CHAPTER THREE

Health Behaviours and Lifestyle Determinants of Health

There are many factors and determinants that influence a woman's health, and there is no doubt that some have to do with personal behaviours and lifestyle. Federal and Manitoba policies and announcements in the past five or more years have emphasized and promoted the need for healthy living and what people can do to improve their own health, prevent injury, and reduce excess body weight.

In this chapter we examine women's physical activity and nutrition, as well as smoking tobacco, drinking alcohol and illicit drug use patterns. As the gender-based analysis of the indicators demonstrate, while these are indeed personal choices for most Manitoba women, for some vulnerable women, coping behaviour and lifestyle are affected by external factors that reduce women's true choice.

This chapter includes information about:

1. Nutrition and Food Choices
2. Physical Activity
3. Healthy Body Weight
4. Tobacco Smoking
5. Drinking Alcohol
6. Illicit Drug Use

Nutrition and Food Choices

Introduction

Consuming a healthy diet and having access to a nutritious supply of food are important to good health, as good nutrition is a key factor in the overall health and well being of women.

In 2007, Health Canada issued a revised *Canada's Food Guide* (CFG). This new guide encourages Canadians to consume more fresh fruit and vegetables, fewer grain products, and minimize salt intake (Figure 1). For the first time, it also offers age and sex specific recommendations, as well as the first-ever national guide for First Nations, Inuit and Métis people [4]. The content of the earlier version (1992) was revised to reflect changes in eating patterns, food supply and diets, and advances in nutritional science [3].

While it is difficult to determine an individual's dietary needs since different life events and activity levels will influence recommended nutritional intake, research demonstrates that those who have poor nutrition have an increased risk of developing major chronic diseases, disability and premature death [5]. Poor nutrition can lead to bothincreased or lowered body weight, decreased body strength, lower resistance to infection, and poorer quality of life. Low body weight or rapid weight loss among elderly women for instance is associated with hip fractures, reduced autonomy, and early institutionalization [6]. Overweight and obesity are also signs of poor nutrition and are often related to the over-consumption of high calorie foods that are low in nutritional value.

What is a Nutritious Diet?

Canada's Food Guide to Healthy Eating (2007) defines a nutritious diet as one that includes a variety of foods that emphasize vegetables and fruit, cereals, breads and grain products, in addition to lower-fat dairy products, leaner meats and food prepared with little or no fat. It also recommends that salt, high-fat foods, alcohol and caffeine should be limited [1].

Canada's Food Guide to Healthy Eating recommended servings for women aged 19 to 50, who are neither pregnant nor lactating:

Vegetables and Fruit: 7 - 8 servings per day
(1 serving = 1 medium apple)

Grain Products: 6 -7 servings per day
(1 serving = 1 slice of bread)

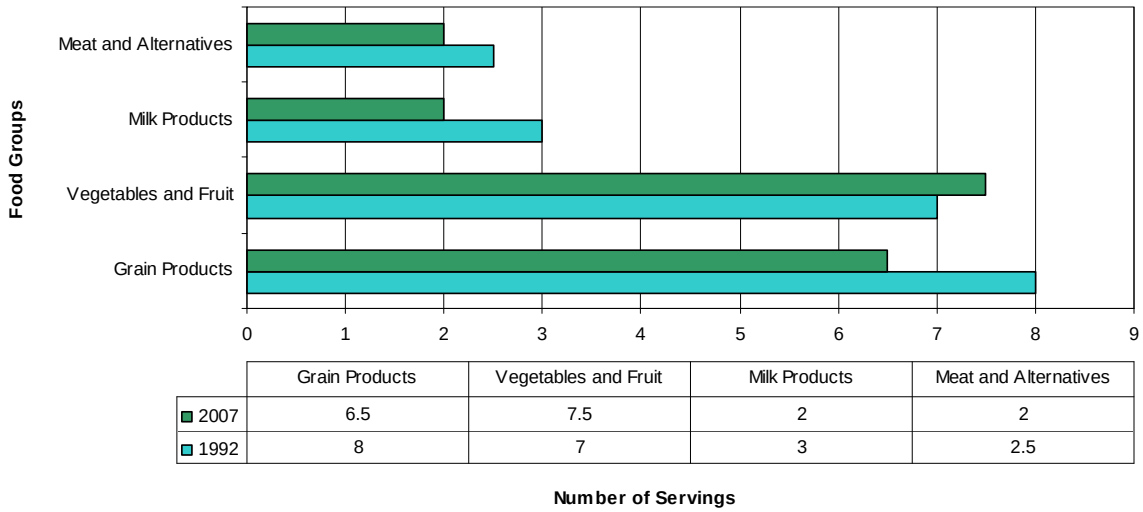
Milk and Alternatives: 2 servings per day
(1 serving = 1 cup of milk)

Meat and Alternatives: 2 servings per day
(1 serving = 1-2 eggs)

Oils and Fats: 30 to 45 ml of unsaturated fat
(margarine, olive oil, mayonnaise)

Source: Health Canada [2]

Figure 1
Canada's Food Guide to Healthy Eating
Recommendations, 1992 (Men and Women) and 2007 (Women aged 19 to 50)



	Grain Products	Vegetables and Fruit	Milk Products	Meat and Alternatives
2007	6.5	7.5	2	2
1992	8	7	3	2.5

Source: Health Canada [2]

There are sex-specific health risks linked to poor nutrition. Women have a greater chance of developing osteoporosis, a disease linked to inadequate calcium and vitamin D intake [7]. Women are also at greater risk than men of developing iron and/or vitamin deficiency anemia, as a result of blood and iron loss during menstruation and increased blood volume during pregnancy [8]. As another example, there is evidence linking breast cancer and nutrition, suggesting that a diet high in fat is one of the factors that increase a women's risk of developing breast cancer [9].

Measuring Nutrition

This indicator uses information from a report on the 2004 *Canadian Community Health Survey* (CCHS, cycle 2.2), entitled *Overview of Canadian's Eating Habits*. The CCHS 2.2[1] was a one-time survey used to gather information at the provincial level on the overall nutritional status of Canadians. The questionnaire was divided into two components: 1) general health, and 2) 24 hour dietary recall. The general health component was designed to include factors such as height, weight and food security. The 24 hour dietary recall component asked respondents to recall their food consumption in the day preceding the interview from midnight to midnight. Respondents were interviewed in person, and specifically asked to recall food consumption for each of the four food groups in the 1992 version of *Canada's Food Guide to Healthy Eating*, in addition to "other foods" such as alcohol or condiments, and any meals consumed outside of the home. Although most of the data available are limited to Canada and the Prairies (Manitoba, Saskatchewan, Alberta), we have, wherever possible, included data about Manitoba alone. Additionally, our ability to report sex-disaggregated data was limited, as several variables were excluded from the Public Use Microdata File. Again, wherever possible, sex-disaggregated data have been reported. To address the

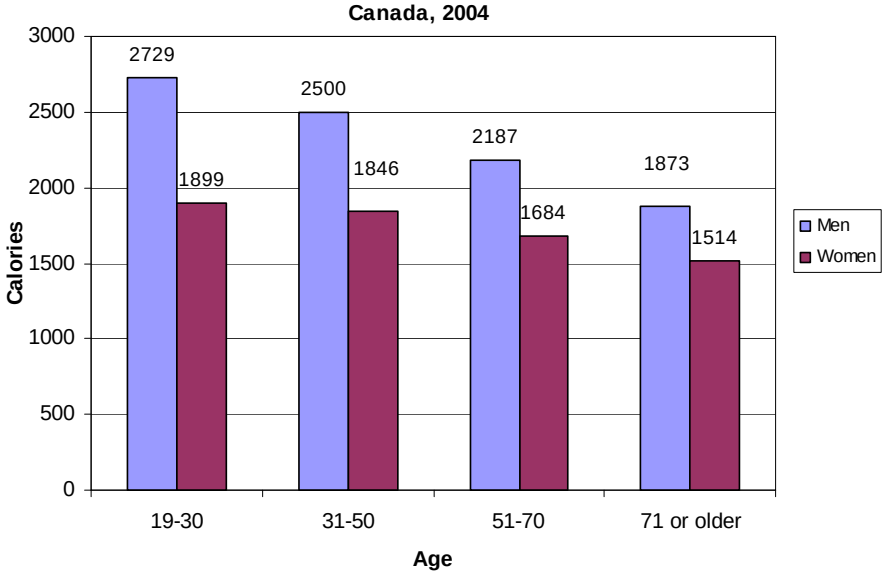
[1] The CCHS does not include residents from Nunavut, Yukon, or Northwest Territories, First Nations Reserves, Crown lands, residents of institutions, full-time members of the Canadian Forces, and residents of some remote regions.

CCHS' shortcomings related to First Nations people, and to those living in Northern regions, we have used two other sources: the report *An Update on Nutrition Surveys in Isolated Northern Communities* and the *First Nations Regional Longitudinal Health Survey*, which measured the nutritional status of residents of several Inuit and First Nations communities [10, 14]. Note that both of these sources used the nutritional standards recommended in the *Food Guide* of 1992.

Calorie Intake by Age & Sex

With the exception of some individuals[2], overall, Canadians consume enough calories. An individual's daily caloric requirements depends on several factors including height, weight, age, sex, and activity level. For women, caloric needs increase during pregnancy and breastfeeding [1]. Results from the CCHS indicate that caloric intake is highest in adolescence, and decreases with age (Figure 2). Canadian males between the ages of 12 and 64 averaged approximately 2600 calories a day, and females, 1900 calories. Males over the age of 65 averaged 1948 calories a day, and females in the same age group averaged 1544. In all age groups men consistently consumed more calories than females [11].

Figure 2
Average Daily Calorie Consumption by Age and Sex
Canada, 2004



Source: Overview of Canadians' Eating Habits, 2004 [11]

In Canada, where overweight and obesity are on the rise, excessive food consumption is constantly under scrutiny (see Healthy Body Weight section). Nonetheless, it is important to remember that a number of people voluntarily *deprive* themselves of food. Women who diet are at risk for malnutrition, in addition to serious clinical eating disorders such as anorexia nervosa and bulimia nervosa [12]. These disorders are linked to a number of adverse health conditions such as depression, mood swings, heart problems, reduced sexual interest, and in extreme cases—death. It is estimated that over 70% of Canadian women are dieting, and up to 3% will be affected by an eating disorder in their lifetime [12]. Women are 20 times more likely than men to develop anorexia nervosa, and 10 times more likely than men to develop bulimia nervosa [12]. Higher rates among women are largely attributable to the cultural value placed upon thinness, a standard that rarely extends to men. Eating disorders will continue to present themselves as predominantly a women's health issue, so long as women continue to be judged by the shape of their bodies. When discussing nutrition in the Canadian context, it is therefore important to acknowledge self-deprivation and over-consumption, as both are detrimental to women's health.

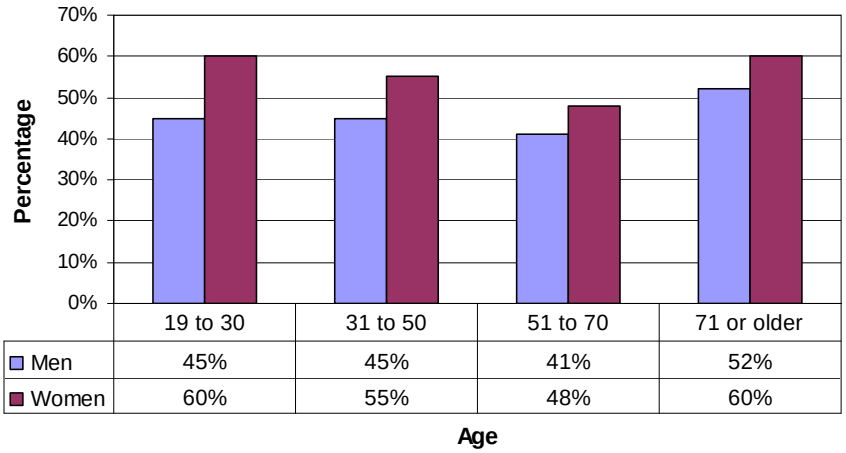
[2] See the section on food insecurity, this chapter.

Eating a Balanced Diet

People who eat a variety of foods are more likely to have a balanced diet [11]. Because the new version of the CFG was released in 2007, the CCHS used the nutritional standards recommended in the 1992 version of the Guide, which was widely and freely available from 1992-2007. The 1992 Guide separated food groups into four categories; fruits and vegetables, meat and alternatives, milk products, and grain products such as breads and cereals. A fifth category - "other foods" - included fats, oils, sugars and condiments. The CCHS survey used the 24-hour dietary recall described above to measure respondents' daily caloric intake in each of these food groups. Grain products provided the most energy for adults, representing 28.5% for those 19 or older, men and women combined.

Although the *Food Guide* recommended a minimum of 5 servings of vegetables a day, only half of Canadians reported eating this much (Figure 3). Among those aged 14 or older, females were significantly less likely than males to report eating more than 5 servings of vegetables a day. In the prairies, 57% of people 19 or older did not eat the recommended amount of fruits and vegetables. Canadians consumed at least one serving a day of meat and alternatives regardless of age, although men consistently consumed more meat than women at all ages. Females of all ages were also more likely than men to consume fewer than the recommended servings of grain products. Over 65% of females aged 71 or older, and 43% of males in the same age group consumed fewer than the recommended serving of grain products. Consumption of milk products was also low with 66% of males and 75% of females over the age of 17 having fewer than the recommended daily servings. In addition, 83% of girls between the ages of 10 and 16 did not meet their recommended minimum of 3 daily servings of milk products.

Figure 3
Percentage of Canadians Consuming Fewer than Recommended Servings of Vegetables and Fruit, by Age and Sex, Men and Women, Canada Excluding Territories, 2004



Source: Overview of Canadians' Eating Habits, 2004 [11]

Table 1. Women's consumption of "other foods"

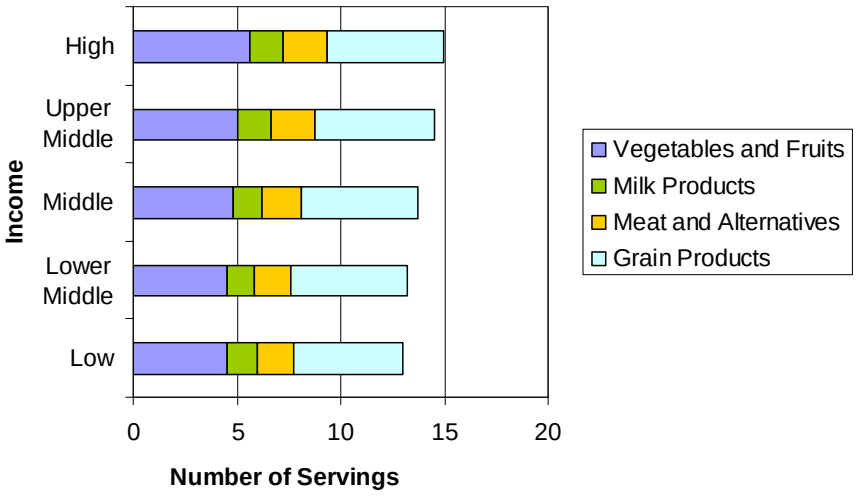
Food/Drink	% of "other food" calories
Soft drinks	11.3
Salad dressing	9.4
Sugars, syrups, preserves	8.7
Beer	8.2
Fruit drinks	6.1
Vegetable oil, animal fats, shortening	5.8
Margarine	5.3
Chocolate bars	4.8
Potato chips	4.7
Butter	3.9
Note: *Excludes women who were pregnant or breastfeeding.*	
Data source: *2004 Canadian Community Health Survey: Nutrition*	

"Other foods", a category created to include items such as jam, candy, chips, soft drinks, coffee and alcohol represented the second largest (!) source of energy, accounting for 22% of the total calories consumed by Canadians [11]. Listed are the top ten items that make up the "other foods" category (see Table 1). Considering their high sugar and fat content, it is no surprise they constitute the second largest source of energy [11].

The report also found that many Canadians exceeded the upper recommended limit of fat consumption. While it is important to have some fat in the diet, when fat accounts for more than 35% of caloric intake, there are substantial health risks [11]. Excess fat consumption is found to be a significant problem among men and women aged 31 to 50, as a quarter of this age group derives more than 35% of their calorie intake from fat. In addition to the meat and alternatives food group, the main contributors to fat intake are items such as hot dogs, hamburgers, pizza, and cookies [11].

Consumption patterns of the four food groups also varied depending on income. Respondents who had a high income reported greater consumption of fruits, vegetables, meats and alternatives (Figure 4). Those in the upper-middle quintile however, report eating more milk and grain products than those in the highest income category. Meat, fresh fruit and vegetables are more costly than bread and dairy, which might explain why the highest income group reported greater consumption of these items. Physiological needs aside, women also reported lower consumption of these expensive food groups, which is consistent with the fact that they are more likely to suffer from poverty[3] and food insecurity [13].

Figure 4
Average Daily Servings From the Four Food Groups by Income, 19 or Older, Canada, 2004



Source: Overview of Canadians' Eating Habits, 2004 [11]

First Nations and Inuit Communities

As nutrition data on First Nation communities in Manitoba are not available, we have relied on nutrition surveys conducted by Indian and Northern Affairs Canada (INAC) and Santé Québec, in addition to the results from the *First Nations Regional Longitudinal Health Survey* (RHS) to describe the nutritional status of

[3] Refer to the indicator in Chapter Two on women living in poverty

several First Nation and Inuit communities across Canada[4]. Respondents in the survey conducted by INAC[5] focused on communities in Nunavut, Labrador and Ontario, and were exclusively female between the ages of 15 and 44. Respondents in the survey conducted by Santé Québec resided in Nunavik and included both men and women aged 18 to 74. Energy intake ranged from 1869 to 2763 calories, representing 98% to 145% of their recommended nutritional intake (RNI). In most communities, women obtained 16% to 21% of their energy from country foods (food obtained directly from the environment). Most did not consume the recommended amount of fruits, vegetables and dairy products, while many consumed too much fat, sugar and protein. Intake levels of calcium, magnesium, folate, vitamin C and vitamin A were also lower than recommended [14].

