1997 as part of the First Nations and Inuit Regional Health Survey (Northern Health Research Unit 1998). At the national level, this survey was undertaken under the stewardship of the First Nation and Inuit Regional Health Survey National Steering Committee (FNIRHS National Steering Committee 1999). The nine regions that participated in this national initiative were British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec (excluding James Bay Cree and Inuit), New Brunswick, Nova Scotia, and the Inuit communities of Labrador. The Manitoba First Nations Regional Health Survey is owned and controlled by the Manitoba First Nations Health and Information Research committee, and was designed and implemented with technical assistance from the Northern Health Research Unit of the University of Manitoba.

For this survey, the target population was all Manitoba First Nation People living on reserve as of 1997. The sampling approach was a sentinel community design. All eight Tribal Councils and eight Independent Communities were represented in the selection process. One small community and one large community were randomly selected in each Tribal Council, and a northern and southern independent community was selected from the independent community clusters found in those regions. Three communities were selected in the Keewatin Tribal Council region because of the large number of communities in that region. Altogether, seventeen communities participated in the survey. In each community,

households were then randomly selected from a map. All adults and, by proxy, one child or youth under 18 years of age were interviewed in each house.

The overall response rate was 81%. A majority of the communities reported 100% completion of questionnaires. The total sample achieved was 1,948 adults and 870 children. For this paper, the analysis was based on a sample of 1,870 adults representing a population of 32,030 Manitoba First Nation people. Because more women (59%) than men (41%) answered the survey, the data had to be weighted using the age and sex target population within each population-sampling unit. After this adjustment, the sample reflected the age and sex distribution of the First Nation population in each of the tribal councils and independent community clusters in Manitoba.

MAP 1: MANITOBA FIRST NATIONS



Measures

The survey was a general survey that included a number of questions on health promoting behaviors, individual and household economy, health-risk history, and social environment. The analysis used the following measures.

Health Promoting Behavior Measures

Four dichotomous outcome variables were created to represent such health promoting practices as making positive dietary changes, being more physically active, quitting smoking, and stopping drinking for a time. These measures, which also tend to cluster within individuals, were also used as independent variables.

A measure reflecting "positive dietary changes" was created from a question that asked if respondents had tried to eat less meat, salt, fat, sugar, candy/pop, or junk food, and to eat more fruits and vegetables. Summing the responses of these questions created an index, and when collapsed, it identified people who made one or more positive changes to their diet. A physical activity measure was created from the question that asked respondents to compare their present physical activity level to that of other community members their own age (more active, about the same, or less active). Collapsing the last two domains resulted in a measure that portrayed everyone who was more physically active compared to everyone else. Two other measures characterized First Nation people who had quit smoking or had stopped drinking for awhile. The quit smoking measure distinguished all people who quit smoking from everyone who had used tobacco in a non-traditional way. The stopped drinking measure differentiated all people who have stopped drinking for a time from all individuals who at one point in their life had consumed alcohol. After creating

these variables, the positive responses of these measures were summed to create an index, and when collapsed, it identified First Nation people who made two or more health promoting changes.

Social Demographic and Economic Measures

Age represented a social dimension in people's lives. The age group 18 to 34 years portrayed individuals most likely to explore different behaviors, and the age group 34 to 50 years reflected a transition period of when individuals are more likely to make major behavioral changes. The oldest age group (50 years and older) represented those individuals who were most likely to have made major behavioral changes.

Education was grouped into three domains: less than grade 6, some secondary education, and completed high school and/or post secondary education. Other standard measures of socioeconomic status included household income, which was grouped into the following income categories: <$10,000, $10,000-$24,999, $25,000. Because income is generally a highly sensitive, private, and personal issue that often results in a high number of refusals, people who did not state their income were still included and categorized as a "not stated" income group. The respondent's primary source of income was another measures used, and their responses were collapsed into the following domains: wages, welfare, and traditional or other economic sources. Included in the survey was two questions which assessed economic insecurity in terms of "Does your household ever run out of money to buy food" and "Do you feel that your household brings in enough money to meet all of your basic needs?". Summing the positive responses of these two

questions created an index, and when collapsed, it identified people who were living in a household that experienced some form of economic insecurity.

Measures of Health Risk History

Several measures of health risk history were derived from the survey. Current drinking status (yes or no) was one measure, and the other portrayed a drinking problem history. This measure was derived from questions which reported that they have a drinking problem or had recognized that a problem because they were drinking too much, it affected their work or studies, or had interfered with their family or home life. The summing of these responses created an index, and when collapsed, it identified people who had a drinking problem history. Respondent's were also asked if they had ever used a variety of drugs or solvents either past or current, and each positive response was summed into an index and collapsed to reflect a drug or solvent use history. The respondent's were also asked if they ever felt suicidal or had attempted suicide. Again, all positive responses were summed into an index and then dichotomized to reveal a history of mental health problems. A measure reflecting a weight problem was created from a body mass index (BMI), which was calculated from the respondent's self-reported height and weight. A BMI greater than 27 represented all individuals that were overweight in this population.

Household Social Environment Measures

Individuals were asked if there were any of the following social concerns in their household. All positive responses to household gambling, drinking and drug concerns were summed into an index and then dichotomized it to represent the presence of an addiction problem in the household. A similar measure was created

to represent violence problems in the household, and it was based on whether there was violence towards women, abuse of elders, or physical abuse and neglect of children in the household. Another measure of the social environment involved overcrowding, which was based on the respondent's perception that overcrowding was a concern in their household.

Statistical Analysis

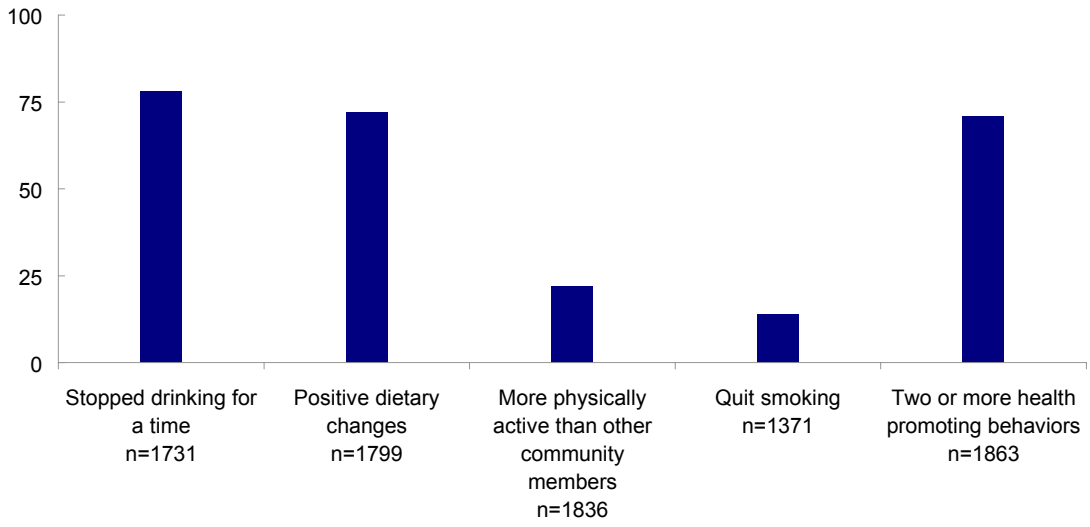
The statistical analysis for this paper involved three steps. The first step was a descriptive analysis of differences between women and men on all measures used in the analysis. The second step involved the reporting of percentages and chi-square tests of significance for the associations between the dependent and independent variables. Logistic regression modeling was then used to adjust for significant characteristics. In this analysis, the Odds Ratio was used to summarize the association between the determinants of health and health promoting behaviors. A p-value of less than 0.05 was considered significant, and results showing no difference were reported as showing equality or balance amongst First Nation people.

