

In the mid-1970s, Canadian health policy experts produced a ground-breaking and internationally recognized document, the Lalonde Report, suggesting that factors other than the health care system were important contributors to health.¹ The term "lifestyle" began to be applied to habits and behaviours that affect health and that were considered to result from personal, deliberate, individual choices. These factors included exercise, smoking, nutrition, body weight, and alcohol use, among others. Epidemiological research quantifying the impacts of such "modifiable risk factors" on myriad disease outcomes quickly accumulated, and health promotion programs urged Canadians to reduce their fat intake, stop smoking, and start exercising.

TAKING RISKS/TAKING CARE

More recently, views on the factors influencing health have broadened. Lifestyle-related behaviours are now seen not only as individual choices, but also as behaviours that are influenced by the social, economic, cultural, and geographic context in which a person lives. Reflecting this thinking, public health initiatives designed to improve lifestyle are increasingly aimed at society at large. For example, smoking cessation strategies now encompass changes in legislation, tax deterrents and advertising bans.

While the effect of social, economic and cultural influences on lifestyle is considerable, another factor—gender—distinguishes health-related behaviour, even within the same milieu. Perhaps because of socialization, and perhaps because of biological differences, men and women have distinctly different lifestyles. The sexes differ not only in their propensity to adopt certain health-related habits, but also in their concerns about or attitudes toward health. Evidence of these differences has important implications for public health programs. Initiatives geared to reduce modifiable risks should consider male–female differences—levels of risk, perception and response.

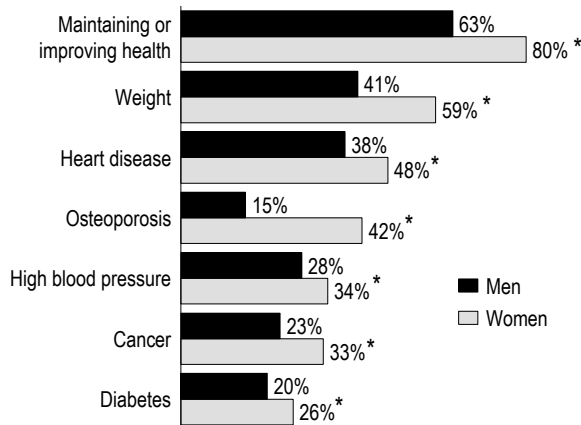
Nutrition

Today, a “poor diet” can mean eating too much of the “wrong” foods, as well as not enough of the “right” foods. Diets high in calories, fat, cholesterol, processed starches and sugars, and low in fruits and vegetables have been the subject of studies

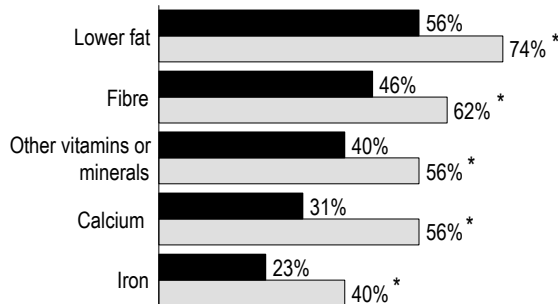
attempting to quantify their role in the development of disease.²⁻⁶ As well, research has addressed the alleged benefits of vitamins, calcium, fibre, antioxidants, and other nutrients in preventing or delaying disease.⁷⁻¹⁰

Food selection, population aged 15 or older, by reason for choosing or avoiding foods, 1998/99

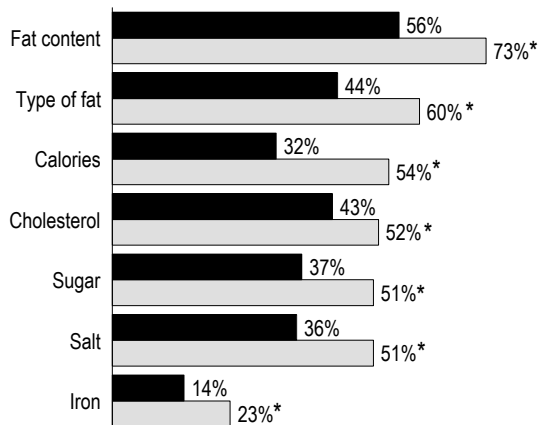
% who choose or avoid foods because of worry about:



% who choose foods because of:



% who avoid foods because of:



Data source: National Population Health Survey, household component
 * Difference between sexes is statistically significant ($p \leq 0.05$).

Perhaps because women usually take more responsibility than do men for family food shopping and meal preparation, nutritional concerns are often more important to women. According to the 1998/99 National Population Health Survey (NPHS), women are more likely than men to consider overall health, body weight, and specific diseases or conditions when making food choices.

Indeed, women were more concerned about maintaining or improving health through food choice than men: 80% versus 63%, respectively. Considerations of specific nutrient content reflect this difference between the sexes. For example, higher proportions of women reported that they looked at the fat, cholesterol and calorie content when choosing foods. Women were also more likely than men to consider fibre, calcium, iron, salt, sugar, or other vitamin/mineral content.