The RHS[6] conducted in 2002-2003 surveyed over 10,000 First Nations adults in all provinces and territories excluding Nunavut. Approximately 18% of adults reported consuming soft drinks several times a day, and almost 30% reported eating fast food a few times a week. Men were more likely than women to consume fast food, sweets, potato chips and fried foods once a day, although generally speaking, younger adults were more likely than older adults to report consumption of these foods [10].

In terms of traditional food items, 59% of adults reported that they often consumed fish and game, and almost 22% said they often consumed berries and other types of local vegetation. Additionally, 42% of adults often ate other traditional First Nations foods such as bannock, fry bread and corn soup. No sex, age or income differences were found in the consumption rate of traditional foods. However, adults in smaller communities (<300 residents) reported higher consumption of protein-based traditional foods (71% vs. 57%) and berries (32% vs. 20%) than respondents in larger communities (>300 residents) [10].

Although some reports suggest that Aboriginal people consume too many calories and eat less than the recommended amount from the four food groups, it is noteworthy to mention that researchers measured food consumption according to *Canada's Food Guide*, and not based on a traditional diet. Our ability to report on the nutritional status of Aboriginal people is limited, as no comprehensive study exists on food intake for these populations.

[4] The reader is advised to interpret these findings with caution, since results from both studies conducted by INAC and Santé Québec were combined for the final report, and therefore include both men and women.

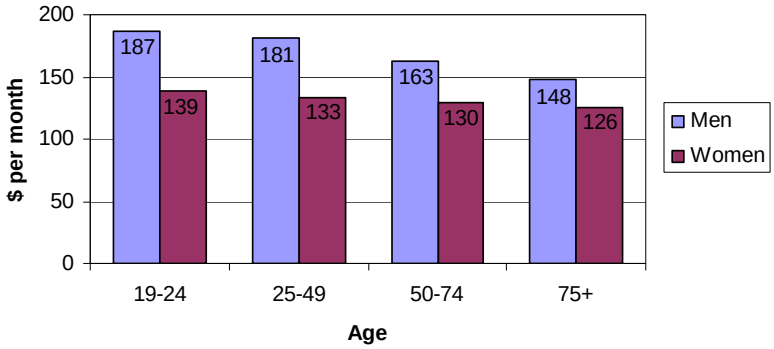
[5] These particular communities are part of the Food Mail Program, whereby INAC makes payments to Canada Post to subsidize the transportation of nutritious perishable foods to remote communities. Foods of little nutritional value do not qualify for the program. Consequently, these results may not adequately reflect the nutritional status of First Nation and Inuit communities elsewhere in Canada.

[6] The target population was defined as First Nations people living on-reserve within First Nations communities in 10 provinces and 2 territories. First Nations people living off-reserve, Métis and Inuit people were excluded. Fifteen communities living-off reserve temporarily or who lived nearby and used on-reserve services were included. Lack of funding is cited as the primary reason off-reserve communities were not included.

Food Costs

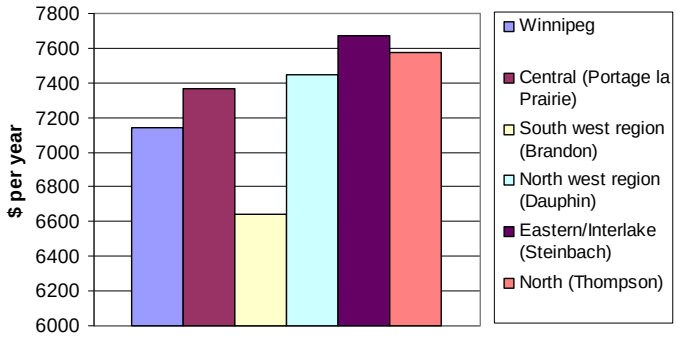
The cost of food for individuals and families depends on several factors including family size, geographical location, inflation, and seasonal variations in the cost of items such as fruits and vegetables.

Figure 5
Cost of Food at Home, Winnipeg 2004



Source: Family Living Costs, 2004 [15]

Figure 6
Manitoba Food Costs, 2004



Source: Family Living Costs, 2004 [15]
Costs for family in household

The Manitoba Department of Agriculture, Food and Rural Initiatives used the recommended feeding patterns published by the Ministry of Health in Ontario to determine the content of recommended food baskets in Manitoba[7]. The recommendations stem from the 1998 *Monitoring the Cost of a Nutritious Food Basket Protocol*, which based the basket's contents on *Canada's Food Guide to Healthy Eating for People Four Years Old and Over*. The food costs quoted are based on the average price at three Winnipeg supermarkets in 2004 [15]. The 2004 cost of food in Winnipeg for females aged 19 or older averaged $132 per month, and for males $170 per month (Figure 5). In 2004, the Manitoba Food Cost Survey reported that the cost of food for a Winnipeg family[8] averaged $ 7,141 a year (Figure 6). In other parts of Manitoba, annual family food costs can be as high as $7,672 in the Eastern/Interlake region, and as low as $ 6,646 in the Southwest region (Brandon) [15].

Food costs in the north are substantially higher, making it difficult for residents of this region to afford nutritious foods. Greater food costs are the result of a smaller market size, carrying larger quantities of food for larger distances (transportation costs), and frequent spoilage and loss as a result of these distances [16]. Although the basic Income Assistance Rates [17] are expected to provide for housing, clothing, food and supplies, they do not reflect the true costs of running a household. Consequently, many women are forced to use some of their food and clothing money to pay rent. With only a small budget left

[7] This information is the most recent of its kind, as Manitoba Agriculture, Food and Rural Initiatives no longer produces these reports.

[8] The family used for these calculations consists of a man and a woman 25-49 years of age, a girl aged 7-9 years and a boy aged 13-15 years.

over to buy food, these women cannot buy fresh fruits and vegetables and often resort to processed and unhealthy foods that are less expensive [18]. In 2007, the provincial government announced a 30% increase in employment and income assistance for residents living in Manitoba's northern and remote communities [19] to assist with the purchase of these expensive foods, since the cost of food plays one of the largest roles in having a secure food supply. Women, children and Aboriginal peoples as a whole are some of the most economically vulnerable groups, and are therefore more likely to have an unreliable food source [13].

Food Insecurity

Canada is a "food-rich" nation, free from the drastic levels of malnutrition seen in the most poverty stricken countries of the world. Researchers therefore use a different concept to measure the availability and accessibility of food - food security - an important determinant of health, as poor nutrition has been linked to numerous health conditions [21]. Although food costs are a burden to some, Canada has pursued a cheap food policy, which itself has contributed to declining real incomes for farm women and men [22].

Food Insecurity

When the availability of nutritionally adequate and safe foods or the ability to acquire food in socially acceptable ways is limited or uncertain, a person is considered food insecure [20].

Various manifestations of food insecurity can be observed, and include worrying about having enough food, consuming reduced quantities or quality of food, or having an insufficient amount of food [21]. As food insecurity is defined in financial terms, it is also related to one of the most important determinants of health— income [23]. Food acquisition problems associated with food insecurity include the location of stores being too far away, no money for transport, transportation not available, and health problems including long-term disability [24]. Certain groups in Canada are particularly vulnerable, including Aboriginal people, single parent women, and children [24].

According to the CCHS cycle 2.2, only 7.5% of Canadians and 8.7% of Manitobans are food insecure, using the most widely accepted definition (see box) [20]. Although we are pleased to report that the numbers are small, food insecurity still exists in our country. Approximately 3 million Canadian households reported that they had worried food would run out, and over 2 million households reported that within the past 12 months there were times when food they had bought did not last[9] [25]. In addition, 2% of the population whose responses suggested they were food insecure reported not eating when they were hungry because they could not afford enough food. Of the Canadian households that were at risk for food insecurity and that had at least one member aged younger than 18, over 55,000 reported that the children did not eat enough because they could not afford enough food [25]. In Manitoba[10], 11% of respondents had

[9] Responses were collected at the household level and therefore cannot be disaggregated by age or sex. Data should be interpreted with caution as respondents who did not own a telephone were not included in the survey, suggesting that the actual number of food insecure people and households might be higher.

[10] This analysis is based on Statistics Canada's Canadian Community Health Survey Cycle 2.2, Public Use Microdata file, which contains anonymous data collected in the year 2004. All computations on these Microdata were prepared by Prairie Women's Health Centre of Excellence and the responsibility for the use and interpretations of these data is entirely that of the authors.

worried food would run out, and 8% reported that the food just didn't last. Other reports[11] suggest that a higher percentage of women than men report food insecurity (16% vs. 13%), especially female lone parents (33%). The rate is also notably higher for off-reserve Aboriginal people (31%) [26].

The dimensions of food insecurity do not adversely affect individuals equally, nor will they contribute to the same health problems. Although concerns about having enough food may certainly cause distress, research indicates that inadequate nutrition is significantly correlated with food insecurity, suggesting that those who are food insecure have poorer nutrition, and therefore experience more nutrition-related health implications [21]. Several health problems were found to be more prevalent among food insecure households including multiple chronic conditions, distress, and depression [21]. Obesity has also been linked to food insecurity as studies have found that people living in food insecure homes are more likely to choose high calorie foods when food is available, than those in food secure homes [27]. Food insecurity has also been linked to stress, modification of eating patterns, disrupted household dynamics and distorted means of acquiring and managing food [28]. Food insecure women are also at greater risk of developing heart disease, cancer, diabetes and hypertension [29].

In Canada, one of the most common responses to food insecurity is the use of food banks [29]. Although food banks do offer immediate assistance, they fail to provide a sustainable solution to hunger and food insecurity in Canada. In 1981, a deep recession and a high rate of unemployment led to the establishment of Canada's first food bank in Edmonton. Originally, food banks were created as a temporary measure to address some of the inadequacies in existing social programs; however, growing demand prevented their closure [30]. At a time when neighbourhood stores continue to close, and there are fewer local places to buy groceries in heavily populated urban areas [31], it is unlikely that food bank use will decrease in the foreseeable future.

There are currently 649 food banks in Canada that serve over 700,000 people each month, 41% of whom are children [32]. Winnipeg Harvest is the largest of 47 food banks currently operating in Manitoba, serving over 30,000 adults and 18,000 children monthly [33]. Although food bank reliance has increased 18.3% since 2000, Manitoba did report a reduction of 3.7% in 2006 [32, 33]. Nonetheless, Manitoba food banks have more children as clients (46.6%) than food banks in any other province. This represents an increase of 5.2% since 2004 [33]. Welfare recipients, the working poor, persons with disabilities, seniors, children and lone mothers constitute the largest groups of food bank clients [13]. Food acquisition is not just an urban issue; Winnipeg Harvest also collaborates with 15 agencies in rural communities, having distributed over 400,000 pounds of food in 2005 [34]. Although 53.5% of food bank clients receive their primary source of income from social assistance, 13.4% of clients receive their primary source of income from employment [32]. This means that long-term solutions will require economic and social policy reform aimed at reducing poverty levels – an attainable goal in a country as wealthy as Canada.

[11] Results are based on the 2000/2001 CCHS version 1.1. Data were limited to Canada since several variables were excluded from the Public Use Microdata File. Note that more recent reports have included a revised measure of food insecurity.

Summary

Consuming a healthy diet and having a secure food supply are important determinants of women's health. There are sex-specific health risks to poor nutrition, and therefore ongoing surveillance of the nutritional status of women is needed. Surveillance for Aboriginal women's nutrition, particularly Métis and Inuit women would have to be improved in consultation with those populations.

In a food rich nation such as Canada, many people consume too much food and/or over-emphasize the low-nutrient foods, especially considering the recommendations outlined in *Canada's Food Guide*. Although the appropriateness of the *Food Guide* has been a source of contention, attempts to reconcile this issue have been made in the revised *Food Guide* released in February 2007. These include the addition of distinct portion sizes and more culturally specific foods. Translations of the *Food Guide* are now also available in 11 languages in print and on-line (http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php)

It is noteworthy to mention that changes to the *Food Guide* were met with harsh criticism, since members of the committee advising on revisions included some of the biggest food producers and manufacturers in the country. Their inclusion in the advisory committee was criticized because of the inherent conflict of interest involved. Others suggest that use of the revised version may still lead to substantial weight gain in the population [35].

Canada is a wealthy nation where the majority of people eat a nutritious diet. However, access to healthy, affordable food has been identified as a problem for several disadvantaged groups. Health Canada has identified "eating nutritiously" as one of the factors that contributes to Healthy Living, yet we observe disparities in food accessibility. Community-based responses such as soup kitchens and school meal programs are commonly referred to as "Band-Aid" solutions, because while they temporarily alleviate hunger, they do not address the root causes of food insecurity. Furthermore, they rely heavily on food producers, wholesalers and retailers in addition to community members for their donations, which can lead to inconsistencies in the availability and quality of food. Winnipeg Harvest - the largest food bank in Manitoba - is closed for the summer months, meaning families are required to find alternative solutions to acquire food in emergencies.

Although the absence of sex and age disaggregated data inhibits a gendered analysis of food security in Canada, other measures, such as reports from food banks, indicate that food banks are used most by economically vulnerable groups such as women and children, suggesting that income is related to food security. While food banks do offer immediate relief, there is evidence that women also undertake alternative means of acquiring money for food —including illegal activities such as sex-trade work— putting them at greater risk for injury, disease and death. Women as primary care givers have a large part in the preparation of food, and are therefore more likely to compromise their diet in order to provide food for children and money for rent or clothing. In addition, women bear the burden of the dual role which adds stress and may lead to overeating, eating unhealthy or eating foods away from the home, thus again compromising their health.

Nutrition & Food Policy in Manitoba

Food insecurity is a health issue. The connection between food security and good health needs to be identified within government to ensure the development of appropriate public policy. Changes in public policy are considered "the most effective and direct route to ensuring that Canadian households and communities can be more food secure" [37]. Policies aimed at reducing food insecurity will require the provincial government to increase and index minimum wage and social assistance levels [32].

Housing costs contribute to food insecurity. Creating more affordable housing (private market, social housing, and co-operative housing) will help to ensure that women living on low incomes have sufficient money to pay for food for themselves and their children [18].

As there is a significant amount of food insecurity in northern communities, a range of strategic options will be necessary in order to reduce food costs. One such strategy – The Northern Healthy Food Initiative – aims to improve access to affordable and nutritious foods in northern communities [16].

Issues of food accessibility in Manitoba, particularly for pregnant women have been addressed with the introduction of the Healthy Baby program [36]. This two-part program funded by the provincial government is designed to provide health information and financial assistance for nutrition during pregnancy. Pregnant women who live in Manitoba and who earn less than $32,000 are eligible in the second and third trimesters of their pregnancy for a maximum of $81.41 per month [36]. After the baby is born, benefits are payable from the federal Child Tax Benefits (CTB) program. Unlike other provinces, Manitoba does not "claw back" CTB payments from women in receipt of income assistance. These initiatives certainly demonstrate the provincial government's efforts to assist pregnant women in Manitoba, however the benefits are low and their duration is short. Pregnant women and breastfeeding mothers need larger benefits for longer periods of time, especially considering the changes in nutritional requirements that accompany pregnancy and lactation. Canada's Prenatal Nutrition Program provides funding for local programs that provide food supplements and counseling for poor pregnant women, although support ends following childbirth [29].

A more recent example of the provincial government's attempts to assist low-income families occurred in April 2007, when Family Services and Housing Minister Gord Mackintosh announced a 30% increase in employment and income assistance rates for residents of northern and remote communities in Manitoba [20]. The increase is expected to assist with the high cost of basic necessities such as nutritious foods. Garden supplies and commercial-size freezers were also shipped to these fly-in communities to help lower the cost of bringing supplies. Such initiatives must be implemented where needed to ensure that all Manitobans have a safe and secure food supply.

Policies aimed at food insecurity should take a bottom-up approach that involves the participation of groups typically excluded. Including community members in the identification of issues related to food-insecurity will likely result in realistic and sustainable solutions [37].

Although overweight and obesity are more common in "food-rich" nations such as Canada, we must not overlook self-inflicted food deprivation (dieting, anorexia nervosa, and bulimia nervosa) and its impact on women's health.

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Manitoba Women and Physical Activity

Introduction

> *"If exercise could be packaged into a pill, it would be the single most widely prescribed and beneficial medicine in the nation" [1]*

This statement underscores the importance of being physically active, as regular physical activity contributes to the good health and overall well-being of Canadian women (and men). People who engage in active living tend to outlive people who are physically inactive [3]. Long-term physical activity patterns are therefore an important determinant of health-related quality of life.

Research demonstrates that those who engage in regular physical activity experience numerous physical and emotional health benefits. People who are physically fit accomplish daily tasks with greater ease and comfort, and with less fatigue [4]. Regular activity is associated with higher levels of self-esteem, improved cognitive performance, and helps maintain a healthy body weight. A healthy body weight decreases the risk of several adverse health outcomes such as hypertension, coronary heart disease and premature mortality [5]. Other benefits of active living include disease prevention, reduced anxiety and stress, stronger muscles and bones and continued independent living later on in life [4].

Workplace physical activity programs are linked to higher rates of job satisfaction, resulting in reduced absenteeism due to illness, injury and stress [6]. Active individuals have more energy and better job attitudes, which in turn reduces turnover rates, in addition to disability, health care, and life insurance costs [4, 7].