Results

Health Promoting Behaviors

In the First Nation population, over 70 percent of respondents had reported two or more health promoting behaviors (Figure 1). Seventy-eight percent had stopped drinking for awhile, and 72% had made positive dietary changes. However, only 22% of people had reported that they were more physically active than other community members, and only 14% had quit smoking.

FIGURE 1 – PERCENTAGE OF PEOPLE WHO REPORT PRACTICING HEALTH PROMOTING BEHAVIORS



Health promoting behaviors tended to cluster in individuals (Figure 2). Only 3% of First Nation people had reported that they had practiced no health promoting behaviors. Nearly a quarter (22%) had indicated that they had one health promoting behavior and that the most frequent behavior reported was making positive dietary changes (12%). Over half of this population (55%) indicated that they practiced two health-promoting behaviors, and the two behaviors that they had practiced the most were positive dietary changes and abstaining from alcohol (30%). The positive finding was that 30% of Manitoba First Nation people practiced three or more health-promoting behaviors. Within this group, 13% had reported that they had periodically abstained from alcohol, had quit smoking, and were making positive dietary changes. Another significant group (10%) had stated that they had stopped drinking for a time, had made positive dietary changes, and were more physically active than other members of their community.

FIGURE 2 - PREVALENCE OF HEALTH PROMOTING BEHAVIORS

One Health Promoting Behavior		
Stopped drinking for a time	1 %	22% (One)
Positive dietary changes	12 %	
More physically active than other community members	4 %	
Quit Smoking	5 %	
Two Health Promoting Behaviors		
Stopped drinking for a time and non-smoker	4 %	45% (Two)
Stopped drinking for a time and positive dietary changes	30 %	
Stopped drinking for a time and more active than other community members	2 %	
Non-smoker and positive dietary changes	7 %	
Non-smoker and more physically active than other community members	1 %	
Positive dietary changes and more physically active than other community members	1 %	
Three Health Promoting Behaviors		
Stopped drinking for a time, non-smoker, and positive dietary changes	13 %	25% (Three)
Stopped drinking for a time, non-smoker, and more physically active than other community members	1 %	
Stopped drinking for a time, positive dietary changes and more physically active than other community members	10 %	
Non-smoker, positive dietary changes, and more physically active than other community members	1 %	
All Four Health Promoting Behaviors		5% (Four)
None of the Above		3% (None)

Gender Differences

There were some noteworthy differences in the distribution of health promoting behaviors by gender (Figure 3). Significantly, more men than women (80% versus 76%) had stopped drinking. Men were also more likely to be physically active (27% versus 16%). Conversely, women made appreciably more positive dietary changes than did men (79% versus 66%). There were little to no differences between

women and men for quitting smoking (2%) or for practicing two or more positive health behaviors (4%).

Variations were also apparent in socioeconomic wellbeing, health risk history, and social environment. In the area of socioeconomic wellbeing, educational achievement was below that of other Canadians in that almost 80% of Manitoba First Nation people had not completed high school. Men and women were appreciably different in terms of the level of education they achieved. Men (18%) had generally left school earlier, while more women (66%) obtained at least some secondary education. Over half of Manitoba First Nation peoples reported that social assistance (55%) was their primary source of income, followed by 36% who derived their income from wages. Dependency on social assistance was high in First Nation communities, but only slightly higher for women (57%) than for men (53%). The majority of First Nations (57%) reported having a household income below 25,000 dollars. Only 15% had an income over $25,000, but over a quarter (28%) refused to state their household level of income. There were no differences between men and women at the lowest income level, and there were only some differences in the other income groups. Slightly more men (24%) than women (20%) reported household income between $10,000 to $24,9999, and this difference (3% versus 4%) was similar for the highest income group. However, considerably more women (31%) chose not to state their household income. A third of First Nations, regardless of gender, had stated that their household had run out of money for food or did not have enough money to meet their basic needs.

In terms of health risk history, almost 60% of First Nation people were not currently drinking at the time of the survey, and of those that did, considerably more men (51%) drank than women (36%). A similar number of Manitoba First Nation people reported that they did not have a drinking problem history, but of those that did, there was a substantial difference (15%) between men and women. More men (47%) than women (33%) had reported a drinking problem history. A little more than a half of the respondents did not have a drug or solvency history (51%). Of the respondents who had a history, men (59%) had again outnumbered women (42%). Again, about half of the respondents reported no weight problems, but for the group with problems, we found more women (54%) than men (44%) who were overweight. On a positive note, over seventy percent of First Nations did not report a mental health history, and of those that did, both genders had equally experienced a history of suicidal tendencies.

Measures that assessed risk at the level of the household level also yielded some interesting patterns. Sixty percent of First Nation people indicated that the overcrowded conditions in their household was a problem, and both women (58%) and men (62%) shared in this reality. Thirty-nine percent of Manitoba First Nations had indicated that their households were free of addictions, but 61% did not. There was little difference (2%) between women and men on the reporting of this issue. Nearly 90% of respondents had indicated that they lived in a violence free home, and slightly more women reported that violence was a problem in their household (4% difference).

In summary, there were important differences between men and women. Women tended to have more exposure to secondary education, but were somewhat more likely to depend on welfare and to live in households that experienced more economic disparity. The most sizable differences found were in health risk history. Women were more likely to report living in households with violence or neglect problems. Men tended to report that they currently drank, had a drinking problem or had a drug/solvent use history. On a positive note, men tended to quit drinking for a time and were more physically active. Women, on the other hand, tended to report more weight problems, but were more likely to make positive dietary changes.

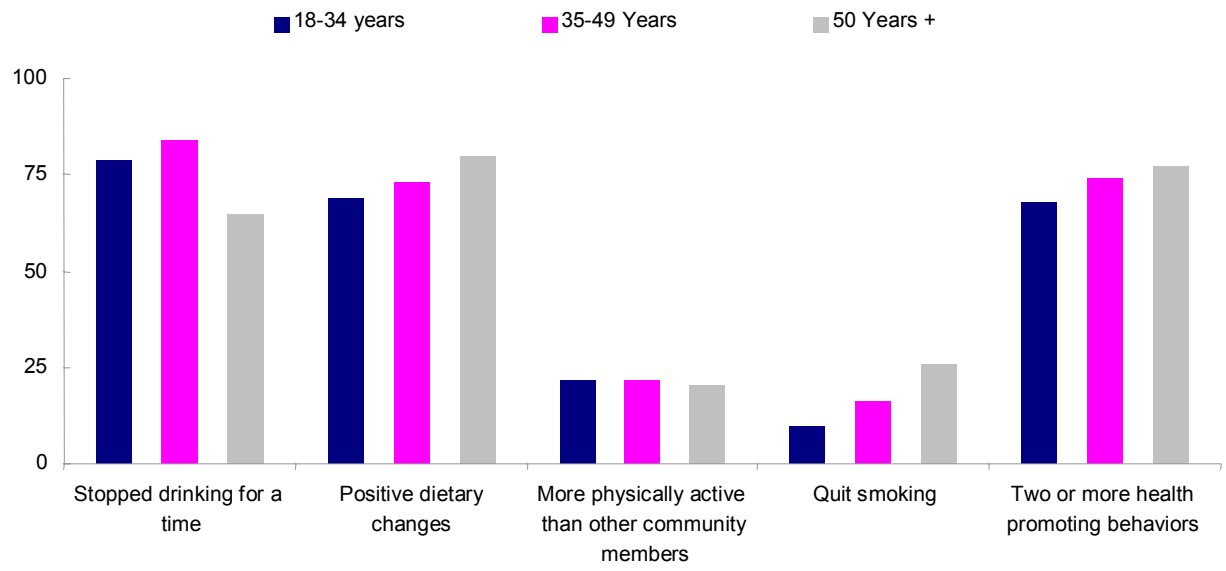
FIGURE 3 – DISTRIBUTION OF SOCIAL ECONOMIC CHARACTERISTICS, HEALTH RISK HISTORY, HEALTH PROMOTING BEHAVIORS, AND SOCIAL ENVIRONMENT BY GENDER %

Social Demographic & Economic Characteristics	*** p ≤ 0.05**	**MEN % (FREQUENCY)**	**WOMEN % (FREQUENCY)**	**DIFFERENCE %**
Age	18 – 34 years	55% (534)	55% (498)	0%
	35 – 49 years	27% (261)	26% (238)	1%
	50 years and older	18% (172)	19% (167)	1%
Education	< Grade 6	18% (174)	13% (119)	5%
	Grades 7 – 11	60% (577)	66% (589)	*6%
	Grade 12 and higher	22% (207)	20% (182)	2%
Primary source of income	Welfare	53% (480)	57% (482)	4%
	Wages	38% (338)	34% (293)	4%
	Traditional or other activities	9% (81)	9% (79)	0%
Household income	< $ 10,000	35% (333)	36% (312)	1%
	$ 10 – 24,999	24% (221)	20% (173)	4%
	$ 25,000 or more	16% (154)	13% (115)	3%
	Not Stated	25% (233)	31% (270)	*6%
Household economic insecurity		32% (304)	34% (299)	2%
Health Risk History				
Currently drinks alcohol		51% (452)	36% (304)	*15%
Drug or solvent use history		59% (546)	42% (365)	*17%
Drinking problem history		47% (449)	33% (297)	*14%
Mental health history		27% (257)	28% (251)	1%
Overweight (Body Mass Index > 27)		44% (385)	54% (404)	*10%
Health Promoting Behaviors				
Stopped drinking for a time (excluding never drinkers)		80% (714)	76% (635)	*4%
Positive dietary changes		66% (616)	79% (684)	*13%
More physically active than other community members		27% (256)	16% (143)	*11%
Quit smoking (excluding never smokers)		13% (93)	15% (95)	2%
Two or more health promoting behaviors		69% (661)	73% (653)	4%
Social Environment in Household				
Addiction problems		62% (558)	60% (511)	2%
Violence and neglect problems		15% (144)	19% (168)	*4%
Overcrowding problems		62% (588)	58% (509)	4%

Differences by Demographic and Social Economic Characteristics

Health promoting behaviors varied significantly by age (Figure 4). Middle aged adults tended to stop drinking more often, followed by younger adults and then by adults aged 50 years and older (X^2 =41.97, p=0.001). Older adults were more likely to make positive dietary changes ($X^{2\ Trend}$=13.07, p=0.001) and to quit smoking (X^{2}_{Trend}=33.67, p=0.001). All age groups, however, had equally reported being more physically active. Nevertheless, the trend is that as Manitoba First Nation people get older they are more likely to report two or more health promoting behaviors (X^2=14.18, p=0.001).

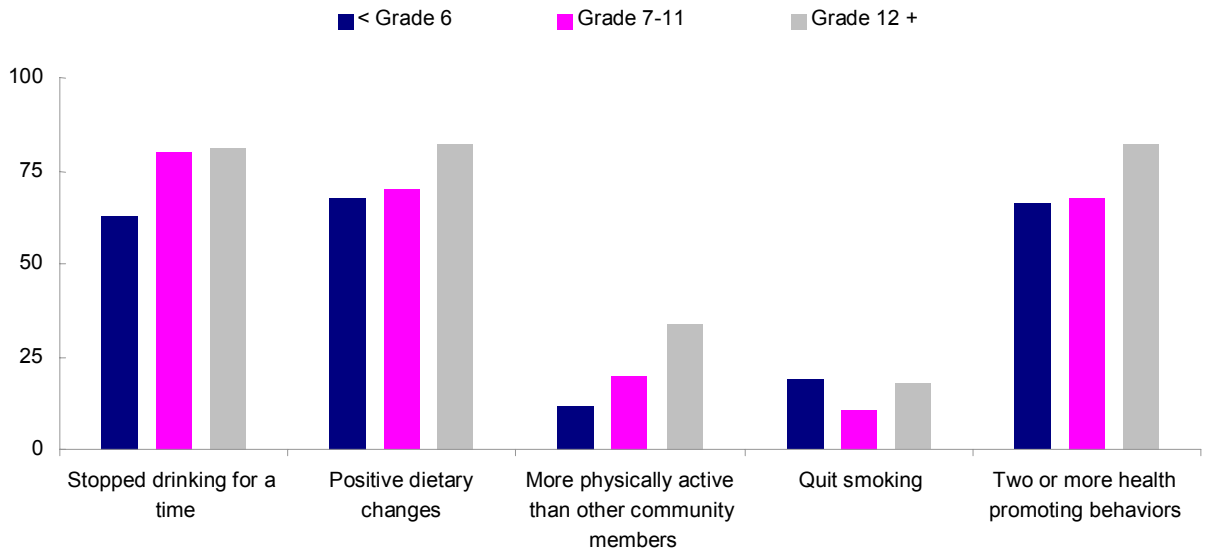
FIGURE 4 – HEALTH PROMOTING BEHAVIORS BY AGE %



Educational differences were also apparent (Figure 5). Adults with some secondary education or had completed high school were more likely to abstain from drinking more than were adults with little formal education (X^2=41.36, p=0.001).

Individuals with higher education tended to make more positive dietary changes (X^2=25.12, p=0.001), and as their education increased, greater numbers of First Nation people reported being more physically active (X^2=46.64, p=0.001). There were also significant differences for quitting smoking. First Nation people who had some secondary education tended to quit smoking more than individuals who had less or greater education (X^2=12.51, p=0.001). However, individuals with higher levels of education more likely to practice two or more health behaviors (X^2=30.34, p=0.001).

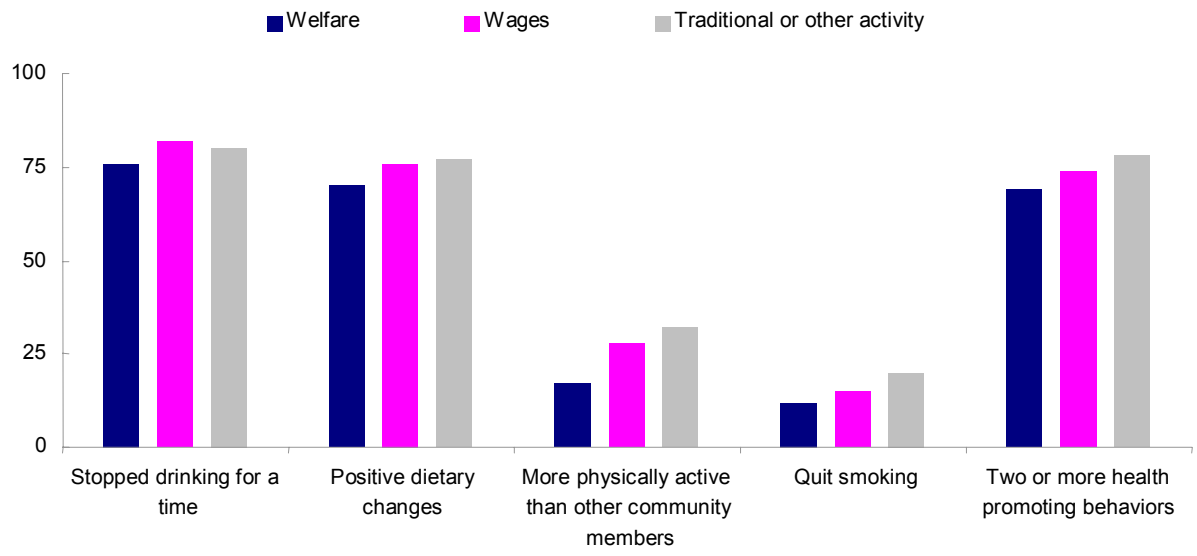
FIGURE 5 – HEALTH PROMOTING BEHAVIORS BY EDUCATION %



Health promoting behaviors also varied by the respondent's primary source of income (Figure 6). Individuals who derived their income from wages or traditional activities were more likely to abstain from drinking (X^2 =9.81, p=0.007).