For people with disabilities, active living can help with the physical and mental stresses of living with a disability by increasing mobility, improving posture, and reducing aches and pains associated with long periods of

Canada's Physical Activity Guide (PAG) recommends doing a variety of endurance, flexibility and strength exercises on a daily basis to ensure optimal health. Adults are encouraged to engage in periods of at least 10 minutes for a total of 60 minutes of activity every day. Time needed to achieve health benefits is largely dependent on effort. As adults progress to moderate and vigorous activities, the frequency and duration of the activities may be reduced [2].

ACTIVITIES:

Endurance
Walking, golfing, cycling, propelling a wheelchair

Flexibility
Gardening, vacuuming, yoga, Tai Chi

Strength
Climbing stairs, push-ups, weight-training routines

EFFORT:

Light effort (60 minutes, everyday):
Light walking, stretching, easy gardening

Moderate effort (30-60 minutes, 4 times per week)
Brisk walking, biking, swimming, dancing

Vigorous effort (20-30 minutes, 4 times per week)
Aerobics, jogging, hockey, basketball

Source: Healthy Living [2]

sitting [4]. By increasing strength, regular exercise may also help people with disabilities maintain and increase their independence. Regular physical activity also reduces the risk of falls among elders, and in many cases, delays the decline in functional capacity attributable to aging [6, 8].

Physical activity reduces the risk of cardiovascular disease, and in some instances, can reduce the risk of developing colon cancer and Type 2 diabetes by as much as 50% [9, 10]. Active living improves function and relieves symptoms among those with osteoarthritis and rheumatoid arthritis to the extent that fewer medications are needed to alleviate symptoms and ease pain [1]. Among women, weight-bearing exercises such as walking decrease the risk of developing osteoporosis and related fractures by preserving bone mineral density [11]. Women who participate in physical activity programs report significantly lower levels of depression, disturbed sleep and loneliness compared to women who do not engage in regular activity [12]. Routine physical activity is also associated with a reduced risk of developing breast cancer, the most common cancer diagnosed among Canadian women. It is estimated that one in nine Canadian women will develop breast cancer, and one in 25 will succumb to this disease [13]. Since there are few modifiable behaviours that can influence breast-cancer risk [14], it is particularly important for women to stay active.

Measuring Physical Activity

This indicator uses results from the 2007 Manitoba *In Motion* survey [15] conducted by the Health, Leisure and Human Performance Research Institute of the University of Manitoba, in addition to the 2002/2003 *Manitoba First Nations Regional Longitudinal Health Survey* (RHS) [16]. The *In Motion* survey asked Manitoban respondents to recall every activity undertaken in the past week, in order to determine whether or not they were engaging in sufficient activity to meet Health Canada's minimum PAG requirements (see box). Unlike other surveys, Manitoba data were not limited to those who reported exercising regularly, nor were respondents asked to report activities related exclusively to sports and exercise. Consistent with Health Canada's message to engage in physical activity "*at home, at school, at work, at play, or on the way!*", the Manitoba survey included all daily activities, recognizing of course that people achieve their daily requirements in a number of different ways- at work, at school and around the home. Although the all-inclusive nature of the *In Motion* survey renders it incomparable to other surveys, it is the most recent and comprehensive of its kind, and therefore the most indicative of current physical activity trends in Manitoba.

To complement the Manitoba *In Motion* survey, results from the 2002/2003 RHS were used to provide data on the physical activity levels of 26 on-reserve First Nations communities living in Manitoba. Households were randomly selected and wherever possible, two adults (1 woman, 1 man) were interviewed in-person. Note that our ability to report sex-disaggregated data was somewhat limited, as several variables were not reported disaggregated by sex in the RHS and the *In Motion* surveys.

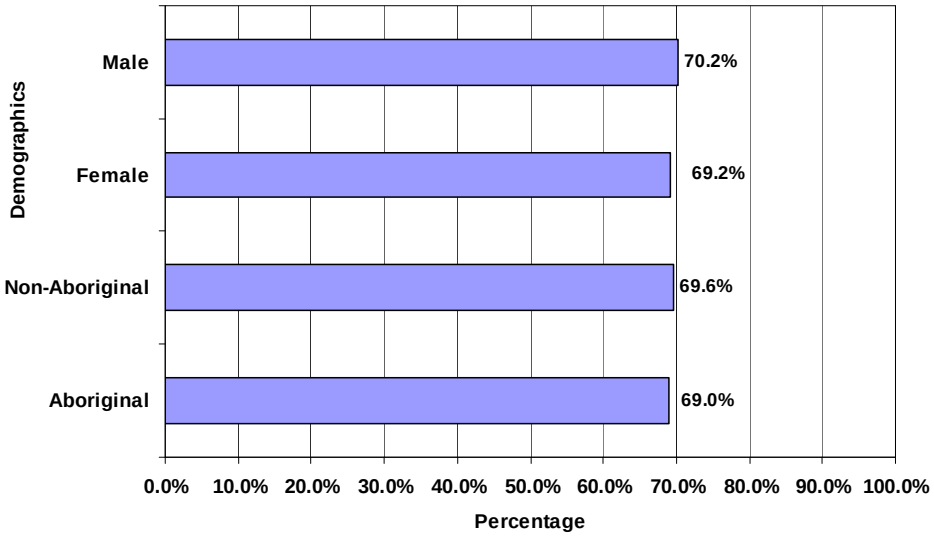
Physical Activity in Manitoba

In order to determine whether or not adult women and men engage in "sufficient" activity to achieve health benefits, researchers typically express activity levels in terms of energy expenditure [15]. A person who has an average daily energy expenditure of at least 3 kilocalories per kilogram of body weight per day (KKD) is classified as 'active', an average daily expenditure of 1.5-2.9 KKD is considered 'moderately active' and 'inactive' corresponds to an average daily expenditure of less than 1.5 KKD. It is noteworthy to mention that only those who have an average daily expenditure equal to or greater than 3 KKD meet the *minimum* PAG requirements.

Level Of Activity	Energy Expenditure	Example
Active	≥ 3 KDD	1 hour of walking
Moderate	1.5-2.9 KDD	30 minutes of walking
Inactive walking	< 1.5 KDD	< 15 minutes of

Source: Physical activity and sport: Encouraging children to be active [17]

Figure 1
Percentage of Adults who meet PAG Requirements by Demographic Characteristics
Manitoba, 2007

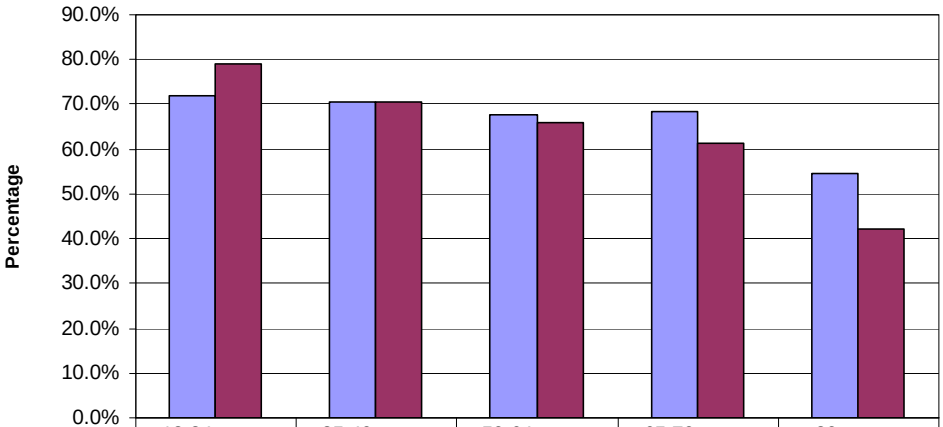


Source: Manitoba *In Motion* survey [15]

While a number of studies reporting exclusively on leisure-time physical activity describe alarmingly low levels of activity in Manitoba and across Canada, we are happy to report that results from the *In Motion* survey suggest otherwise. Accounting for all daily activities, *In Motion* determined that 70% of adults do in fact meet PAG requirements, and are therefore considered 'active'. Despite the tendency to classify more female and Aboriginal respondents as 'inactive', results from the *In Motion* survey yielded no significant differences between men, women, Aboriginal and non-Aboriginal respondents (Figure 1).

For Manitoban women and men, the likelihood of meeting minimum PAG requirements tended to decrease with age, particularly among men aged 80+ years. Contrary to a number of other reports, overall, women were more likely than men to meet minimum PAG requirements, with the exception of those aged 18-34 years (Figure 2). Older men (80+ years) were surprisingly less likely to meet minimum PAG requirements than their female counterparts. This difference is likely due to older men no longer meeting

Figure 2
Percentage of Adults who meet PAG by Age and Sex
Manitoba, 2007



	18-34 years	35-49 years	50-64 years	65-79 years	80+years
Women	72.0%	70.5%	67.7%	68.3%	54.5%
Men	79.1%	70.6%	66.0%	61.2%	42.2%

Source: Manitoba *In Motion* survey [15]

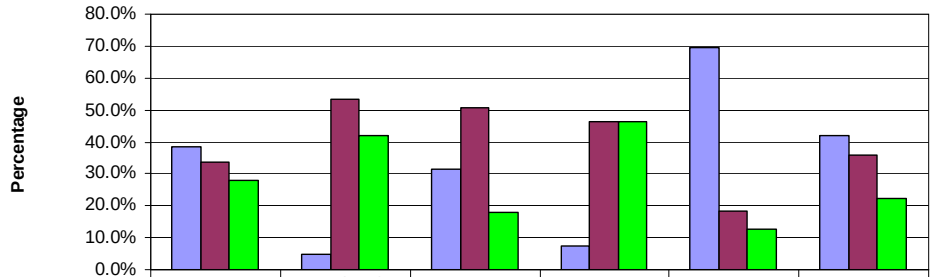
PAG requirements through work, while older women continue meeting PAG requirements through activities around the home.

Differences between age groups reflect typical life course events that can affect people's ability to engage in active lifestyles. Middle-aged men and women have less leisure-time than younger men and women due to work and family commitments, and older men and women experience more health problems, which can lead to lower levels of activity. Low rates among older Manitobans may also reflect barriers related to knowledge of benefits to physical activity, although the elderly (particularly women) often cite "being too old" as reasons for not participating [18]. Nonetheless, sex differences in physical activity patterns cannot be explained entirely by time constraints, family roles, or health status, as even teenage girls in Manitoba (13-17 years) are less active than their male counterparts [15, 19]. We can speculate that lower levels of activity among women aged 25-34 are due to the obligations that accompany motherhood; however, at a time when most teenage girls (13-17 years) and young women (18-24 years) have fewer gender-differentiated [19] work and family responsibilities, they still report lower levels of activity than boys and men, suggesting that there are other factors that influence activity levels among these particular age groups.

Some contend that lower rates of physical activity among young women reflect the attitudes they hold towards exercise and their bodies [20]. This can lead to disordered exercising routines, which hinder rather than contribute to the good health of these women. Lower participation rates may also reflect limited access to programs that offer culture and gender-appropriate activities. Physical activity — particularly sports— tend to focus exclusively on Western, male-oriented values that emphasize strength, competition and aggression [18]. Creating a non-threatening, culture-appropriate atmosphere where women can feel safe is therefore an important step towards increasing activity levels at a young age, which in turn, increases the likelihood of maintaining an active lifestyle over the course of a lifetime.

According to the 2007 *In Motion* survey, more individuals reported getting 'some' or 'lots' of activity in their jobs (61.6%) and through transportation (68.5%), than from participating in sports (30.7%) and exercising (58.2%). A number of respondents also reported getting 'lots' of activity during leisure time (46.2%) and doing yard/housework (41.8%), which explains why a higher number of Manitobans met PAG requirements compared to other surveys that exclusively examined sports and exercise (Figure 3).

Figure 3
Amount of Activity from Each Category of Activity
Manitoba, 2005



	Job	Yard and Housework	Going Places	Leisure	Sports	Exercise
No Activity	38.4%	4.8%	31.5%	7.3%	69.3%	41.8%
Some Activity	33.5%	53.4%	50.6%	46.5%	18.2%	35.8%
Lots of Activity	28.1%	41.8%	17.9%	46.2%	12.5%	22.4%

Type of Activity

Source: Manitoba *In Motion* survey [15]

Although we are unable to provide these data disaggregated by sex, it is anticipated that as primary care givers, a number of women reported getting some or lots of activity from "yard/housework". By recognizing that managing a household (caring for children, meal preparation, errands, yard work) is labour intensive and commands sufficient energy expenditure to meet minimum PAG requirements, we find that an equal number of men and women are in fact physically active. Excluding activities seldom considered "physical activity", and more importantly, traditiona[redacted]woman's work" has thus contributed to the erroneous misrepresentation of physica[redacted]ns among women in Manitoba.

Most Manitobans meet PAG[redacted]hrough moderate activities, though women are more likely to meet PAG requirements thro[redacted]derate activities, and men through vigorous activities. Only 32% of younger men (18-34 years) reported no participation in sport, while over 53% of women in the same age group reported getting no activity from sport. For both women and men, sport participation declined substantially with age, and by 50-64 years, 88% of women and 71% of men reported no sport participation. Although a number of women aged 18-34 and 35-49 reported getting some or lots of activity from exercise, by age 50-64 years, more than half reported getting no activity from exercise. Results were similar for men in older age groups, although men reported getting more activity from exercise than women in all age groups.

Some of the most frequently-mentioned activities reported by Manitobans included walking (41%) and jogging (7.5%); however, a number of respondents also cited biking (8.8%), weight-lifting (8%), and using cardiovascular machines (5%) [15]. Gym memberships and sporting equipment are usually quite costly, and presumably, most often used by people in higher income groups. Higher rates of poverty among women create disparities in accessing equipment and facilities, meaning women must resort to other alternatives to stay fit. While walking and jogging are excellent, virtually cost-free alternatives to bicycles and exercise classes, they have the potential of putting women at risk, particularly low-income women who live in unsafe neighborhoods. Low-income women may not feel as protected from crime as people living in middle or high-income neighborhoods, which means they may be less likely to walk/jog for exercise or recreational purposes [21]. This is particularly concerning since mothers of young children who live in low-income households are particularly at-risk for sedentary living [3].

First Nations and Inuit Communities

The RHS[1] conducted in 2002-2003 surveyed over 10,000 First Nations adults in all provinces and territories excluding Nunavut. In Manitoba, 95% indicated that they had participated in at least one type of physical activity in the past 12 months. The most commonly cited activities[2] were walking (90%), fishing (36%), cycling (31%), group sports (28%), skateboarding (27%) and hunting/trapping (27%) [16]. Respondents reported that on average, they participated in activities that elevated their heart rate and increased breathing four times per week. Time spent engaging in these activities ranged from none (18%) to 7+ hours (18%). At least 35% reported being physically active 1 to 2 hours per week, and 30% reported being active between 3-6 hours per week [16].

According to the *In Motion* survey (2007) 69% of Aboriginal[3] respondents met the minimum PAG requirements compared to 70% of non-Aboriginal respondents. Over 60% of Aboriginal respondents reported exercising regularly; however, of those who reported exercising regularly, 12.5% compared to 15% of non-Aboriginal respondents did not meet the PAG requirements. Conversely, of those who did not report exercising regularly, 19% of Aboriginal respondents and 16% of non-Aboriginal respondents did in fact meet PAG requirements [15].

While the above results suggest that most Aboriginal survey respondents are engaging in sufficient levels of physical activity to achieve health benefits, obesity rates among Aboriginal populations tend to suggest otherwise. Aboriginal people tend to have lower levels of education and higher rates of poverty, which are two factors that adversely affect physical activity levels. Moreover, residential school experiences have resulted in depression, addictions and other mental health issues, which also influence physical activity patterns among these communities [22]. That the results suggest otherwise is likely due to the fact that "exercise" was self-defined for the *In Motion* survey, all activities in the past 12 months were included, respondents overestimated their activity levels, or perhaps that a number of Aboriginal respondents did in fact meet PAG requirements through different activities than non-Aboriginal respondents.

Physical Inactivity in Manitoba

Physical inactivity means more than simply being "out of shape"; it means failing to meet the minimum requirements of activity for optimal health. At a *minimum*, adults should strive to incorporate either 60 minutes of light exercise everyday, 30-60 minutes of moderate exercise 4 days per week, or 20-30 minutes of vigorous exercise 4 days per week [2].

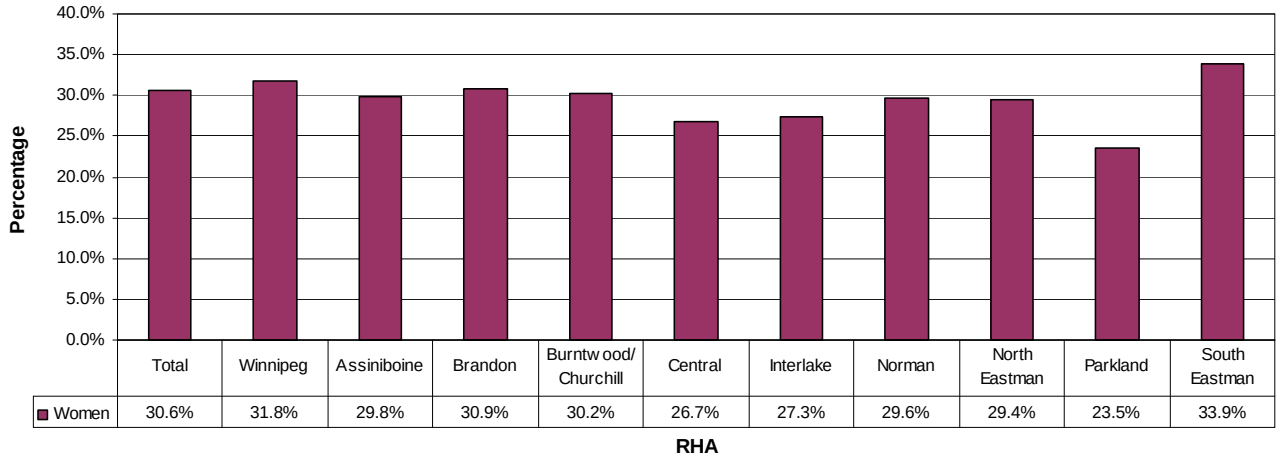
[1] The target population was defined as First Nations people living on-reserve within First Nations communities in 10 provinces and 2 territories. First Nations people living off-reserve, Métis and Inuit people were excluded. Fifteen communities living-off reserve temporarily or who lived nearby and used on-reserve services were included. Lack of funding is cited as the primary reason off-reserve communities were not included.