This group also tended to make more positive dietary changes (X^2 =10.02, p=0.007). Individuals who obtained their income from traditional or economic other activities were more physically active. First Nation people who relied on welfare were the least active of the two groups (X^2 =35.17, p=0.001). Individuals with income coming from traditional activities were more likely to quit smoking, whereas individual's who were dependent on welfare were less likely to have quit smoking (X^2 =6.79, p=0.033). All told, individuals who derived their income from wages or traditional activities had a greater likelihood of having two or more health promoting behaviors (X^2=7.56, p=0.001).

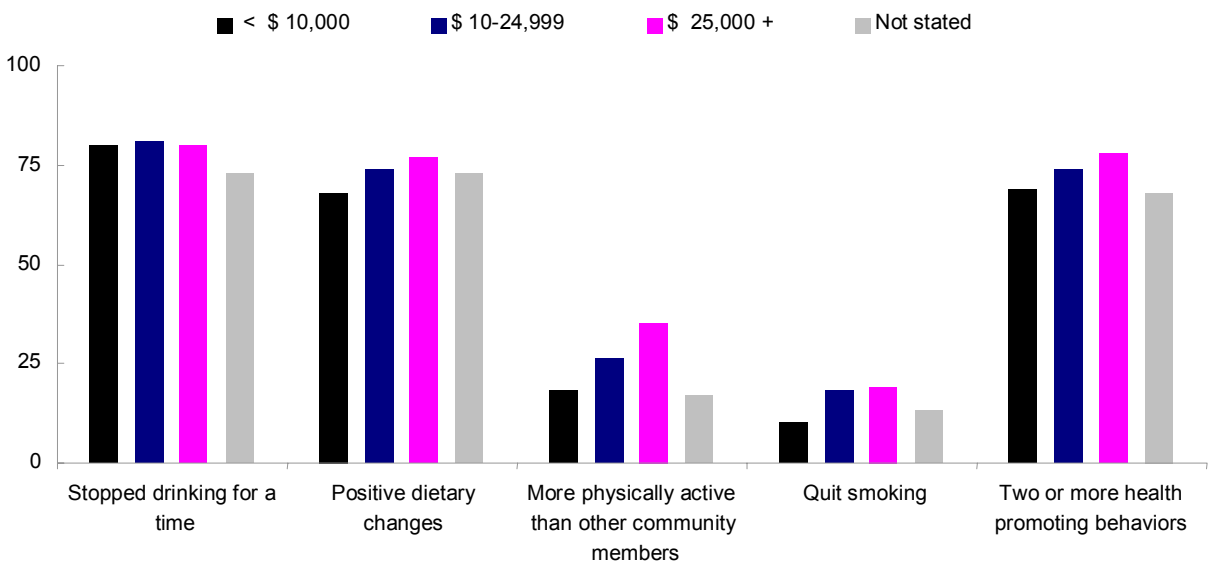
FIGURE 6 – HEALTH PROMOTING BEHAVIORS BY PRIMARY SOURCE OF INCOME %



Level of household income also accounted for some variation in health promoting behavior (Figure 7). Individuals who did not state an income, in comparison to those that did, were less likely to report that they had stopped drinking for awhile (X^2=10.37, p=0.001), and a similar pattern emerged for all other health

behaviors. Within the stated group, there was a significant gradient for a number of behaviors. Individuals who reported greater income made more positive dietary changes (X^2=9.26, p=0.001), were more likely to be physically active (X^2=32.82, p=0.001), and tended to quit smoking (X^2=13.85, p=0.001). Altogether, the stated income group was more likely to report two or more health promoting behaviors (X^2=10.37, p=0.001), and within that group, individuals with higher incomes reported more health promoting behaviors than did individuals with the least income.

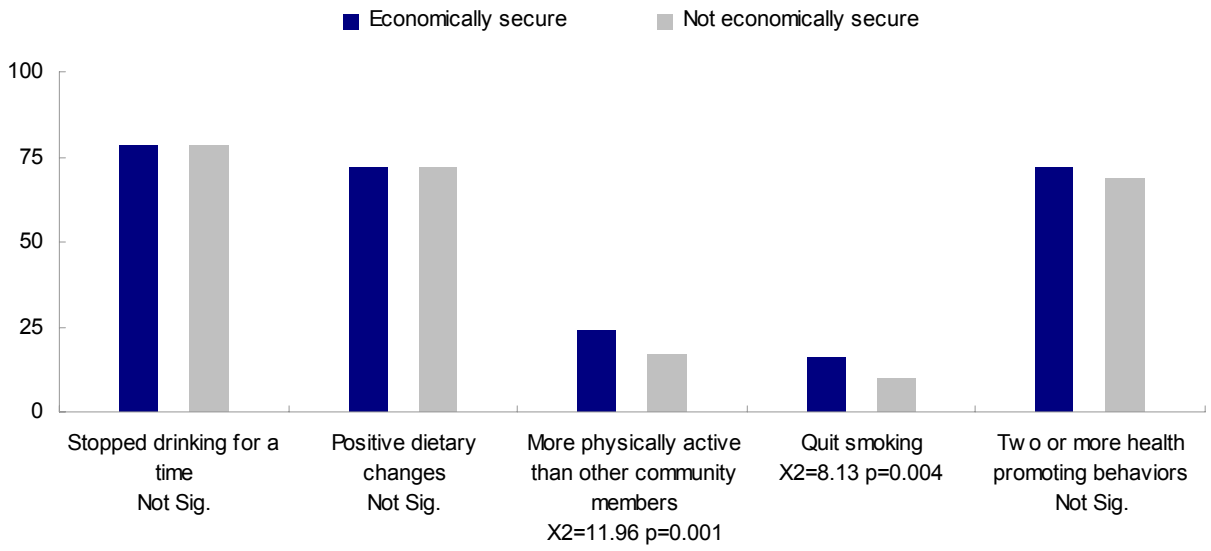
FIGURE 7 – HEALTH PROMOTING BEHAVIORS BY HOUSEHOLD INCOME %



There was no significant link between economic insecurity and abstaining from drinking or making positive dietary changes. Significant differences, however, were found for physical activity and for quitting smoking (Figure 8). Individuals who were economically secure were more physically active (X^2=11.96, p=0.001). They

also tended to quit smoking (X^2=8.13, p=0.001). Although this group appears to report more health promoting behaviors, this difference was not significant.

FIGURE 8 – HEALTH PROMOTING BEHAVIORS BY HOUSEHOLD ECONOMIC INSECURITY %



Differences by Health Risk History

Health risk history also appears to be a determining factor of health promoting behaviors (Figure 9). There was no difference between current drinkers and non-drinkers in terms of physical activity. However, current drinkers were more likely to have quit drinking for a time (X^2=77.29, p=0.001), and non-drinkers tended to make more positive dietary changes (X^2=27.78, p=0.001) and to have quit smoking (X^2=62.25, p=0.001). Overall, people who did not drink were significantly more likely to have two or more health promoting behaviors (X^2=6.16, p=0.013).

Individuals with a drinking problem history (Figure 10) were more likely to have stopped drinking for awhile (X^2=172.36, p=0.001), while individuals who did not have a history were more likely to have quit smoking (X^2=12.82, p=0.001). Both groups were equally likely to make positive dietary changes and to be more physically active. Overall, individuals who had a drinking history were more likely to have two more health promoting behaviors (X^2=24.1, p=0.001).

FIGURE 9 – HEALTH PROMOTING BEHAVIORS BY CURRENT USE OF ALCOHOL %

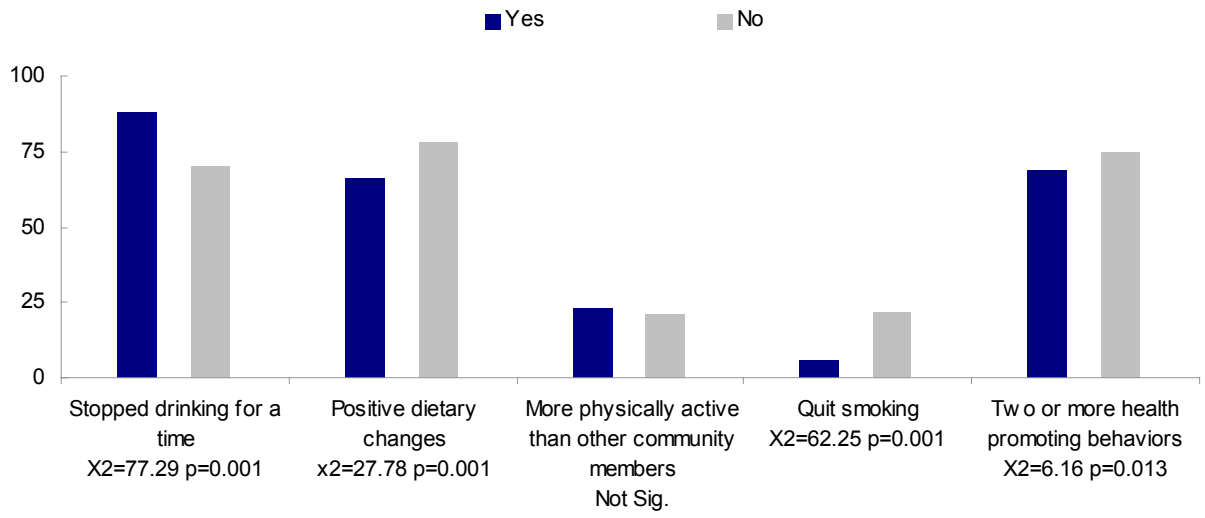
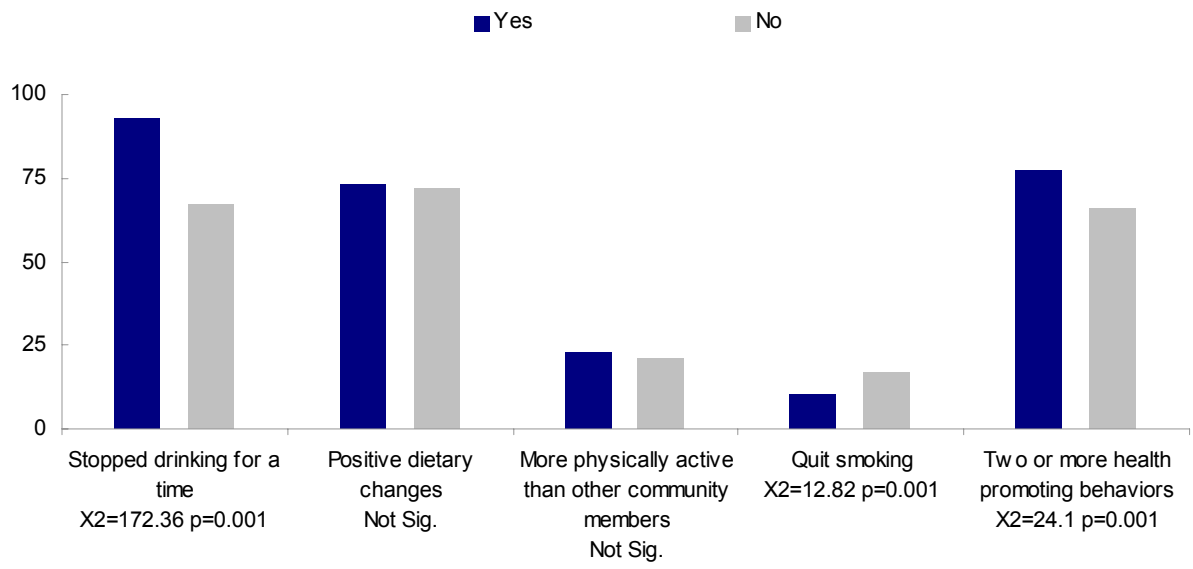
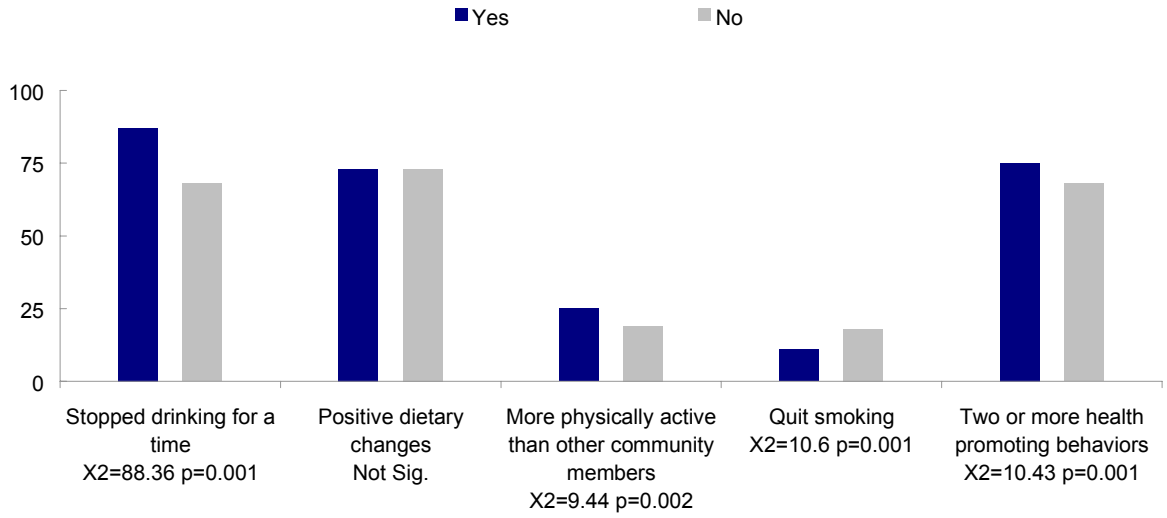


FIGURE 10 – HEALTH PROMOTING BEHAVIORS BY DRINKING PROBLEM HISTORY %



Individuals who had a history of drug or solvent use tended to stop drinking for awhile (X^2=88.36, p=0.001) and were more physically active (X^2=9.44, p=0.002) (Figure 11). Both groups made positive dietary changes, but individuals who did not have a substance use history were more likely to quit smoking (X^2=10.6, p=0.001). In all, Manitoba First Nation peoples who had drug or solvent history were more likely to practice two or more health promoting behaviors (X^2=10.43, p=0.001).