[2] Totals do not equal 100% as respondents were asked to list all activities

[3] "Aboriginal" refers to all respondents who self-identified as First Nations, Métis or Inuit.

In Manitoba, approximately 31% of women and 30% of men fell short of this criterion, and were therefore classified as inactive. Inactivity rates varied only slightly by region with the exception of South Eastman (Figure 4). Women living in the South Eastman RHA were the most likely to fall below minimum PAG requirements (33.9%), while women living in Parkland were the least likely (23.5%). With the exception of Winnipeg, Brandon and South Eastman, all other RHA's fell below the provincial average. Note that urban dwellers were more likley to be inactive than rural and northern dwellers. This contradicts findings from the *Canadian Community Health Survey* (CCHS) cycle 3.1, where rural dwellers were found to be substantially less active. This difference is likely due to the fact that the *In Motion* survey included farm work in its conceptualization of 'physical activity', whereas the CCHS did not.

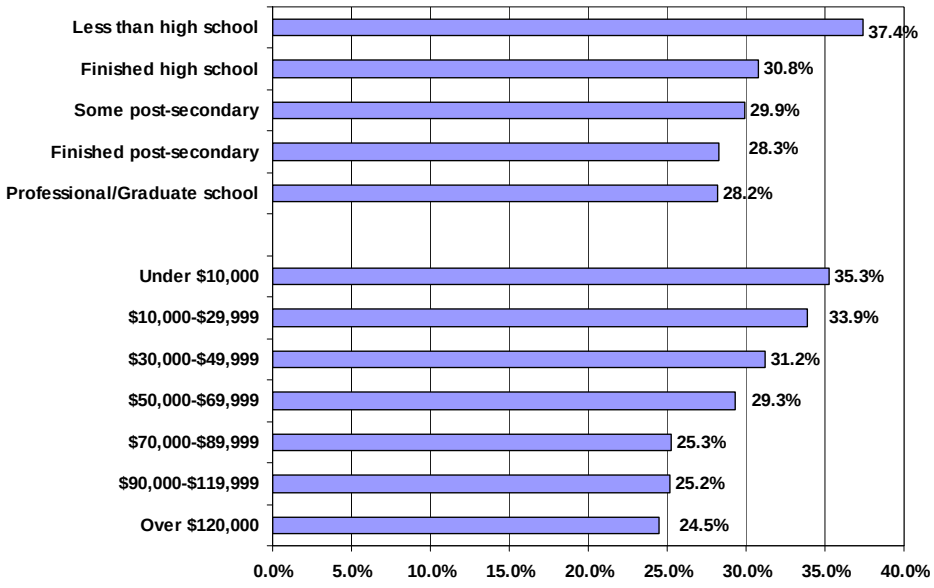
Figure 4
Inactivity: Percentage of Women who do not meet PAG by RHA
Manitoba, 2005



Source: Manitoba *In Motion* survey [15]

In 2005, physical activity patterns also varied among Manitobans depending on education and income (Figure 5). Respondents with a university degree were more likely to meet PAG requirements than those who had only completed high school. Respondents completing less than high school were least likely to meet PAG requirements.

Figure 5
Percentage of Adults who do not meet PAG by Education and Income
Manitoba, 2007



Source: Manitoba *In Motion* survey [15]

Since higher levels of education tend to command higher salaries, it is unsurprising that respondents in the highest income category were the most likely to meet PAG requirements. As income levels decreased, so too did the likelihood of meeting minimum PAG guidelines. Although we are unable to present these data disaggregated by sex, we do know that women are disproportionately affected by poverty[4], and thus more likely to represent those who did not meet PAG requirements in the lower income categories. Income does not only adversely affect women's physical activity patterns in the sense that it inhibits the purchase of sporting equipment and gym memberships; income also determines where women live and whether they can afford childcare, two factors that can conflict with active recreation.

Barriers to Physical Activity in Manitoba

Individual and environmental determinants of physical activity vary across life situations, and thus create a number of different barriers to engaging in active lifestyles. In 2005, the *In Motion* survey asked participants "Is there anything that gets in the way of you being as physically active as you would want to be?" and grouped the responses into four categories: 'other commitments', 'physical/health factors', 'motivation/lifestyle', and 'environmental factors' (see box). While almost 20% of the total sample reported experiencing more than one barrier, over 25% reported experiencing no barriers to participating in physical activity. There were virtually no differences between Aboriginal and non-Aboriginal respondents in the percentage of barriers experienced (74% vs. 73%); however, women were more likely than men to report at least one barrier to increasing physical activity (76% vs. 69%). Overall, women and men reported similarly in the 'motivation/lifestyle' and 'environmental factors categories', however; a higher percentage of men reported 'work/volunteering' (27% vs. 17%), and a higher percentage of women reported 'kids/family/household' (16% vs. 10%) as a barrier.

Barrier Types

Other Commitments:
- -work/volunteering
- -lack of time/busy
- -kids/family/household
- -school work

Physical/Health Factors:
- -injury/medical problem
- -age/too old
- -illness
- -pregnancy
- -overweight

Motivation/Lifestyle:
- -unmotivated- lazy
- -lifestyle
- -computers/TV/videogames
- -unhealthy choices
- -no one to exercise with
- -sedentary job
- -stress

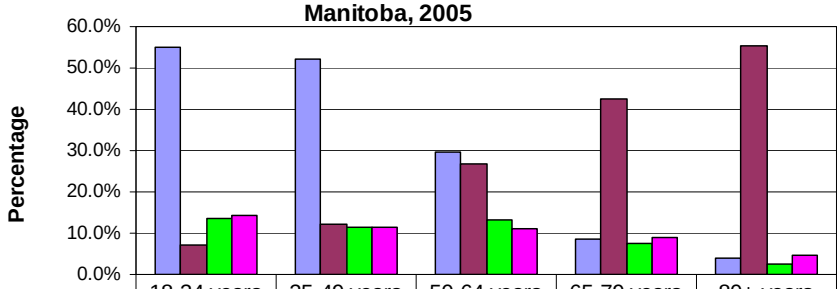
Environmental Factors
- -weather/mosquitoes
- -money (gym costs)
- -lack of facilities/transportation
- -poor roads/parks
- -lack of equipment

Source: *In Motion* survey [15]

[4] See Chapter Two.

In a province as cold and mosquito laden as Manitoba, it is no surprise that a number of women and men cited 'weather/mosquitoes' as a barrier (8.6% and 8.5% respectively). Women were also more likely than men to report 'money/gym' costs (2% vs. 1%) and 'injury/medical problems' (19% vs. 15%). Responses for 'work/volunteering', 'lack of time', 'kids/family/household', 'unmotivated/lazy', decreased with age, and not surprisingly, 'injury/medical problems' increased substantially with age[5] (Figure 6).

Figure 6
Percentage of Women Reporting Barriers to Physical Activity by Age
Manitoba, 2005



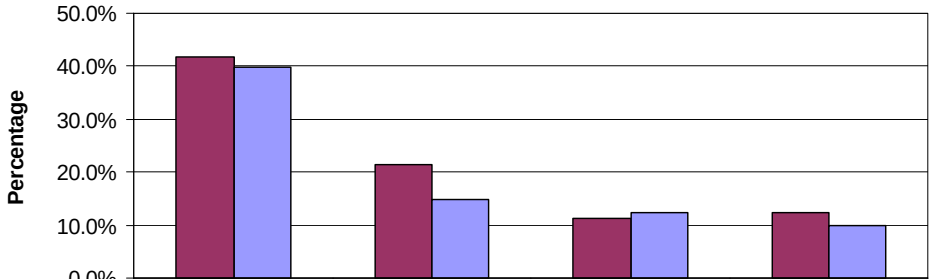
	18-34 years	35-49 years	50-64 years	65-79 years	80+ years
Commitments	55.1%	52.1%	29.7%	8.6%	3.9%
Physical/Health	7.2%	12.2%	26.9%	42.4%	55.5%
Motivation/Lifestyle	13.5%	11.3%	13.1%	7.6%	2.6%
Environmental	14.4%	11.3%	11.1%	8.8%	4.5%

Age

Source: Manitoba *In Motion* survey [15]

Overall, significant gender differences were observed for the 'physical/health' barriers[6] and the environmental barriers,[7] with more women reporting these types of barriers (Figure 7). Although the most commonly reported barriers among women taking part in the *In Motion* survey were household-related tasks, other barriers often reported by women include poor perception of health, lack of social support from employers, and the perception that activity will fail to produce the desired effects [23, 24].

Figure 7
Percentage Reporting Specific Barriers to Physical Activity by Sex
Manitoba, 2005



	Commitments	Physical/Health	Motivation/Lifestyle	Environmental
Women	41.8%	21.3%	11.2%	12.5%
Men	39.9%	14.8%	12.5%	9.8%

Barriers

Source: Manitoba *In Motion* survey [15]

[5] Data were not available disaggregated by age *and* sex

[6] ($p<.001$)

[7] ($p<.01$)

Barriers among different cultural groups may be related to a lack of knowledge of the importance of exercise, differing values placed on physical activity, and a lack of community support [24, 25, 26]. Socio-economic status and place of residence also influence activity levels, with many women lacking safe places to exercise, are too tired due to double-shifts, or lack child care resources and gender-sensitive programs [5]. Rural women also face a number of barriers to physical activity such as limited access to programs and facilities, transportation, accessibility and cost, and as a consequence, report feeling particularly un-motivated to stay active:

> *"You have to be motivated in a small town, because you have to make yourself do things more. Because we don't have gyms that we can go to, or field house or big parks like [the cities do]. We have to make do with what we have and encourage each other." [27]*

Maintaining physical fitness in rural communities is also hampered by a lack of financial resources and trained personnel [27]. To access these resources, rural women must leave their communities and commute to urban centers, resulting in more out of pocket expenses and time away from friends and family. This problem persists in rural communities, forcing women to compromise their role as primary caregivers, and for some, triggering feelings of guilt, shame and selfishness [28, 29, 30].

While most acknowledge that money and illness are legitimate barriers to increasing physical activity, some researchers question whether barriers such as 'lack of time' are the result of poor time management or the cultural perception of physical activity as 'play'. Characterizing active living as 'play' reduces its significance and gives greater importance to other daily activities such as paid work and family chores [31]. Paradoxically, there also exists the perception that physical activity is 'work' that depletes energy rather than an endeavor that builds vitality [31]. Increasing physical activity levels in Manitoba will therefore require a change in beliefs regarding the role of daily physical activity and the priority it receives.

Data Discussion

Our planned data source, the 2005 *Canadian Community Health Survey* cycle 3.1, was designed to provide timely cross-sectional estimates of health determinants, health status, and health system utilization at the sub-provincial level. Interviews were conducted over the phone, and the respondents were asked to recall the type, duration and frequency of physical activity in the past three months, in addition to sedentary activities such as watching television or playing on the computer. The Physical Activity Index is a derived variable based on these responses that categorized the respondents as being "active", "moderate" or "inactive", depending on their total daily Energy Expenditures[8]. The survey focused almost entirely on leisure-time physical activity, and therefore did not include activities performed at work (physical labour), at school (physical education classes), or in the home (chores, caring for children).

[8] Energy Expenditure is calculated using the frequency and duration per session of all leisure time physical activity, in addition to the metabolic equivalent (MET) of the activity. The MET is a value of metabolic energy cost expressed as a multiple of the resting metabolic rate. For example, an activity of 6 METS requires six times the amount of energy as compared to when the body is at rest [4].

Several issues arose with the CCHS data, which prevented us from using it in this report. We discovered that the word 'moderate' was used to describe both an individual's activity level (moderately active) and the intensity of an activity (moderate effort). This became problematic when combining data for those who were categorized as 'active' and 'moderately active' since Health Canada states that people can meet minimum PAG requirements through 'moderate' activities, and yet those who were classified as 'moderately active' did not meet minimum PAG requirements. Since we were only interested in those who were either active (met PAG requirements) or inactive (sedentary), we chose to exclude those deemed 'moderately active' from the analysis. The number of Manitoban respondents classified as 'active' through leisure time physical activity were too few for meaningful use of these data, and consequently, we were unable to use the CCHS data for this indicator.

In Canada, physical activity studies typically use self-report measures, and are generally limited to leisure-time physical activity [17]. While there are several advantages to using tools such as pedometers to measure activity levels (objective measurement), they are limited in the sense that they underestimate activities such as skating, swimming and cycling. Whether using MET levels (Metabolic Equivalent) or perceived exertion scales, it is important to remember that most researchers acknowledge several limitations to physical activity data, particularly when using self-report measures, as respondents tend to overestimate the duration, frequency and intensity of their physical activities [15]. Moreover, studies such as the CCHS often ask questions that overlook activities undertaken by different gender, age, cultural, occupational and income groups to achieve daily requirements [5]. For example, because the CCHS did not include activities performed at work, a number of respondents who were in fact 'active' were most likely categorized as 'inactive'. Nurses, home care workers, those involved in primary industries (farming, fishing, mining, forestry, etc.), labourers and others, expend a significant amount of energy on the job, and yet the CCHS would count them as 'inactive' due to their unlikely participation in leisure-time physical activity following such a labour-intensive workday.

Finally, by focusing entirely on leisure-time physical activity, the CCHS also risked gender-bias, since it more accurately measured vigorous activities typically undertaken by men such as sports and exercise [32]. As a consequence:

> *"Such surveys may send a message to women that their time spent in household chores, caring for the family, and working to earn a living is unimportant and that these activities are unrelated to their health" [32]*

Our decision to use results from the *In Motion* survey was influenced by several factors. Most importantly, in addition to examining leisure time physical activity, the survey also asked respondents about activities performed at work, around the home and through transportation. Some may contend that by including all activities, *In Motion* has artificially inflated physical activity patterns in Manitoba, especially in light of the alarmingly low levels reported by leisure-time physical activity surveys. However, we think this is a good measure of physical activity in Manitoba that reflects the reality of women's lives. We acknowledge that the survey has its limitations, particularly because it relied on self-report measures of physical activity, rendering it susceptible to the social desirability bias. In addition, our ability to do a gender-based

analysis was partially inhibited, as not all variables were reported disaggregated by sex. Nonetheless, we commend the research team for developing such a comprehensive and useful survey, and we are pleased to report that a second *In Motion* survey is planned for Manitoba in the near future.

Defining and measuring physical activity is not easy. In fact, some researchers contend that physical activity surveys are better measures of inactivity and barriers to physical activity than they are at measuring why active adults pursue healthy lifestyles [33]. Definitions and concepts used in self-report surveys are heavily criticized for not accurately portraying patterns of physical activity among women, particularly because these measures do not account for the light or moderate activities more commonly undertaken by women around the home. Finally, physical inactivity is typically defined as the negation of physical activity, and consequently, blames the individual for leading an inactive life while ignoring the social inequalities that restrict access to physical activity [34]. Recognizing that women's participation in physical activity is limited by their secondary social status is therefore essential to ensuring they maintain an active lifestyle.

Physical Activity Guide

In addition to making the healthy choice to quit smoking and eat nutritiously, Health Canada has identified "physical activity" as one of the factors that contributes to Healthy Living. The Healthy Living Unit is responsible for the federal government's role in increasing physical activity among Canadians, and in 2007, released a number of initiatives to help Canadians incorporate activity into their daily lives: *Canada's Physical Activity Guide (PAG)*, *Business Case for Active Living at Work*, and *Stairway to Health.* In response to the confusion some Canadians had about how much physical activity was needed to achieve better health, the PAG outlines a number of activities, in addition to the duration and frequency required to maintain good health. Although a number of guides were released for different age groups (children, youth, adult, older adult), all four subscribe to the same message- *"Build physical activity into your daily life at home, at school, at work, at play, on the way!"* The PAG offers pragmatic solutions to incorporating activity in everyday life, lists the benefits of active living in addition to the consequences of inactivity, and most importantly—it is free of charge.

Although the PAG offers age-specific recommendations for physical activity, it does not offer sex-specific recommendations, due largely to the fact that distinct requirements for women are poorly established [35]. Researchers have recently developed a nomogram[9], an instrument used to predict exercise capacity[10] for women by age, in addition to their likelihood of survival for all-cause mortality. The risk of death among women 35+ whose exercise capacity was lower than 85% of the predicted value for age was twice as high as those whose exercise capacity was higher than 85% of the predicted value [35]. Note that this study

[9] A graph containing three parallel scales graduated for different variables so that when a straight line connects values of any two, the related value may be read directly from the third at the point intersected by the line. Use of the nomogram for the percentage of predicted exercise capacity for age requires only the woman's age and exercise capacity achieved in MET on the exercise stress test [35].

[10] Predicted MET= 14.7- (0.13 x age) - equation for predicted exercise capacity on the basis of age.

differed from others, in that it examined the *intensity* rather than the *duration* of physical activity and its relationship to good health.

While a nomogram had been established for men, no such instrument had been developed for women. Findings suggest that the newly developed nomogram is a more accurate assessment of women's long-term prognosis than the men's nomogram. When shown side by side, the predicted exercise capacity for men at all ages is higher than women, particularly among women and men 50+ years. In other words, the difference between women and men for the predicted exercise capacity by age is substantially higher among men, meaning men must exercise at a higher intensity to achieve the same health benefits as women in the same age group. This discovery warrants additional analysis, considering the current PAG requirements do not address the unique physical activity needs of women and men.

Children's Fitness Tax Credit

In an attempt to get children more active, the 2006 federal budget proposed the creation of the Children's Fitness Tax Credit to cover eligible fees up to $500[11] for each child under the age of 16 enrolled in a physical activity program. An eligible program of activity is defined as "*An ongoing program, suitable for children, in which substantially all of the activities undertaken include a significant amount of physical activity that contributes to cardio-respiratory endurance, plus one or more of: muscular strength, muscular endurance, flexibility, and balance*" [36]. Effective January 1, 2007, the credit is aimed at improving access for children and youth to physical activity, in hopes of reducing the incidence of inactivity and childhood obesity. Encouraging children- particularly young girls- to participate in physical activity is important considering girls who do not participate in sport by the age of 10 have only a 10% chance of being physically active when they are 25 years old [37]. Although the Expert Panel in charge of outlining the terms of reference did not propose that the credit would eradicate the problem of childhood obesity in Canada, it did anticipate that it would encourage children to become more physically active, and thus increase the likelihood that they would remain active throughout adulthood.

Critics of this initiative contend that while reducing the rate of childhood obesity is an important policy objective, it is unlikely that the Children's Fitness Tax Credit will address this growing epidemic. The credit does not support informal activities, nor does it take into account the fact that boys tend to engage in more physical activity than girls, meaning boys' activities will disproportionately receive support [38]. Parents must have sufficient taxable income for it to be of any value and for those whose income is not taxable (e.g those on social assistance) the program will have no purpose. Income and socio-economic status are important predictors of participation in organized physical activity, and yet it appears that the credit will have little benefit to low-income families. This is particularly concerning, since children in low-income homes are less likely to be active, and thus more likely to be overweight or obese [38].

[11] Note- This does not mean that a parents' taxes are reduced by $500, but rather that the maximum value of the non-refundable tax credit is equal to $500 multiplied by 15.5% (the lowest tax rate in 2007). Thus, the maximum value is $77.50 per child, for eligible activities costing $500 or more.

Mothers In Motion

Most health promotion strategies designed to increase physical activity levels in the Canadian population have not taken into account what restricts women's participation in physical activity [20]. In response, The Canadian Association for the Advancement of Women and Sport and Physical Activity (CAAWS) initiated *Mothers In Motion*, a strategy that encourages women "*to lead a healthy lifestyle and mentor their children to do the same*". *Mothers In Motion* targets three specific groups- mothers of new babies and toddlers, mothers of preschoolers, and mothers of school-age children. Physical activity guidelines for different stages of motherhood including pregnancy and shortly following childbirth are provided free of charge in both French and English. A comprehensive guide to activities, groups, clubs and sport teams across Canada enable moms and their children to take part in activities that are gender-sensitive and culturally appropriate. Mothers are encouraged to serve as mentors for their children by taking part in activities with the entire family, and a number of practical solutions to barriers most typically experienced by women are offered to assist new moms with becoming more active [39].

Manitoba's *In Motion* Strategy

A number of strategies at the provincial and national level have been implemented in response to low levels of activity and increasingly high levels of obesity. *In Motion* is a provincial strategy that aims to assist Manitobans with the integration of physical activity into their daily lives by building partnerships, increasing awareness, developing strategies and subsequently measuring their success [40]. The objective of the *In Motion* strategy is to increase physical activity in Manitoba by 10 percentage points by the year 2010. Schools are encouraged to become *Healthy Schools In Motion* by incorporating 30 minutes of physical activity every day for every student through physical education, physical activity breaks, physical activity programs, intramurals, and various events. In Manitoba, physical education is only mandatory for students in grades K-8. Students must complete 55 hours of physical education per year in grades 9 and 10, and by grade 11 and 12, physical education becomes optional[12] [41]. This is problematic since we know active children are more likely to be active adults [37]. Nonetheless, we are pleased to report that as of August 2006, 340 (40%) schools in Manitoba were registered for the *Healthy Schools In motion* program, demonstrating the commitment of many Manitoba educators to take part in active living.

Summary

Physical inactivity is a critical public health issue for Manitoban women. Most Manitobans meet the basic PAG requirements but greater participation in physical activity leads to greater health benefits [15]. Contemporary lifestyles and conveniences cause most of us to lead sedentary lives, but even small improvements in physical activity levels are associated with health benefits. It is thus essential for people to maintain an active lifestyle.

Disease associated with a sedentary lifestyle creates significant economic and social burdens [43]. Physical activity throughout the lifespan may independently enhance women's and girl's health through the reduction of chronic disease risk and improved quality of life [42]. Physical *in*activity and obesity are

[12] Since the time of writing, Manitoba Education has reinstated mandatory physical education for grades 11 and 12.

also important as interdependent risk factors for the development of many chronic diseases that affect women, placing a substantial burden on the health care system. Physical activity has been identified as a modifiable risk factor for obesity, since it has one of the largest impacts on energy balance [5]

Participating in sport and physical activity is one of the ways in which women and girls can experience success and increase self-esteem levels. Participation in physical activity is essential to maintaining a good body image and discouraging disordered eating and smoking. Involvement in physical activity is closely intertwined with the social, economic and health status of women. Although women and girls understand the importance of physical activity, their participation remains low due to social and systemic barriers. It cannot be assumed that mothers can take time away from their children to be active. Classes that run concurrently for mother and child, or more classes for mother and child fitness to take place at the same time may be suitable alternatives. Rather than placing the expectations on women to leave their families to be active, we must focus on activities that can be done with the entire family. Walking is one of the most popular, accessible, inexpensive, and available forms of physical activity [21].

Physical Activity Policy for Manitoba Women

Increasing physical activity levels among women requires an examination of gender and how it operates in relationship to physical activity, rather than individual-based studies and interventions [34]. Many fitness, recreation and sport organizations across Canada unfairly allocate resources, programs and decision making to boys and men, leaving women and girls with fewer opportunities to use equipment and facilities.

A recent study on the economic burden of physical inactivity concluded that a 10% increase in the proportion of Canadians who are physically active could save $150 million annually in health care costs for coronary heart disease, stroke, type II diabetes, colon cancer, breast cancer and osteoporosis [44]. There must be a community-based, holistic approach to First Nations children's fitness within and meaningful engagement of First Nations governments in related federal, provincial and territorial initiatives [45].

The federal tax credit needs to be evaluated for its ability to really encourage low-income families to have their children in sports, or whether it only succeeds in getting money back into the pockets of those who can already afford sports costs. If we really want to assist with accessibility issues in terms of physical activity, then we need to fund communities to transform facilities, as well as assist individuals.

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Healthy Body Weight

Introduction

In Manitoba relative affluence assures most people of a secure food supply, and sedentary work and leisure are both socially valued. Poverty here differs from the developing world, as individuals living on low-incomes have reduced access to high quality foods but easier access to low-cost, high calorie foods. Besides legitimate concerns about the links between health and overweight, Canadian culture idealizes thinness and fuels discrimination against larger body types; there is a preoccupation with weight, with consequences for psychological health. Thus, excess weight represents the focus of much Canadian research and policy regarding health and body weight.

Material in this section was previously produced in *Manitoba Field Testing of Gender-Sensitive Core Set of Leading Health Indicators*, by Donner, Haworth-Brockman and Isfeld (2006). The authors are grateful to the WHO Kobe Centre for technical assistance.

Research has shown the relationship between body weight and mortality is represented by a U-shaped curve, with increased risks of mortality for both high and low body weight classes. There are demonstrated links between obesity and increased risk of illness and death due to high blood pressure, Type 2 diabetes, coronary heart disease, congestive heart failure, stroke, gallstones, osteoarthritis, sleep apnea, and some cancers. Some sex specific health risks of obesity have also been found. Obese women are at increased risk of endometrial cancer and postmenopausal breast cancer, and have a greater chance than men of becoming ill with arthritis and high blood pressure. Overweight has also been associated with several chronic health conditions including asthma, arthritis, back problems, high blood pressure, type II diabetes, thyroid problems, activity limitations, repetitive strain injuries and depression.

Underweight also confers health risks and has been associated with ulcers and depression, as well as more complications and poorer prognosis for hypertension, diabetes and hyperlipidemia. Extreme low weight resulting from disordered eating confers additional health problems including death from associated complications [1]. Thus, an unhealthy body weight can have serious consequences for physical and psychological health.

BMI Classification for Adults

The body mass index (BMI) is a method of classifying body weight according to health risks that have been demonstrated through research. BMI is calculated by dividing a person's weight, in kilograms, by their height, in metres, squared (unit of measurement - kg/m2).

Based on the 2003 Canadian Guidelines for Body Weight Classification in Adults, the index values are:
Underweight = less than 18.5
Normal weight = 18.5 - 24.9
Overweight = 25.0 - 29.9
Obese = 30.0 or greater

Classes within the obese category include:
Obese Class I = 30.0 - 34.9
Obese Class II = 35.0 - 39.9
Obese Class III = 40 or greater [2]

Measuring Body Weight

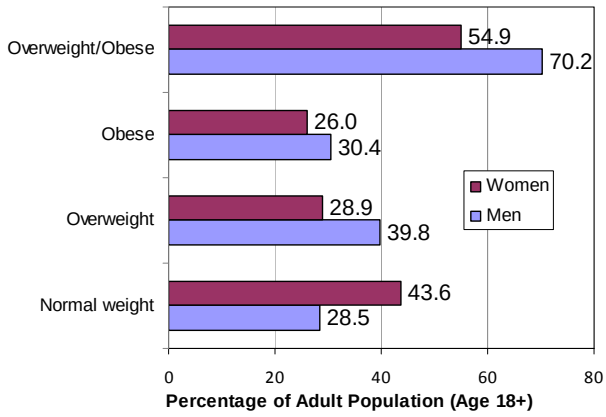
This indicator uses information from the 2004 *Canadian Community Health Survey Nutrition (CCHS)*, a one-time survey that directly measured height and weight of respondents in order to accurately calculate Body Mass Index (BMI). It included respondents aged 2 and older, and analyzed results for children and adolescents based upon distinct BMI guidelines. This method yielded higher rates of obesity and overweight than previous cycles of the *CCHS* which relied on self-reported data. Pregnant women and persons less than 3 feet tall (0.914 metres) or greater than 6 feet 11 inches tall (2.108 metres) were excluded as the BMI is not an appropriate measure of their body weight[1] [2]. BMI as a measure of relative weight is debated (see Data Limitations).

Adult Body Weight by Sex

Based upon the 2004 *CCHS*, 43.6% of women and 28.5% of men in Manitoba had a body weight that fell within a healthy range (BMI = 18.5-24.9). The majority of men and women had weights that exceeded this range and would be considered unhealthy. Fifty-five percent of women were either overweight (28.9%) or obese (26%). Seventy percent of men carried excessive weight, classified either as overweight (39.8%) or obese (30.4%). Women and men did not differ significantly in the prevalence of obesity, though men were more likely to be overweight than women [2].

Because of the small sample sizes, comparisons of the degrees of obesity could not be made for Manitoba. Across Canada, a significantly higher percentage of women than men were designated with the highest obesity classification, which is associated with extremely high risks to health. Canadian women were also more likely to be underweight than men (2.5% versus 1.4%*[2]), which is also associated with an increased risk of developing health problems [2].

Figure 1
Body Weight Classification (BMI) Prevalence for Manitoba Adults by Sex, 2004



Source: Statistics Canada, 2004 Canadian Community Health Survey: Nutrition. [2]
Note: Estimates for the prevalence of underweight among Manitoba women and men were too unreliable to publish.

Provincial data on the prevalence of underweight among women and men are not available due to small sample sizes.

[1] The CCHS does not cover the Nunavut, Yukon, or Northwest Territories, First Nations Reserves, residents of institutions or Canadian Forces Bases. This analysis is based on Statistics Canada's Canadian Community Health Survey, Cycle 1.1., Public Use Microdata file, which contains anonymized data collected in the year 2000/2001. All computations on these microdata were prepared by Prairie Women's Health Centre of Excellence and the responsibility for the use and interpretation of these data is entirely that of the authors.

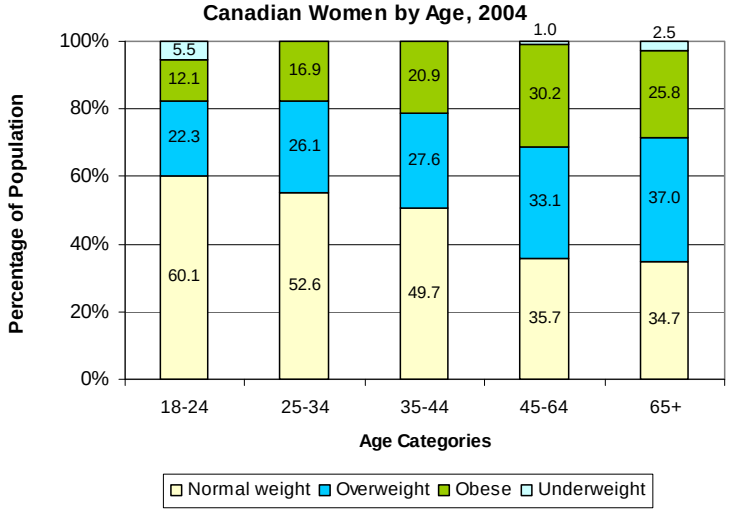
[2] The asterisk indicates a prevalence with a coefficient of variation (CV) from 16.6% to 33.3%. Such results should be interpreted with caution.

Women's Body Weight by Age

As age and sex-specific BMIs for Manitobans were not available for this report, this discussion of age is limited to all Canadian women. BMI increases with age for Canadian women. By the time women reach adulthood, 33% have an unhealthy body weight (12% obese and 22% overweight), which increases to over 60% for women aged 45 and older. The prevalence of overweight for men exceeds that for women in all age categories (by as much as 5-17 percentage points). However, women more closely resemble men's age-specific rates of obesity [3].

Underweight affects a small proportion of Canadians, though it disproportionately affects the young and old. Unfortunately, data about underweight are not available for those under the age of 17, as the classification system for children and youth did not include this concept. Though underweight, often associated with disordered eating (e.g. anorexia or bulimia), is most common for girls, underweight also affects women in old age. The *CCHS* found larger proportions of underweight Canadian women than men, both among young adults (5.5% versus 3.5%), and seniors (2.5% versus 1.2%) [3].

Figure 2
Body Weight Classification (BMI) Prevalence for Canadian Women by Age, 2004



Source: Statistics Canada, *2004 Canadian Community Health Survey: Nutrition.* [3]

BMI Classification for Children & Adolescents

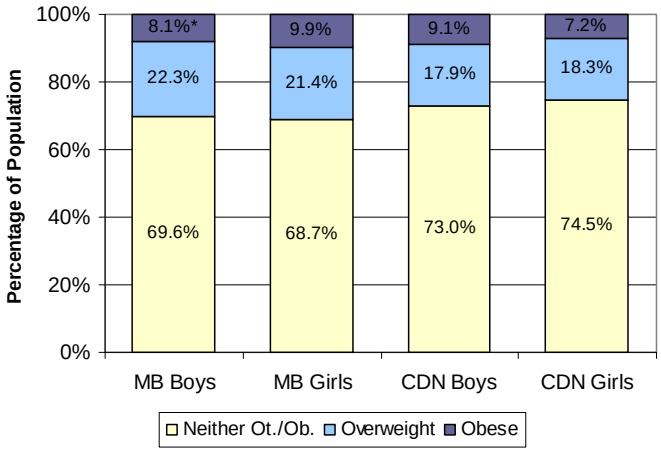
The body mass index (BMI) for children and adolescents is different from that of adults as they are still maturing. It is also not clear whether health risks are associated with particular BMI levels at young ages. Following the approach taken by the International Obesity Task Force, the 2004 CCHS adopted distinct criteria for classifying BMI for children and adolescents.

The measured BMI were classified as 'obese' or 'overweight' according to age-and-sex-specific BMI cut-off points developed by Cole and others. The Cole cut-off points are based on pooled international data (Brazil, Great Britain, Hong Kong, Netherlands, Singapore and United States) for BMI and linked to the internationally accepted adult BMI cut-off points of 25 (overweight) and 30 (obese). Respondents who do not fall within the categories of 'obese' or 'overweight' have been classified by the CCHS as 'neither overweight nor obese'. [5]

Body Weight in Girls

In 2004, nearly one-third (31.3%) of girls in Manitoba (aged 2 through 17) carried excess weight for their height and age. This included 9.9% who were obese and 21.4% who were overweight. Unlike the profile for adults, the prevalence of excessive weight was similar for boys in the province (30.4%), among whom 8.1% were obese and 22.3% were overweight. The prevalence of excessive weight appears higher for girls and boys in Manitoba than average Canadian rates for girls and boys [4].

Figure 3
Body Weight Classification (BMI)
Prevalence for Manitoba Children (Age 2–17), 2004



Source: Statistics Canada, *2004 Canadian Community Health Survey: Nutrition. [4]*
Note: * Interpret with caution. Coefficient of variation is high (16.6% to 33.3%)

Although the *CCHS* did not provide separate body weight data for Aboriginal children in Manitoba, national data may provide some insight on an important segment of the provincial population. The survey found that Aboriginal young people (limited to those living off Reserve) in Canada had a significantly higher combined overweight/obesity rate (41% versus 26%) and obesity rate (20% versus 8%) than the national average. These differences persisted when age and socioeconomic factors were taken into account [4].