FIGURE 11 – HEALTH PROMOTING BEHAVIORS BY DRUG OR SOLVENT USE HISTORY %



Individuals who reported a mental health history (Figure 12) were also more likely to have stopped drinking for awhile (X^2=51.49, p=0.001) and to have made positive dietary changes (X^2=11.69, p=0.001). Both groups were more physically active, and both tended to quit smoking. In all, individuals with a mental health history were significantly more likely to have two or more health promoting behaviors (X^2=24.46, p=0.001).

First Nation people who reported being overweight (BM > 27) were more likely to make positive dietary changes (X^2=10.05, p=0.002) and to have quit smoking (X^2=6.49, p=0.011) (Figure 13), while individuals who did not have a weight problem were more physically active (X^2=10.05, p=0.002). There was no difference between the groups in terms of abstaining from alcohol. By and large, individuals who reported a weight problem were far more likely to report two or more health promoting behaviors (X^2=6.49, p=0.011).

FIGURE 12 – HEALTH PROMOTING BEHAVIORS BY MENTAL HEALTH HISTORY %

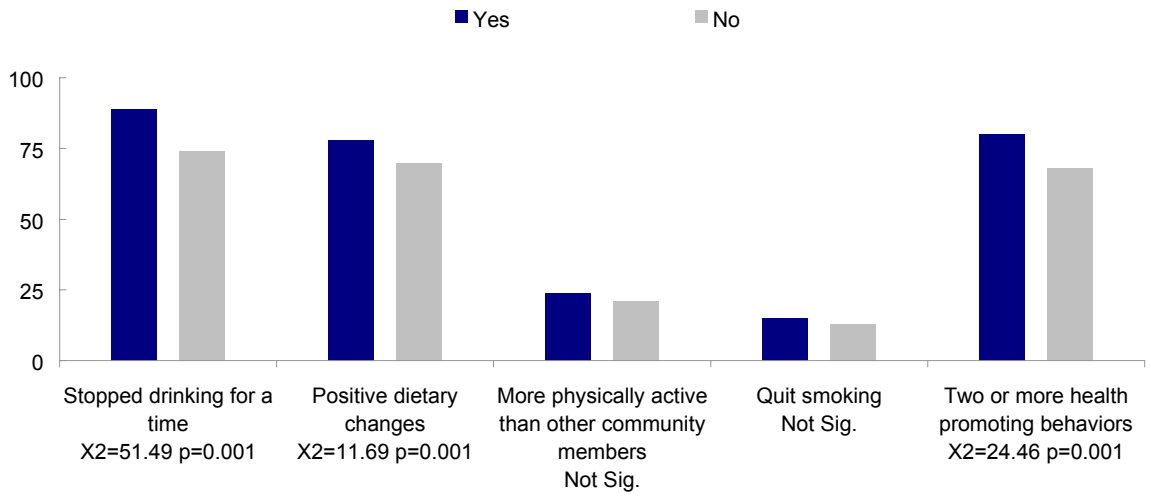
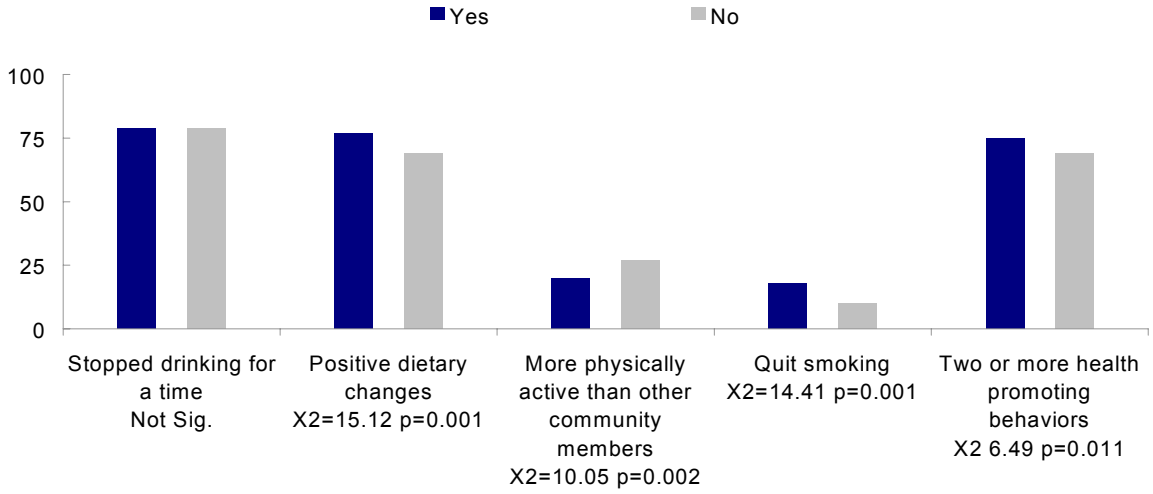


FIGURE 13 – HEALTH PROMOTING BEHAVIORS BY SELF-REPORTED OVERWEIGHT (BMI > 27) %



Social Environment Issues

People who reported addiction problems in the household (Figure 14) were more likely to have quit drinking for awhile (X^2=184.79, p=0.001). Both groups tended

to make positive dietary changes and to be more physically active. Individuals living in an addiction free household, on the other hand, were more likely to have quit smoking (X^2=20.63, p=0.001). In all, individuals living in households with addiction problems were far more likely to practice two or more health promoting behaviors (X^2=24.31, p=0.001).

A different pattern emerged for respondents who reported violence or neglect in their households (Figure 15). There were no differences reported for positive dietary changes, physical activity, and quitting smoking. As well, there were no differences in terms of two or more positive health behaviors. However, Manitoba First Nations who acknowledged some form of violence in their household were more likely to abstain from drinking for a time (X^2=5.09, p=0.024).

FIGURE 14 – HEALTH PROMOTING BEHAVIORS BY ADDICTION PROBLEMS IN THE HOUSEHOLD %

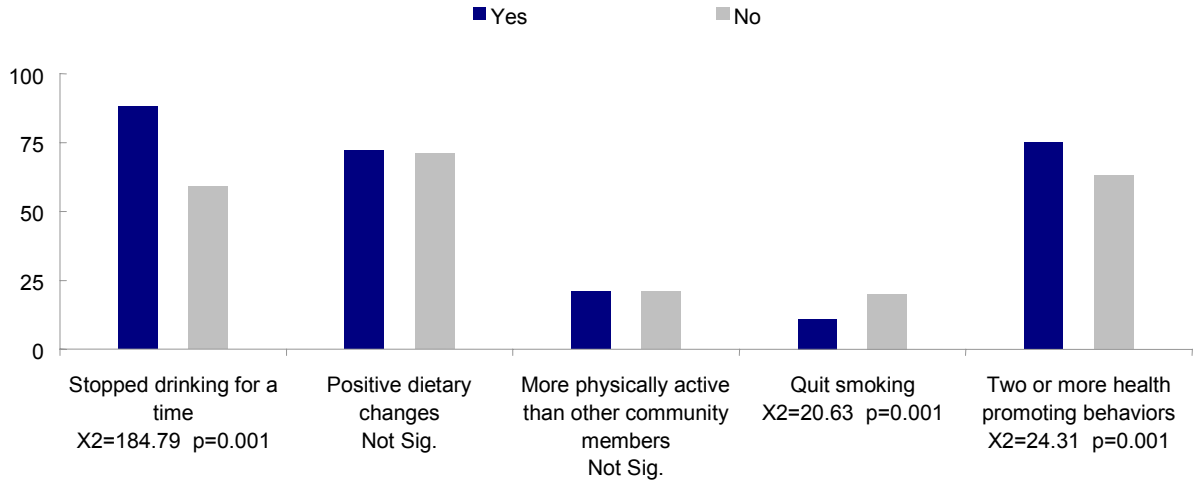
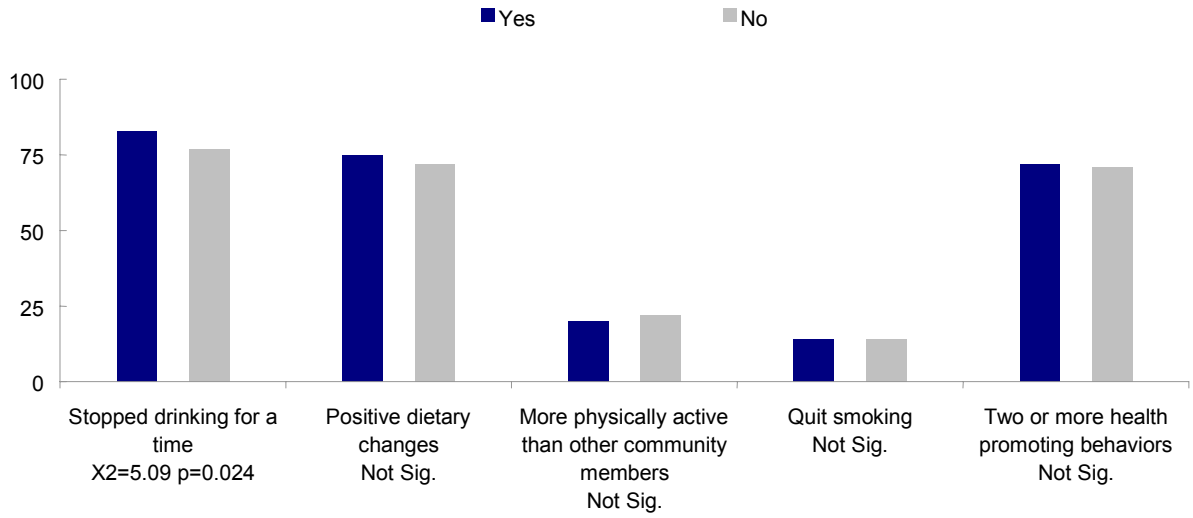
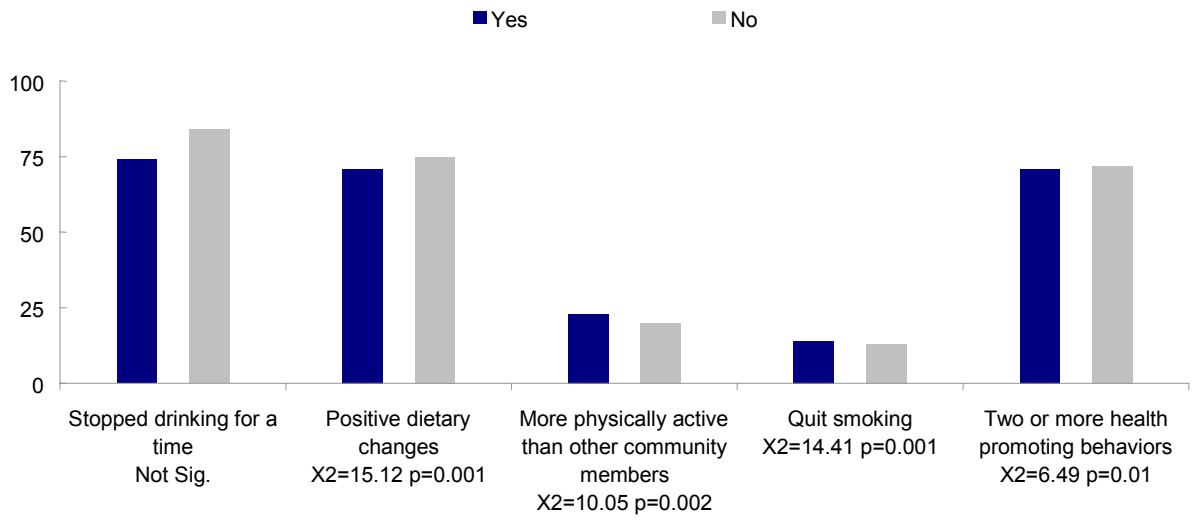


FIGURE 15 – HEALTH PROMOTING BEHAVIORS BY VIOLENCE OR NEGLECT IN THE HOUSEHOLD %



Some interesting patterns emerged in terms of overcrowding in the household (Figure 16). Individuals who reported that overcrowding was not a concern in their household tended to make more positive dietary changes (X^2=15.12, p=0.001), but the converse was true for physical activity and smoking. Individuals who indicated that overcrowding was a problem in their household were more physically active (X^2=10.05, p=0.002) and more likely to quit smoking (X^2=6.49, p=0.001). Overall, First Nation people who indicated that overcrowding was not a problem in their household tended to have more health promoting behaviors (X^2=6.49, p=0.01).

FIGURE 16 – HEALTH PROMOTING BEHAVIORS BY OVERCROWDING IN THE HOUSEHOLD %



Health promoting behaviors as attributes

Health promoting behaviors were important attributes of other health promoting behaviors in this population (Figure 17). Individuals who stopped drinking tended to make more positive dietary changes (X^2=16.1, p=0.001) and were more likely to be physically active (X^2=4.4, p=0.036). They were also less likely, but not significantly so, to quit smoking (X^2=3.79, p=0.052). Manitoba First Nation people who were making positive dietary changes were more likely to stop drinking (X^2=4.4, p=0.036), to quit smoking (X^2=20.26, p=0.001), and to be more physically active (X^2=8.8, p=0.003). Individuals who quit smoking tended to make more positive dietary changes (X^2=20.26, p=0.001), whereas individuals who were more physically active tended to quit drinking (X^2=4.4, p=0.036) and were more likely to make positive dietary changes (X^2=8.8, p=0.003).

FIGURE 17 – HEALTH PROMOTING BEHAVIORS AS ATTRIBUTES OF HEALTH PROMOTING BEHAVIORS %

		Stopped drinking for a time		Positive dietary changes		Quit smoking		More physically active than other community members	
		%		%		%		%	
Stopped drinking for a time									
	Yes	-		76	X2=16.1	13	X2=3.79	23	X2=4.4
	No			65	p=0.001	18	p=0.052	18	p=0.036
Positive dietary changes									
	Yes	80	X2=16.1	-		17	X2=20.26	24	X2=8.8
	No	71	p=0.001			7	p=0.001	17	p=0.003
Quit smoking									
	Yes	79	X2=3.79	87	X2=20.26	-		26	Not Sig.
	No	85	p=0.052	71	p=0.001			22	
More physically active than other community members									
	Yes	82	X2=4.4	78	X2=8.8	16	Not Sig.	-	
	No	77	p=0.036	71	p=0.003	13			

Logistic modeling of determinants and health promoting behaviors

The logistic regression analysis yielded some interesting results concerning the link between social determinants and health promoting behaviors in the Manitoba First Nation population (Figure 18). Respondent's who had stopped drinking were more likely to report dietary changes (OR 1.51). They were more likely to be middle aged (OR 1.51) or older (OR 1.94). They also tended to smoke (OR 1.51) and to have a history of substance use (OR 1.51), mental health problems (OR 1.88), or drinking problems (OR 2.38). They were less likely to report overcrowding as a problem (OR 0.51), but were twice as likely to live in households where there was an addiction problem (OR 2.02).