Data Limitations

There are important limitations to BMI data that are relevant to analyses of women's body weights. Though the BMI is a simple and convenient measure of relative weight, it does not directly measure body fat or composition. As only weight and height are accounted for, the method cannot distinguish between very muscular individuals and those with excess fat. As men, on average, are more muscular than women, the BMI tends to be biased toward underestimating overweight and obesity among women and overestimating these conditions among men [1]. Recent Health Canada guidelines on the BMI have recommended combining the BMI with a waistline measurement to better distinguish excess fat from muscle weight [6]. This composite measure was not included in the 2004 *CCHS* survey.

Other concerns regarding the BMI have emerged with the recent adoption by Health Canada of new index cutoff values for some BMI categories. One concern raised by Lemieux and colleagues is that a reduction in the underweight cutoff from 20 to 18.5 kg/m^2 may delay identification of individuals, primarily young women, in the early stages of anorexia nervosa, and of malnutrition among the elderly. The authors have also expressed concern for the decrease in the overweight cutoff from 27 to 25 kg/m^2. They argue that health risks have not yet been demonstrated for the 25-27 range of BMI measurements where waistline

measurements are not high. Categorizing these individuals as overweight may unnecessarily heighten excessive concern about body weight, primarily among women, leading to lower self-esteem, and unhealthy weight loss [7].

The BMI may also not be an equally representative measure of body weight for individuals with different racial or ancestral origins, as genetic differences predispose people of certain backgrounds to be more prone to store fat and put on weight. An American study of differences in body composition between blacks and whites found differences in fat-free body mass, fat patterning, and body dimensions and proportions, which may introduce systematic error in the estimation of relative body weight and classification of obesity for blacks [8]. Another study found that the BMI is not an equally representative measure of body fat for children and adolescents of different races (i.e. for equivalent BMI, whites have higher body fat than blacks). As well, the BMI tends to underestimate the body fat of girls and individuals with a more central distribution of fat [9].

The BMI is most applicable for non-pregnant and non-breast feeding women, less than moderately active individuals, and adults aged 20 to 60 (June 29, 2005 meeting with SL Kirby; unreferenced). Thus, any population health analysis of body weight based on the BMI classification system should account for its limited applicability, despite its widespread acceptance.

Discussion

Sex-specific and gender-based analyses raise several important issues related to body weight that show the need for a broader consideration of health impacts than the predominant biomedical focus on body weight accommodates.

The social desirability of lower body weight in Canadian culture, particularly thinness for women, has important implications for psychological and physical health. Independent of actual body weight, women's perception of their success in achieving a socially desirable weight and body type has health consequences. Women are more likely than men to equate self-worth with what they think they look like and what they believe other people think they look like [10]. For all weight categories, except underweight, women experience more dissatisfaction with their body weight and shape than men do and more frequently engage in weight loss efforts [11].

Obsessive body image concerns, and excessive concern with weight loss, can lead to dangerous weight control practices such as exercise addiction and or disordered eating [10]. Chronic dieting is common among North American women and perceived as normal [1]. Disproportionate attention is paid to the health risks associated with obesity relative to the risks associated with dieting. While there are well-documented links in the literature between obesity and increased mortality, some research also suggests that a rapid change in body weight may also be associated with increased mortality [12].

A common theme and misconception found among women is that thinness is more important than health or that a thin body is a healthy body [10]. Public health strategies can broaden the approach taken to health and body weight beyond a focus on the BMI measure and cross-sectional data to better account for

women's experience of weight fluctuation, the impact of dieting behavior, underweight, disordered eating, and the close association with self-image. Also, as health is not directly related to body weight, it is more useful to consider body weight together with other related factors, including diet, exercise, body-image and the interaction of social variables, specific to gender, age, socio-economic, and culture groups.

The relationship between gender and body weight is further complicated by socioeconomic status. Analysis of the 2004 *CCHS* found that women in the middle and upper-middle income households had higher obesity rates than women in the highest income households [2]. Research has shown that individuals in low-income circumstances tend to experience more food insecurity and have higher rates of obesity, which may be a consequence of higher average cost of quality food items, like fruits and vegetables, in lower income neighbourhoods. Food insecurity disproportionately affects women (see Nutrition, this chapter), as women, on average, earn a lower wage (87% of men's hourly wage) and more often live in low-income households. Food insecurity particularly affects single mothers, who most commonly live in low-income circumstances and who are likely to compromise their own diet to provide sufficient food for their children. In contrast, men in low-income households may be buffered from the effects low income has on food security and obesity, as they tend to have occupations that incorporate more physical activity and are more active at home than men who work as higher paid professionals [13]. The lower obesity rates among women in high-income households may reflect their greater access to high quality food and physical recreation facilities. Thus, for women with more economic resources, socially desirable thinness may be more easily achieved than for women in low-income circumstances.

Policy Implications

Body weight, together with lifestyle factors that influence body weight and social-psychological factors that affect its impact on women and men, holds importance for health policy, particularly as a large proportion of health resources are invested in chronic disease. Gender sensitive health promotion and preventive health measures are particularly important areas requiring further development. Gender sensitive socioeconomic policy is also implicated by differences in the relationship between income and obesity for men and women. Other relevant policy areas include city/municipal planning, which affects food security and opportunities for physical activity.

A gender-sensitive analysis of the issue should incorporate information on physical activity levels, healthy dietary practices, and the impact of dieting and body image. Underweight and disordered eating, which disproportionately affect women, should also be addressed. Caution should also be applied, as the BMI does not provide an unbiased comparison of body weight by sex, age, or ancestry. As well, the BMI is only an indirect measure of other physiological causes of disease and death.

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Tobacco Use Among Manitoba Women

Smoking is a major contributing factor to poor health and is linked to many forms of illness, including several cancers and cardiovascular disease, the leading cause of death among both Canadian women and men. Although a documented decline in smoking in Manitoba demonstrates progress in prevention efforts, less improvement has been observed for women than for men and the trends among young women are different from those for men. A distinct physiological vulnerability to nicotine and unique social and economic influences on women's lives affect smoking behaviour, particularly for young women and some sub-populations.

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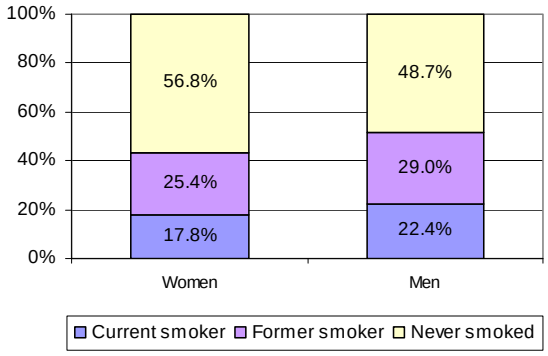
Manitoba Smokers[1]

According to the *Canadian Tobacco Use Monitoring Survey* for 2006, 17.8% of women in Manitoba smoke (daily or occasionally), another 25.4% are former smokers, while 56.8% have never smoked. Manitoba women, on average, are still less likely to smoke than men in the province, 22.4% of whom currently smoke. Women's rate of cigarette consumption remains lower than that for men by a margin of 4.5 cigarettes (11.7 versus 16.2 cigarettes per day, on average) [1].

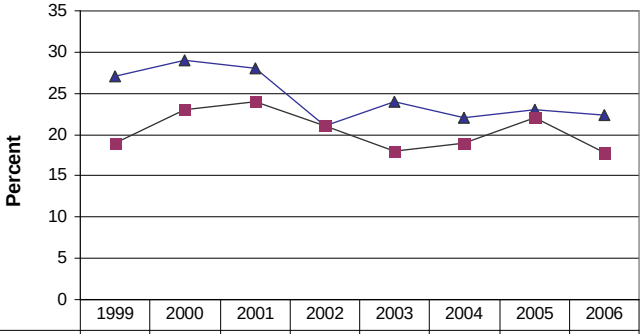
A small decrease in the prevalence of smoking among women in the province has been observed over the past eight years. Over the same period, smoking has seen a somewhat greater decline among men. The trends have led to more similar rates of smoking among women and men [1, 2, 3, 4, 5, 6, 7, 8].

Smoking Status for Women and Men Aged 15+, Manitoba 2006



Source: Health Canada, CTUMS Annual, 2006.
Note: Current smoker includes daily and occasional smokers.

Prevalence of Smoking in Manitoba Among Women and Men Aged 15+, 1999 - 2006



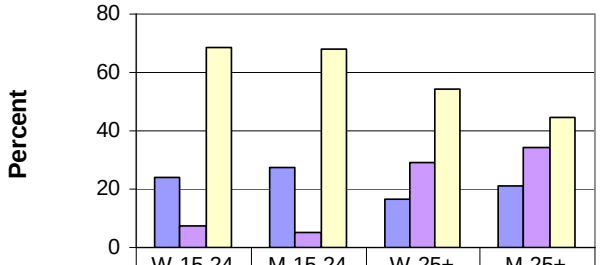
	1999	2000	2001	2002	2003	2004	2005	2006
Men	27	29	28	21	24	22	23	22
Women	19	23	24	21	18	19	22	18

Source: Health Canada, CTUMS Annuals, 1999 through 2006.

[1]Information provided in this chapter is taken from two surveys that asked Canadians about their smoking behavior, Health Canada's Canadian Tobacco Use Monitoring Survey (CTUMS) and the Canadian Community Health Survey (CCHS). The former is more recent and rigorous, benefiting from a larger sample size, while the latter provides greater distinctions in age groupings for observations concerning youth smoking.

Young women's smoking behaviour resembles men's more closely than does the behaviour of older women. In 2006, 24.1% of women aged 15 to 24 were current smokers, and their average rate of cigarette consumption was only 2 cigarettes per day less than for men of the same age (10.0 versus 12.2 cigarettes). Women aged 25 and older in 2006 were not as likely to smoke as men, were less likely to have smoked in the past, and consumed five fewer cigarettes per day, on average, than men (12.1 versus 17.1 cigarettes per day)[1].

Smoking Status by Age and Sex
Manitoba, 2006



	W 15-24	M 15-24	W 25+	M 25+
Current smoker	24.1	27.2	16.5	21.3
Former smoker	7.3	5	29.2	34.4
Never smoked	68.6	67.8	54.3	44.3

Source: Health Canada, CTUMS Annual, 2006.
Note: Moderately high sampling variability was associated with the prevalence of former smokers among women and men aged 15-24. Interpret those results with caution.

The rate of smoking among young women actually matched or exceeded rates for young men in five of the last eight annual tobacco use surveys (CTUMS) conducted in the province [1, 2, 3, 4, 5, 6, 7, 8]. According to the Canadian Community Health Survey (CCHS), which collects smoking information from individuals as young as age 12, in some teen and young adult age categories, females have been more likely to smoke than males. In 2000, 21.3% of young women aged 15 to 19 in Manitoba were current smokers compared to 12.7% of men their age, revealing substantial differences by sex, which may be obscured in data grouped by larger age cohorts [9]. The most recent survey recorded similar rates of smoking among females and males in the two youngest age cohorts (1.26 vs. 1.62 for ages 12-14; 9.83 vs. 9.96 for ages 15-17) [10].

In recent years, the greatest declines in smoking among Canadians have been recorded for teens and young adults. This finding holds importance for future improvements among older adults, because smokers generally start smoking before they are 18, and it is relatively rare for adults to take up smoking [11]. Nevertheless, until reductions in youth smoking can be observed over a longer term in Manitoba, the current profile of young women's smoking continues to raise concern for future trends in women's tobacco use.

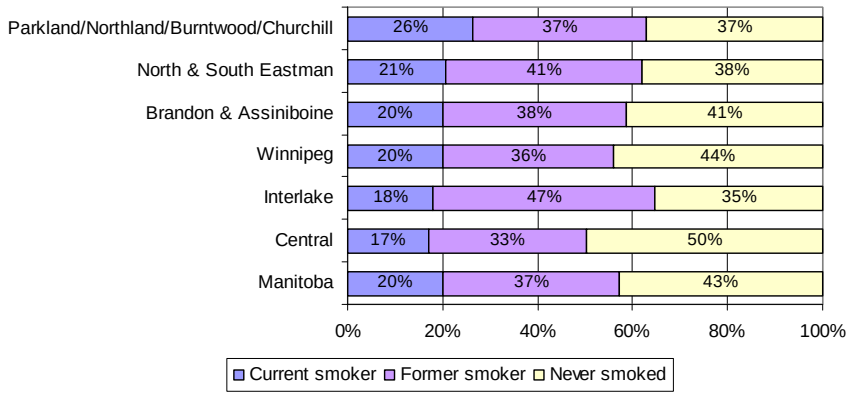
Regional Variation

Women living in the northernmost regions are more likely to smoke than women living in southern regions of the province. According to the 2005 CCHS, rates of smoking among women ranged from 17% in the Central region, to 26% for a group of regions that included Burntwood, Churchill, Norman, and Parkland [10]. The grouped rates likely obscure large differences in rates among these regions, as demonstrated in ungrouped data from the 2003 CCHS. At that time, the prevalence of smoking among women living in the Burtwood/Churchill region approached twice the rate reported in the Parkland region [12].

Discussion

The gender patterns described for Manitoba women are familiar throughout Canada and the industrialized world, while developing nations brace for similar though intensified increases in women's rates of smoking [13]. To fully appreciate the seriousness of the situation for female smokers, one has to delve deeper into the differential risks and effects of smoking on women, and among sub-groups of women.

Smoking Status by Region
Manitoba Women (15+), 2005



Notes: Current smoker includes daily and occasional smokers. The 2005 CCHS grouped smoking status data for health regions with populations below 70,000 in order to reduce variation in rates due to sampling variability.

Prevalence & Risks

Overall, a significant decrease in the prevalence of smoking among Manitoba's men and women has been well established from 1985 to 2001 [14]. In the past six years, a new era in tobacco control has been marked by a continued decline in smoking in the general population, though in smaller increments. However, official statistics have inadequately reflected the experience of many high risk groups, including women living in poverty, with low education, or on First Nations reserves. Off-reserve, Aboriginal females aged 12 and older are more than twice as likely to report daily or occasional smoking as non-Aboriginal women (55% versus 20%) [15]. Women in lower income groups are more likely to smoke, as many as 72% of women who are lone parents smoke, and divorced women, women with low-status jobs, those who are unemployed or who have low levels of education have greater risks [16, 17]. The risk that pregnant women may smoke tobacco increases if a woman is young, has lower levels of education, resides in low-income neighbourhoods, and is unmarried [17].

Physiological and Social Challenges for Women

Physiological differences are known to make quitting harder for women and withdrawal symptoms more severe than for men. Both women and youth are more sensitive to nicotine, more vulnerable to physical dependency, and need fewer cigarettes to become dependent. Lower body weight and differences in how women's bodies metabolize nicotine have been blamed [18, 19]. Social factors also play an important part. Nicotine replacement therapies are less effective in women, which may be because men use tobacco primarily to deliver nicotine, whereas women smoke more for psychological and social reasons [20].

Smoking relates to body image and self-conception and women's experience of gender specific problems in quitting or resisting smoking often relate to their socialization in this respect. Girls are more likely than boys to perceive that smoking will help in controlling their weight and negative moods [18]. The tobacco

industry has exploited these concerns by emphasizing the weight control benefits of smoking which, according to clinicians in the field, has measurably increased women's smoking [21].

Women are also recognized as having greater difficulties quitting smoking because of high levels of stress. Isolation, lack of social support, poor socio-economic status, and high demands of unpaid and paid work loads, increase women's psychological dependency on cigarettes, making smoking appear too difficult to stop [13]. Poor women face unique and intensified stressors and often smoke to cope with negative emotions induced by their lower status and the systemic discrimination and negative attitudes that they experience [22].

Health Consequences

There is strong evidence that smoking is related to more than two dozen diseases and conditions that affect women and men. It is the main risk factor associated with lung cancer, and an important factor in heart disease and stroke (cardiovascular disease) and respiratory diseases. It is linked to several other cancers, including cancer of the mouth, throat, larynx, esophagus, pancreas, kidney and bladder. However, the role of smoking as a risk factor for these diseases in women is known to differ from men in some instances, though biomedical research has not yet fully explored such differences.

Smoking is particularly important as a cause of cardiovascular disease in women—now the leading cause of death for Canadian women—and increases women's risks for the disease more than for men [18, 26]. Also, women who smoke and use oral contraceptives are especially vulnerable to heart disease, with 20 to 40 fold greater risks compared to those who neither smoke nor use oral contraceptives. [26]. There is also evidence that women smokers are more susceptible to asthma and the carcinogenic effects of cigarettes on the lungs than men [18]. Research has shown that, given the same lifetime exposure to cigarette smoke, women's risk of developing lung cancer is up to three times higher than for men, and the added risks are almost entirely related to tobacco use [21].

Relative to non-smoking women, smokers also have increased risks for serious reproductive health problems—including infertility, early menopause, and menstrual problems [25]. Recent evidence has also demonstrated that second-hand smoke is equally harmful to women's fertility [27]. Pregnant women who smoke have higher risks of miscarriage, stillborn babies, premature birth, low birth weight babies, and babies who die of Sudden Infant Death Syndrome [28]. As well, women who smoke have higher rates of cancer of the cervix and osteoporosis [17, 18].

Despite the importance of these serious health consequences of smoking for women, there is also a need to recognize shorter term, non chronic health consequences that affect the quality of daily living for women, including young and middle-aged women. One recent study found that women smokers reported greater restriction of activities, poorer mental health and more chronic health conditions than men who smoked. Also, despite their relatively high levels of contact with health care providers, twice as many women as men felt that they had unaddressed health care needs[17]. For young women, there is some evidence of smokers experiencing more nervousness, depression and sleep problems, as well as an association with other health damaging behaviours including alcohol and drug use [18].

An estimated 17% of all female deaths in Canada are attributable to smoking [23]. In Manitoba, an estimated 635 women die from smoking related illnesses in a year. The number of deaths from smoking-related illnesses has increased in Canada in recent decades, with a major proportion of the increase having occurred among women. From 1985 to 1996, deaths among women attributable to smoking increased by 77%, which reflects their increased rates of smoking in previous decades. While men have seen a peak and subsequent decline in smoking related deaths, women lag about 20 years behind in this trend [17]. Women's lung cancer mortality rates alone more than quadrupled between 1969 to 1998 [23]. Although women were more than twice as likely to die of breast cancer than lung cancer in the mid 1970s, since 1993, lung cancer has exceeded breast cancer as the leading cause of cancer deaths for Canadian women (39.6 versus 24.0 per 100,000 in 2005 [24].

Policy Implications

Despite a provincial ban on smoking in public places and ever-growing intolerance of smokers in some social circles, nearly one in four young women (15-24) in the province smokes, and more than half of women in some sub-populations smoke. In itself, this signals a need for improved intervention geared to women. Smoking must be viewed in relation to the stressful circumstances of women's lives and their lack of social and economic power. Women's greater social and psychological motivations for smoking, as well as physiological vulnerabilities to nicotine, need to be adequately addressed and appreciated by health care providers and policy makers. Policy must also keep in step with the growing health care needs of the increasing number of women who are developing chronic diseases as a result of smoking. Although women in Manitoba still do not smoke as much as men, sex differences are no longer great and trends among youth cause concern.

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Heavy Drinking

Introduction

Men are more likely to engage in heavy drinking than are women in Manitoba. However, women have particular vulnerabilities to alcohol consumption that should not be overlooked. The adverse consequences of alcohol misuse are often greater for women and experienced at lower levels of consumption. The physical consequences of heavy drinking in women are exacerbated by limited social and economic resources. There are also important reproductive health effects of alcohol consumption during pregnancy. Children born to women who have consumed alcohol while pregnant are at risk of Fetal Alcohol Spectrum Disorder (also known as Fetal Alcohol Syndrome or Fetal Alcohol Effects), resulting in irreparable brain damage. Further, the coexistence of mental health issues, trauma and substance use is a critical area of concern for women.

Definitions

Research has determined that drinking to the point of intoxication and long-term, elevated alcohol consumption increase risks of health and social harms. Based on these findings, heavy or "high-risk drinking" has been defined as regularly consuming five or more drinks on a single occasion, and many countries use this as an indicator of hazardous drinking practices [1]

Heavy Drinking
Statistics Canada and the Canadian Institute of Health Information define heavy drinking as the population aged 12 years and over who are *current drinkers* (that is, they drank alcohol during the previous year) and who reported drinking 5 or more drinks on one occasion, 12 or more times in the past 12 months [2].

Current Drinkers
The CCHS defined current drinkers as those who reported consuming alcohol (beer, wine, liquor or any other alcoholic beverage) in the past 12 months.

Drinking & Heavy Drinking in Manitoba[1,2]

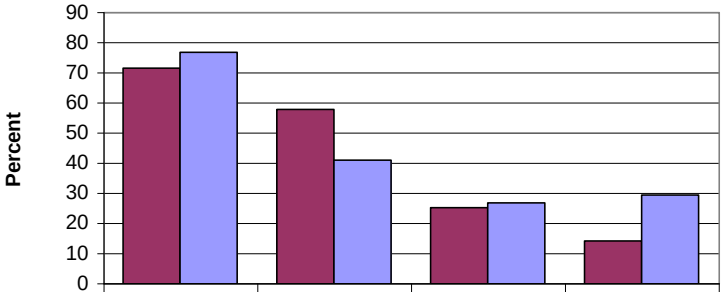
Drinking alcohol is accepted in Manitoba as normal social behaviour for adults, but it is also a socially stigmatized behaviour, particularly for women and pregnant women. Surveys may underestimate heavy drinking due to the social disapproval of this behaviour perceived by respondents and the desire to present an image of self that conforms to cultural expectations. Furthermore, some of the heaviest users may be missed in survey data because they are itinerant and without regular phone service.

[1] This analysis is based on Statistics Canada's Canadian Community Health Survey, Cycle 3.1., Public Use Microdata file, which contains anonymized data collected in the year 2005. All computations on these microdata were prepared by Prairie Women's Health Centre of Excellence and the responsibility for the use and interpretation of these data is entirely that of the authors.

[2] The prevalence of Heavy Drinking is expressed as a percentage of those who are current drinkers, which is consistent with the Canadian Community Health Survey definition.

Women in Manitoba are nearly as likely as men to consume alcohol. According to the 2005 Canadian Community Health Survey, 71.8% of women aged 12 years and over reported drinking alcohol in the preceding 12 months compared to 77.1% of men. However, men were twice as likely as women to regularly engage in heavy drinking. Among women who were current drinkers, 14.4% (equivalent to 10.5% of all women aged 12+) reported drinking heavily compared to 29.6% among men. This is comparable to the proportions of heavy drinkers among Canadian women and men (12.6% and 30.5%) [3].

Figure 1: Prevalence of Drinking and Heavy Drinking By Sex, Manitoba 2005

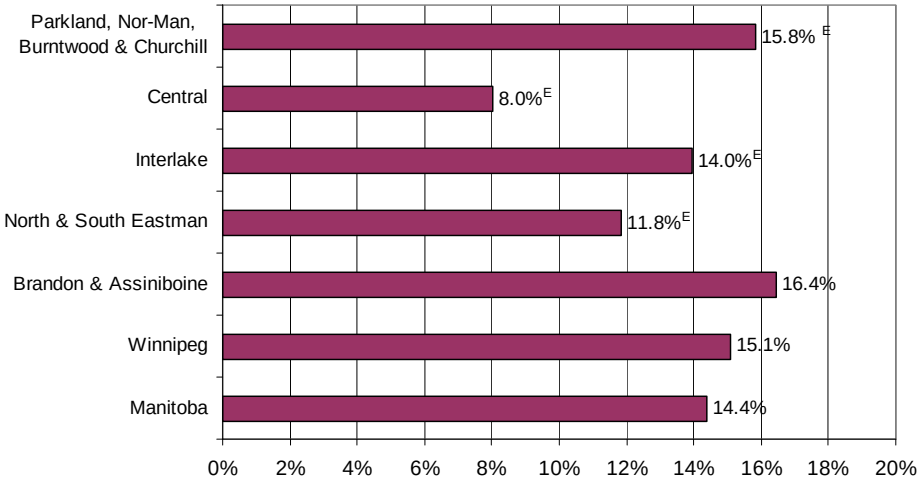


	Drink Alcohol	Never Heavy	Occasional Heavy	Regular Heavy
Women	71.8	58.1	25.4	14.4
Men	77.1	40.9	26.9	29.6

Source: Canadian Community Health Survey, 2005 (PUMF).
Notes: Drink Alcohol - Consumed alcohol in the past year. Never Heavy – Never drank five or more drinks on one occasion. Occasional Heavy – Drank five or more drinks on one occasion, less than monthly. Regular Heavy – Drank five or more drinks on one occasion, at least 12 times per year. 2.1% of responses to the question regarding heavy drinking were: not-stated, don't know, or refusals.

Rates of drinking and heavy drinking vary considerably by region[3]. For example, in 2005, only 65% of women in the Central region drank, of whom 8%[E, 4] drank heavily. Twice the rate of heavy drinking was reported by women residing in the combined regions of Brandon/Assiniboine and Parkland, Nor-Man, Burntwood & Churchill [3].

Figure 2: Prevalence of Heavy Drinking by Region Among Women Age 12+ Who Drank, 2005



Source: Canadian Community Health Survey, 2005 (PUMF).

[3] The CCHS 2005 (PUMF) grouped data for some regions to ensure regions met a minimum population size of approximately 70,000.

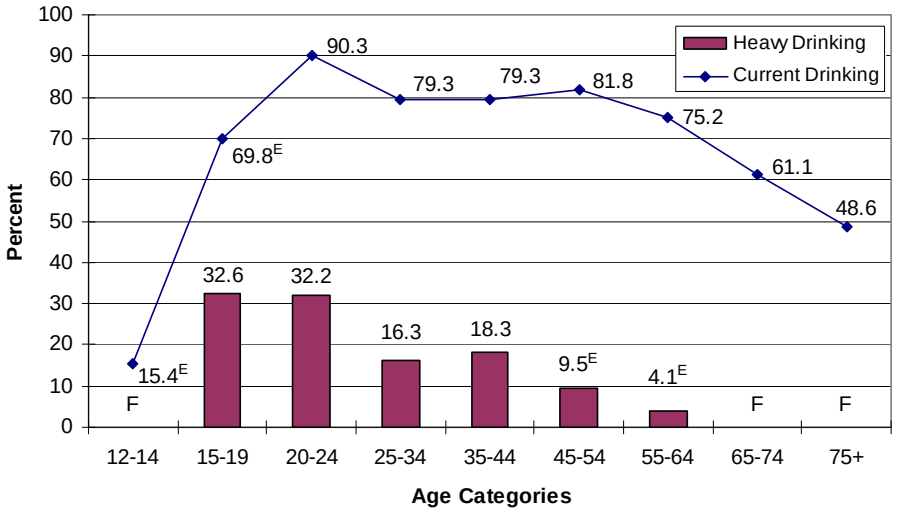
[4] A superscript 'E' signifies that the estimate may not be reliable, due to high sampling variability.

The CCHS 2005 off-reserve Aboriginal profile found heavy drinking to be much more common among women who drank and who identified as Aboriginal than among non-Aboriginal women. Among Manitoba women living off-reserve, 30.0% Aboriginal women who drank were heavy drinkers, compared to 13.2% on non-Aboriginal women who drank. Rates of heavy drinking among Manitobans were somewhat higher than average for all (off-reserve) Canadians (24.1% Aboriginal women; 12.6% non-Aboriginal women [4].

The First Nations Regional Longitudinal Health Survey (RHS) provided the first national baseline on substance use in this population. The survey, conducted in 2002/2003, found that residents of First Nations communities were more likely to abstain from alcohol and less likely to drink on a daily or weekly basis than the total population of women in Canada. However, of the population who did drink, a much higher proportion of the First Nations population engaged in heavy drinking compared to Canadians overall [5]. Among First Nations women aged 18 and older, only 61.7% reported alcohol consumption in the past year, compared to 76.8% of women aged 15 and older in the total population. Monthly or more frequent heavy drinking was reported by 56.6% of First Nations women, compared to 17.0% of all Canadian women [5, 6]. According to the RHS, current evidence suggests that effective treatment programs with First Nations incorporate cultural and spiritual healing practices, address historical trauma and abuse issues, are managed and delivered by First Nations, address social determinants of health (e.g. poverty), and are tied to broader initiatives for self-governance [5].

Drinking behaviour also varies widely by age. Young adult women (age 20-24) are more likely to drink and to drink heavily than women of other ages. In Manitoba, 90% of women aged 20 to 24 reported drinking in the past year, nearly one third (32.2%) of whom drank heavily. While fewer women age 15 to 19 drank (69.8% of the population), a similar proportion drank heavily, though more than half of the women in this age category were legally underage to drink. Males aged 20 to 24 were most likely to report heavy drinking (61% of those who drank). Men of all ages were more likely to be heavy drinkers than women [3].

Figure 3: Prevalence of Drinking & Heavy Drinking by Age, Manitoba Women, 2005



Sources:
Current drinking: Canadian Community Health Survey, 2005 (PUMF)
Heavy drinking: Canadian Community Health Survey, 2005 (CANSIM)
Notes:
Heavy drinking refers to *regular* heavy drinking, that is, five or more drinks on one occasion, 12 or more times (monthly) in the past year.
"E" signifies that estimates may not be reliable, due to high sampling variability.
"F" signifies that estimates were too unreliable to publish.

Discussion

There has been a lack of attention given to women's high risk drinking and its impacts. Partly, this has been because men are more likely to engage in heavy drinking than are women. The emphasis on male substance use has perpetuated a lack of research, and limited the development of prevention and treatment options that respond to women's distinct issues. Some note that a "male as norm" bias is present in the culture of treatment, which has judged women who require treatment more harshly, and limited the exploration of gender-specific treatment approaches [7]. Fortunately, awareness has grown for the complex and distinct nature of women's experience of substance use.

It is well documented that health outcomes associated with alcohol use are more prevalent among men than women. Based on an analysis of 12 alcohol-related causes of mortality, Canadian men are approximately seven times more likely to die from alcohol-related causes than are women [1]. A greater proportion of men than women also report more alcohol-related harm, for example, harm to relationships and social life and to physical health. However, when men and women drink the same quantity, there is no significant difference in the likelihood of alcohol-related harm by sex [6].

Research has also found that women report alcohol-related harm at lower consumption levels than men. Research among Canadian university students found that women who typically drink four drinks on one occasion have a similar likelihood of experiencing drinking-related problems as men who typically drink five drinks on one occasion [8]. These findings support the application of sex-specific criteria of heavy drinking that provide a more sensitive measure of the extent to which harmful levels of consumption occur among women. The four-drink criteria for high risk drinking among women has been adopted by some national surveys (e.g. The Canadian Addiction Survey), though the CCHS continues to apply a uniform five-drink criterion for both men and women.

Studies of sex differences in the metabolism of alcohol have established women's greater physiological sensitivity to alcohol. Women metabolize alcohol more slowly than do men, prolonging the exposure of the body to harmful metabolites. Blood alcohol concentrations are higher for women than men who consume the same quantity of alcohol, even when differences in body weight are accounted for [9, 10, 11]. Physiological differences contribute to more severe and earlier development of some health consequences for women than men. Research has demonstrated that the average duration of excessive drinking before first signs of liver disorders, hypertension, obesity, anemia, malnutrition, gastrointestinal hemorrhage and ulcers requiring surgery appear, is much shorter for women than for men. Other health effects for women include increased risks of HIV (due to increased unprotected sex while intoxicated), osteoporosis, coronary disease, and adverse impacts on reproductive health. Women's sensitivity to alcohol also makes them more vulnerable to dependency on alcohol [7].

The risks of Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE) and other alcohol related birth defects for children of mothers who consume alcohol during pregnancy have been well documented. Particularly harmful effects have been found where expectant mothers also suffer from poor nutrition, poor general health, experience trauma and mental health problems, and lack prenatal care [9]. Thus, there is a need to consider the complexity of issues facing women who engage in substance abuse,

including their history of abuse or violence, together with the health outcomes of children. A holistic, women-centred approach, which collaborates with child welfare and other sectors to balance the needs of affected women and children, is advocated for in the literature [12, 13].

Considerable research is focused on heavy drinking among youth. A survey of Manitoba teenage alcohol and drug use found that 20% of grade 12 girls engaged in binge drinking, defined as eight or more drinks at one time, at least once a year. This was half the prevalence of binge drinking reported by grade 12 boys. While the survey showed that the number of teens who drink has not increased in the last decade, the amount they drink is increasing, a trend which has also been found among Canadians overall from 1994 to 2003 [14, 1]. The Manitoba survey found no differences between young women and men in this trend. The concern is not only the direct health consequences of heavy drinking, but the associated social behaviours that increase morbidity and mortality risks, such as unprotected sex, violence, or driving drunk [14].

Research on the alcohol use of women and girls is raising awareness for some important social themes for women. The levels and types of alcohol use by women vary by age, ethnicity, income, ability, occupation or mother roles and other variables. Alcohol is the most common substance used by women and is on the rise in Canada, and internationally, over the past decade. Women tend to use alcohol to "improve mood, increase confidence, reduce tension, cope with problems, lose inhibitions, enhance sex or lose weight. These emotional and relationship reasons can keep them in a destructive cycle in the absence of more adaptive supports and changes" [10].

The coexistence of mental health issues, trauma, and substance abuse is important to an analysis of the health consequences of alcohol for women. As many as two thirds of women with substance misuse problems have a concurrent mental health problem, such as depression, post-traumatic stress disorder, panic disorder, or an eating disorder. A large proportion of these women have also been victims of violence [9]. Sexual and physical abuse, which girls/women are more likely to experience than boys/men, are strongly related to substance abuse. Girls who have been abused are more likely to misuse substances and to use them in greater quantities [10]. One study found that although men were more than twice as likely to be regular heavy drinkers as women, male and female heavy drinkers were as likely to be classified as alcohol-dependent. Moreover, alcohol-dependent women were almost twice as likely as men to have experienced at least one depressive episode [15].

Policy Implications

Heavy drinking is associated with harmful consequences, including both health and social harms. In Canada, the prevalence of heavy drinking has implications for policies regarding the regulation and control of alcohol, blood alcohol content laws for drivers, and drivers' licensing and suspension policies. Manitoba also has a program in place for training doctors and health care practitioners in brief interventions for at-risk alcohol use [1]. Many programs have either universal application, or target young adults.

The responses to women's substance use problems have often been punitive or have overlooked the compounding effects of coexisting mental health issues, victimization, income, and women's fear of

having a child apprehended [9]. Health policy commonly focuses not on the dangers of alcohol to women themselves, but to their children and families. Research on the experiences of pregnant women with substance misuse problems and the views of service providers has demonstrated many barriers for treatment and a need for gender sensitive programs and policy [16]. Important among the barriers are prevalent attitudes toward these women. A strong stigma leveled against alcohol consumption by pregnant women likely prevents them from accessing treatment [10]. The so-called 'G Case' which saw a woman who was addicted and pregnant issued a court order of confinement and treatment (see Illicit Drug use section for details), illustrates the extent of punitive measures that have been put forward to address substance use by women. The case raised concerns among women's health advocates that public health responses are not addressing the broader social issues contributing to women's addiction, while legal action threatens to undermine women's civil liberties [17].