First Nation people who made positive dietary changes were more likely to be physically active (OR 1.52) and were twice as likely to have stopped drinking (OR 2.11). They were two times as likely to be women (OR 2.03), and almost three times more likely to have achieved a higher level of education (OR 2.64). There were also nearly three times as likely to be older (OR 2.76), and less likely to drink (OR 0.48). They, however, were more likely to be overweight (OR 1.32) and to have a mental health history (OR 1.70). They also tended not to disclose their household income (OR 1.78).

First Nation people who were physically active were more likely to be men (OR 1.81) and twice as likely to be older (OR 2.22). They were three times more likely to have higher education (OR 3.12) and were twice as likely to have at least some secondary education (OR 2.03). In addition, they tended to obtain a living from traditional or other economic sources (OR 1.81) and to make positive dietary changes (OR 1.45). As well, they were less likely to be overweight (OR 0.54) or to experience economic insecurity (OR 1.51). First Nation people who quit smoking were twice as likely to have more education (OR 2.4), to be economically secure (OR 1.66), and to live in households that were addiction free (OR 1.56).

Overall, First Nation individuals who reported two or more health promoting behaviors were more likely to be women (OR 1.35). They were two to four times more likely to have higher education (OR 2.11 and OR 3.81). This group was also older (OR 1.56 and OR 2.36). Although they tended to drink (1.58), have a history of substance use (OR 1.41), mental health problems (OR 1.58), or drinking problems

(OR 1.92), this analysis has shown that they were actively practicing a number of health-promoting behaviors.

FIGURE 18- LOGISTIC REGRESSION OF DETERMINANTS OF HEALTH PROMOTING BEHAVIORS

Individual and Household Characteristics		Stopped drinking for a time	Positive dietary changes	More physically active than other community members	Quit smoking (1)	Two or More Health Promoting Behaviors
		OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Gender	Women	*	2.03 (1.54,2.68) p=0.0001	0.55 (0.41,0.72) p=0.0001	*	1.35 (1.03,1.77)
	Men	- -	- -	- -	- -	- -
Age	18-34 Years	- -	*	0.43 (0.27,0.69) p=0.0004	*	0.64 (0.46,0.89) p=0.007
	35-49 Years	1.51 (1.00,2.38) p=0.05	- -	0.47 (0.29,0.74) p=0.0012	- -	- -
	50 + Years	1.94 (1.09,3.48) p=0.025	2.76 (1.66,4.59) p=0.0001	- -	*	2.36 (1.45,3.85) p=0.0006
Education	<Grade 6	*	- -	- -	0.40 (0.18,0.90) p=0.027	- -
	Grade 7-11	*	*	2.03 (1.21,3.41) p=0.0078	0.43 (0.28,0.67) p=0.0002	2.11 (1.36,3.29) p=0.0009
	Grade 12 +	- -	2.64 (1.50,4.63) p=0.0007	3.12 (1.72,5.66) p=0.0002	- -	3.81 (2.20,6.61) p=0.0001
Primary Source of Income	Welfare	*	*	0.55 (0.35,0.87) 0.0096	*	*
	Wages	*	*	*	- -	- -
	Traditional or Other Activities	- -	- -	- -	*	*
Household Income	<10,000	- -	*	*	*	*
	10-24,999	*	*	*	*	*
	25,000 +	*	0.56 (0.36,0.63) p=0.039	*	*	*
	Not Stated	*	- -	- -	- -	- -

Individual and Household Characteristics	Stopped drinking for a time	Positive dietary changes	More physically active than other community members	Quit smoking (1)	Two or More Health Promoting Behaviors
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Household economic insecurity	*	*	0.66 (0.49 – 0.89) p=0.006	0.60 (0.38,0.94) p=0.027	*
Currently drinks alcohol	*	0.48 (0.46,0.63) p=0.0001	*	0.20 (0.13,0.34) p=0.0001	0.58 (0.44,0.78) p=0.0002
Drinking problem history	2.38 (1.42,4.01) p=0.001	*	*	*	1.92 (1.35,2.73) p=0.0003
Drug or solvent use history	1.51 (1.00,2.31) p=0.05	*	*	*	1.41 (1.03,1.93) p=0.034
Overweight (BMI > 27)	*	1.34 (1.02,1.76) p=0.038	0.54 (0.41,0.71) p=0.0001	*	*
Mental health history (i.e., Suicidal Tenancies)	1.88 (1.18,3.00) p=0.008	1.70 (1.25,2.30) p=0.0007	*	*	1.58 (1.14, 2.20) p=0.007
Household addiction problems *(ie. Gambling, drinking or drug)*	2.02 (1.30,3.16) p=0.002	*	*	0.64 (0.42,0.96) p=0.03	*
Household violence/neglect problems (ie. Women, Children, or Elders)	*	*	*	*	*
Household overcrowding	0.51 (0.34,0.76) p=0.0009	*	*	*	*
Stop drinking for a time	NA	2.11 (1.52,2.92) p=0.0001	*	*	NA
Positive dietary changes	1.89 (1.32,2.73) p=0.0006	NA	1.45 (1.05,2.01) p=0.025	*	NA
Quit smoking	0.66 (0.46,0.95) p=0.024	*	*	NA	NA
More physical activity than other community members	*	1.52 (1.10,2.11) p=0.012	NA	*	NA

- - Reference Group

* Variable did not enter the final stepwise regression at P=0.05

(1) Logistic Regression Model based on backward selection, whereas all other models were produced using forward selection

Discussion

This analysis has demonstrated that three-quarters of First Nation people (75%) practice two or more health promoting behaviors. Individuals making these changes were more likely to be women, older, more educated, and to have a history of drug, alcohol, or mental health problems. First Nation people who stopped drinking tended to be older and to have a history of drug and alcohol problems. Individuals who quit smoking were more likely to have higher education and greater income status, whereas individuals who made dietary changes were older, well educated, and women. More physically active individuals were more likely to be men, highly educated, or engaged in traditional or other economic activities.

In all, the analysis demonstrates a number of critical findings. Positive health behaviors will cluster in individuals. They are associated with increased age and higher socioeconomic status. Gender differences were apparent in terms of dietary changes and physical activity. Although First Nation people reported a history of drug, alcohol, or mental health problems, they were transcending this history and were working at achieving balance in their life. In households where there were social problems, individuals were still determined to maintain positive health behaviors.

In conclusion, the results of this study have demonstrated that First Nation people are working at bringing balance to their lives. Structural inequalities are still a major barrier to healthy living in Manitoba First Nation communities. Manitoba First Nation people, however, are still determined to live a balanced way of life, and the practice of traditional ways seems to have a protective effect for some First Nation

peoples. It can be inferred from this analysis that health promotion programs could target younger people, men, women, and individuals from potentially unsettling social circumstances, but these programs have to rest on a First Nation understanding of how to acquire balance. The analysis suggests that elders and individuals that have achieved different levels of success could act as role models in these programs. Gender is also a factor, but very little is known as to how women differ from each other and the same can be said about men.

This analysis also demonstrates that promoting health is a complicated matter. Health promotion is very much about self-governance. Although non-governmental bodies are eager to act on behalf of First Nations by creating opportunities to advance First Nation voices, such actions can still be interpreted as another form of cultural imperialism. Promoting First Nation health from a holistic way of thinking is an act of First Nation self-governance, which requires a First Nation perspective. This paper, therefore, recommends that Manitoba First Nations through their constituted health governance structure initiate negotiations with the federal government to address health risk factors from a social determinant perspective that is based on a First Nation perspective on wellness.

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