Gender sensitive policy is needed to adequately address the associations between alcohol abuse and victimization, depression, and other mental health issues, particularly for women. Social and family services policy must be sensitive to women's fear of having a child apprehended and the stigma that is placed on pregnant women who misuse alcohol. Policy should account for differences among girls and women in socio-economic status, family roles, child care responsibilities, pregnancy status, and vulnerability to violence.

Manitoba has taken important steps to address the health and social well-being of women together with the health of their children, with positive impacts for women with substance use issues. The Healthy Baby program provides financial assistance and community outreach supports to pregnant women that help them to make nutritional and healthy choices for themselves and their children [18]. As well, the inter-departmental FAS Initiatives, led by Healthy Child Manitoba, include a complement of prevention and intervention efforts, which include personalized supports for women who have used alcohol and or drugs heavily during a pregnancy. Manitoba also participates in the Canada Northwest FASD Partnership, an inter-provincial/territorial initiative focused on sharing best practices and resources on FAS and related disorders [19]. On a national level, Health Canada has produced three key documents which provide demonstrated best practices for prevention of FAS/FAE and early intervention and treatment for women with substance abuse issues [9, 11, 7].

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Illicit Drug Use

Introduction

Surveys indicate that illicit drug use is uncommon among women overall. However, concerns have arisen that the gender gap in illicit drug use has narrowed as, in many provinces, the use of cannabis has increased and the serious health effects of crystal methamphetamines are raising the urgency for addressing drug use issues. As well, certain sub-populations among women—including sex trade workers, women in custody, and street involved youth—are known to have elevated risks for drug use and its health effects through pathways that may involve victimization, mental health challenges, sexual exploitation, cultural alienation, and disempowered social and economic status. Though information on marginalized women is often not captured in population health data sets, their 'invisibility' only increases their need for gender-sensitive supports and resources. The risk of HIV infection through injection drug use is one critical issue which illustrates the complexity and seriousness of drug use for women. The gendered nature of many intervening variables that contribute to drug use and affect its physical and social effects bolster the argument for gender-sensitive prevention, treatment and harm reduction strategies.

Material in this section was previously produced for the World Health Organization in *Manitoba Field Testing of Gender-Sensitive Core Set of Leading Health Indicators*, by Donner, Haworth-Brockman and Isfeld (2006). The authors are grateful to the World Health Organization for technical assistance.

Definition of Illicit Drug Use

The 2002 Canadian Community Health Survey (CCHS) collected data on the use of cannabis, cocaine or crack, ecstasy, amphetamines (speed), hallucinogens (PSP, LSD), heroin, steroids, and inhalants (sniffing glue, gasoline, or other solvents).

Illicit Drug Use
Illicit drug use refers to the current (within the past year) or lifetime use of any of the above.

Any Illicit Drug Use
The CCHS asked respondents about their use of each of these drugs and substances, and created a combined category for use of any of them. [1]

Prevalence of Drug Use[1,2]

As illicit drug use is not a socially and legally sanctioned behaviour, survey respondents who use drugs may be reluctant to report this drug use, which affects the validity of their results. The greater stigma placed upon women who use drugs, particularly pregnant or parenting women, may also lead to greater biases in reporting. Further, the Canadian Community Health Survey (CCHS), the primary

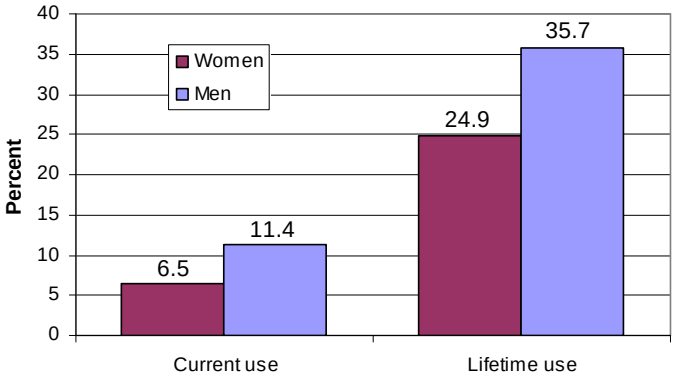
[1] This analysis is based on Statistics Canada's Canadian Community Health Survey, Cycle 2.1, Public Use Microdata File, which contains anonymized data collected in the year 2002. All computations on these microdata were prepared by Prairie Women's Health Centre of Excellence and the responsibility for the use and interpretation of these data is entirely that of the authors.

[2] All CCHS data, for both current and lifetime use, excludes one time use of cannabis.

source of illicit drug use data, did not cover homeless and institutionalized populations, who are thought to have high rates of drug use. Therefore, the prevalence of illicit drug use can be interpreted as only a conservative estimate of the actual rate of drug use among Manitobans.

Overall, illicit drug use is relatively rare among women in Manitoba. Women are less likely to engage in illicit drug use than are men. According to the 2002 CCHS, 6.5% of Manitoba women aged 15 years and older reported use of an illicit drug in the past year, compared to 11.4% of men. Experimentation with drugs was more common, as 24.9% of women and 35.7% of men reported some drug use within their lifetime [2].

Figure 1: Prevalence of Illicit Drug Use By Sex, Manitoba 2002



Source: Canadian Community Health Survey (Cycle 2.1), 2002.
Lifetime use= any time in life

Women aged 20 to 24 reported the highest rate of drug use, 23.4%[E,] compared to women of other ages. However, 32.9% of men in this age range reported drug use in the preceding year, the highest rate of any age-sex group. When young adults were asked about any past use within their lifetime, the rates grew to 50% for women, and nearly 60% for men. The prevalence of drug use among teens (aged 15 through 19) lagged only 7 to 8 percentage points behind that for 20 to 24 year olds (i.e. 16.3% and 25.2% respectively for women and men). Rates of drug use decreased dramatically with increased age, and current drug use was nearly non-existent among women after age 45 [2].

In Canada, cannabis and cocaine or crack cocaine are the most commonly used drugs and are of primary interest for data collection. Again, men are much more likely to use cannabis than are women. In Manitoba, 6.2% of women and 11.1% of men reported current use of cannabis, which accounted for nearly all of the prevalence of drug use for any of eight illicit drugs for which information was collected [2]. Among Canadians, the prevalence of cannabis use doubled from 6.5% in 1989 to 12.2% in 2002, with the greatest increases reported by teens. This increase was not observed in Manitoba, and the provincial rate for 2002 is significantly lower than the average national rate of cannabis use [3].

Although cocaine/crack cocaine is the second most commonly used illicit drug in the province, less than 1% of Manitobans reported its use to the 2002 CCHS. Rates of cocaine use for Manitobans by sex, age and regional sub-groups are too unreliable to publish, as they are associated with high sampling errors. However, 0.7% of Canadian women and 1.9% of men reported using cocaine or crack within the past year. Young men were most likely to engage in cocaine use, with a peak prevalence of 6% among 20 to 24 year olds, while the highest rate among women was 2.7%, again in the 20 to 24 age group [2]. Unfortunately, at the provincial level, published data on women's use of specific drugs other than cannabis are lacking because small survey samples do not provide reliable estimates of events as infrequent as reported drug use.

The First Nations Regional Longitudinal Health Survey (RHS), a First Nations directed survey conducted in 2002/2003, provided national baseline data for substance use among First Nations women and men. The RHS found a higher prevalence of drug use among First Nations compared to the overall Canadian population, as reported by the 2004 Canadian Addiction Survey. First Nations were more likely than Canadians overall to report cannabis use (26.7% versus 14.1%) and use of one or more of five other illicit drugs[3] recognized as 'hard drugs' (7.3% versus 3%). Among women alone, the relative disparity between First Nations and the Canadian population was somewhat greater, 5.3% of First Nations women having reported any hard drug use within the year compared to 1.8% of Canadian women [4]. Unfortunately, Manitoba First Nations survey results on drug use were not available by sex. Overall, 30% of Manitoba First Nations reported use of any illicit drugs in the past 12 months, 23.1% reported use of cannabis, and 3.6% used cocaine, crack or heroin [5].

Discussion

Trends & Emergent Issues in Illicit Drug Use

There has been dramatic growth in cannabis use over the past 10 years, particularly among young Canadians, although Manitoba's rates have not changed significantly [3, 6]. Increased rates of reported cannabis use may be related to the 2001 legislation that permitted cannabis possession and production for medicinal purposes in Canada, perhaps encouraging a perception that cannabis is not harmful, or increasing individuals' willingness to report their use of cannabis. However, the current federal government (2007) has announced that it will not re-introduce the previous government's proposed legislation to decriminalize possession of small amounts of cannabis.

Sex differences in the prevalence of illicit drug use are well established [7]. Males are more likely to have tried drugs, to currently use them, and to use them more frequently than women [3]. Men are also more likely to have a dependence on illicit drugs [8] and to die of causes related to drug use (85.8% of deaths attributable to illicit drugs occurred among men) [9]. However, there is some evidence of a narrowing gender gap in the prevalence of drug use and similar concerns have been expressed internationally (e.g. Australia, United States, countries in the European Union). Comparisons between the 1994 Canada's Alcohol and Other Drugs Survey and the 2004 Canadian Addiction Survey (CAS) found increases in cannabis use among men and women, and a narrowed though significant gap in prevalence rates between the sexes. The CAS also found similarities in the impact of cannabis, with 16.0% females and 18.4% males (age 15+) reporting harms from their use. Though data on crystal methamphetamine (crystal meth) is very limited in Canada, a survey of Manitoba school-aged youth found low and comparable rates of use among males (2.5%) and females (1.9%). Similar proportions of men and women are seeking treatment for addictions to crystal meth in British Columbia. As well, the 2004 CAS found similar proportions of women and men reported past year use of amphetamines (0.7% and 1.0% respectively) [4] [10]. Crystal meth

[3] The RHS published data on reported use of any of five illicit drugs which included: cocaine or crack; hallucinogens (PCP, LSD); amphetamines or 'speed'; heroin; and ecstasy. Thus, cannabis, steroids, and inhalants were not included in the calculation of this rate.

[4] The broader family of drugs to which crystal meth belongs.

is of growing concern because it is highly addictive, neurotoxic and easily produced. In 2005, Manitoba launched a strategy specific to crystal meth, an intersectoral initiative involving community agencies, law enforcement, and provincial and federal governments, that is aimed at reducing the supply and demand of the drug in Manitoba [11].

Health and Social Impacts of Illicit Drug Use

Illicit drug use has consequences for morbidity and life expectancy, partially attributable to more chronic conditions and injuries. Most commonly, illicit drug use is implicated in deaths resulting from suicide, opiate or cocaine poisoning, and from HIV/AIDS acquired through injection drug use. Although fewer deaths are attributed to illicit drugs than to alcohol or tobacco, the people who die are often younger [9]. Substance misuse also co-exists with mental disorders, though it is not clear which comes first [8]. Cannabis, commonly perceived as benign, has been associated with a range of health problems, including certain cancers, schizophrenia, memory loss, premature birth and low birth weight, and a temporary loss of fertility. Research has also shown it to be especially harmful during adolescence, a period of rapid physical and sexual development [13]. Furthermore, illicit drug use often acts as an intermediate factor that interacts with other determinants of health, including poor educational attainment, low economic productivity, inadequate income and social support [14]. Drug use is also well recognized as a major contributor to social harms, including disruption to friendships, marriage and employment.

There is inadequate research on sex differences in the effects of illicit drugs, though these are beginning to be documented [7]. Health effects of drug use vary by substance, frequency and amount used, and the health status of individuals. However, women are generally recognized to be more vulnerable to the health effects of illicit drugs. Differences in the effects of ecstasy for men and women have been reported, with women experiencing more perceptual changes, impaired decision making, and long term effects like depression, mood swings, paranoia and anxiety. Women also have increased risks of physical health complications from injection drug use (IDU) [10]. IDU is a key risk factor for the transmission of HIV/AIDS and other blood-borne diseases, and represents a greater risk factor for women than for men. From 1995 to 2000, IDU accounted for 45.7% of all HIV cases among women and only 25.6% of all cases among men in Canada [9]. In Manitoba, of the 240 women testing positive for HIV during the last twenty years, 30% were infected through IDU, compared to 13% among men [12]. High risk sex behaviours, including work in the sex trade, are intervening variables which increase the risk of HIV infection for female IDUs. IDU poses particularly high risks for Aboriginal women. According to national figures compiled by the Laboratory Centre for Disease Control, IDU accounts for a higher proportion of HIV infection among Aboriginal people than in the general population, and the highest proportion among Aboriginal women (54% versus 17% for women, and 18% versus 3% for men).

Contributing/Concurrent Psycho-Social Factors

There is limited research on pathways to substance abuse specific to women. A comprehensive study of the issue by Columbia University identified several key risk factors for substance abuse as unique to or more serious for girls and young women. Women were found to use drugs, tobacco and alcohol for emotional and relational reasons, such as to improve mood, increase confidence, reduce tension, cope with problems, lose inhibitions, enhance sex or lose weight [10]. Women often report a sudden onset of

substance misuse, often following a traumatic event. They tend to use substances to numb emotional pain from abuse, grief over the death of a loved on, or guilt over injury to loved ones, especially children [15]. It is unknown to what extent substance use is a cause or a consequence of mental health issues. It is widely suspected that illicit drug use, as well as misuse of pharmaceuticals, is more a matter of self-medication than a cause of mental health disorders [14]. Substance use is commonly used as a coping mechanism for pain, stress, anxiety and panic. Some research has shown cannabis use to be independently predictive of depression in both male and female adolescents. Others have shown greater risks of depression for female than male adolescents [16]. Though it is difficult to resolve causality, research has shown that as much as two thirds of women with substance misuse problems have concurrent mental health problems, such as depression, post-traumatic stress disorder, panic disorder/and or eating disorder. A large proportion of these women have also been victims of domestic violence, incest, rape, sexual assault and childhood physical abuse [14, 7]. Substance use and mental health challenges also put women at increasing risk of victimization. Among adolescent girls, physical and sexual violence during dating has been associated with an increased risk of substance use, among other unhealthy behaviours [17]. Thus, victimization, mental health problems, physical health problems and substance misuse interact in direct and complex, indirect ways.

Among Manitoba's First Nations and Aboriginal peoples, substance misuse must be viewed not only in relation to personal histories of childhood abuse or intimate partner violence, but also relative to a history of victimization at the level of communities and populations. For example, the RHS on First Nations health contextualized substance misuse with a history of assimilation policies, including the residential school system, which contributed to the disintegration of traditional cultural and family structures, as well as to inter-generational impacts of child abuse. Thus, substance abuse is recognized as a coping mechanism which helps individuals to deal with the loss of identity and culture [4]. The role of systemic factors earned national recognition in a report on suicide produced for the 1996 Canadian Royal Commission on Aboriginal Peoples, which linked youth suicide, mental illness, and drug and alcohol abuse to cultural alienation and stress [18].

Pregnancy, Parenting & Substance Misuse

There is greater social stigma attached to illicit drug use by women than for men, particularly for pregnant or parenting women. Research on the experiences of pregnant women with substance misuse problems and the views of service providers has demonstrated many barriers for treatment and a need for gender sensitive programs and policy [19]. The response to women's substance abuse has often been punitive and, for mothers, has carried the threat of apprehension of their children by child welfare agencies. In Canada, as in other nations (e.g. UK, USA), there have been efforts to prosecute, incarcerate and force women into treatment against their will. In Manitoba, an attempt by child welfare and justice authorities to confine and require a pregnant addicted woman (given the pseudonym 'G', and the case referred to as the 'G Case') to submit to mandatory treatment was overturned by the Supreme Court of Canada, after successful interventions by women's health advocates. The Women's Health Rights Coalition argued that court ordered treatment deters women with addictions from seeking proper prenatal and postnatal care and so undermines the health and security of women. Legal action against women also fails to address

social issues that underlie substance abuse and has been disproportionately applied to women who are poor and racial minorities [20].

Policy Implications

Though the prevalence of drug use is relatively low for women, the evidence of a narrowing gender gap and several interacting issues are of concern. Issues of concurrent mental health problems, victimization, involvement in the sex-trade, a gender power imbalance, and risks for HIV infection are particularly important. Thus, sex specific data and a gender-based analysis of illicit drug use hold importance for health promotion and disease prevention policy, particularly with respect to the prevention of addiction, HIV infection and other blood borne diseases. Prevention strategies need to look at unique motivations and pathways for substance misuse by women and men. As the onset of substance misuse is often more sudden for women than for men, early intervention may need to occur within a narrower time frame for women [15].

A gender sensitive approach to law-enforcement, corrections, and addictions treatment policies is also important. Harm reduction strategies that respect the self-determination of individuals while focusing on lessening harms associated with drug misuse, rather than the elimination of drug use are well regarded in Canada and central to addictions treatment. However, even in BC where harm reduction strategies are advanced, such strategies have not yet accounted for differences in risks, health concerns and barriers for vulnerable women [21]. A gender sensitive approach is important for mental health policy, where victimization and depression must be recognized as important contributing factors and consequences for women who adopt high-risk behaviours.

There is a great need for a more gender sensitive treatment of women in child welfare and reproductive health policies as these affect women substance users. In particular, the social stigma placed on women who use illicit drugs must be addressed as it impacts access to treatment and women's health outcomes, as well as those of their children.

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