In today's society, the link between overconsumption of certain foods and excess body weight is common knowledge. Nonetheless, when body weight and food selection were examined, a notable difference between the sexes appeared. While 59% of women considered weight when selecting foods, just 41% of men did so. Further, men who actually were overweight (a body mass index of 25 or higher) were less likely than similarly overweight women to be concerned about food selection and its effects on weight. Considering that a greater percentage of men than women are, in fact, overweight (see "Body mass index"), these differences in food selection may arise less from actual risk than from a societal value that stigmatizes overweight women more than overweight men.

The NPHS also found that concern about specific chronic conditions influenced women's food choices more than men's. Heart disease was considered by 48% of women, compared with 38% of men. Similarly, women were more likely than men to think about osteoporosis, high blood pressure, cancer and diabetes when selecting food. The most marked difference was for osteoporosis, which is not surprising, given that women have a higher risk than men of developing this condition.

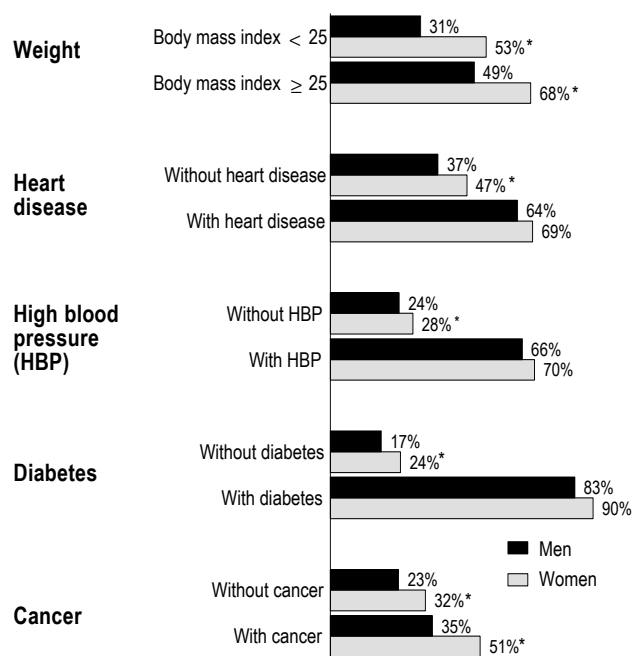
However, when nutritional concerns and food selection were further examined to compare men

and women who actually *had* been diagnosed with selected chronic conditions with those who had not, most of the significant differences between the sexes disappeared. This was the case for people with heart disease, high blood pressure and diabetes, although lack of statistical power may account for the disappearance of significant differences. To some extent, however, men may become as motivated as women to consider the implications of their food choices only after they have been diagnosed with a major health problem. Men with cancer provided a notable exception to this pattern: 35% of men with cancer considered their disease when they chose foods, significantly lower than the proportion of women with cancer (51%) who did so.

These findings indicate that women are generally more inclined to think of the health implications of their food choices. The degree to which dietary factors contribute to the risk of many diseases is not fully understood. For obesity, diabetes, and certain cancers such as colorectal and stomach,

Population aged 15 or older with and without specific chronic conditions, by reason for choosing or avoiding foods, 1998/99

Choose or avoid food because of worry about...



Data source: National Population Health Survey, household component
* Difference between sexes is statistically significant ($p \leq 0.05$).

however, the role of diet is well-established, and greater consideration of nutritional factors may partly account for the lower prevalence of these disorders among women.^{11,12}

Vitamins

People may take vitamins with the hope of preventing illness and disease or ensuring good health. The use of these supplements, in fact, is fairly common, particularly among women.

In 1998/99, about 4 out of 10 Canadians aged 15 or older reported that they had taken vitamins in the previous month: 47% of women and 34% of men. And while vitamin use among men varied little by age, it rose at older ages among women. By ages 45 to 64, more than half of women were vitamin-takers, compared with about one-third of men.

Given that vitamin supplements are usually an out-of-pocket expense, it is not surprising that use rose with household income. Nonetheless, at each income level, a significantly higher proportion of women than men said that they had recently taken vitamins.

Drinking

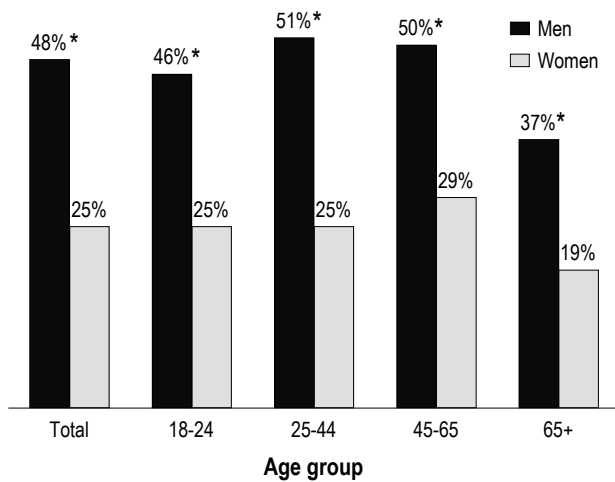
Research suggests that regular, moderate alcohol consumption may not be harmful for some individuals, and may even confer certain health benefits.¹³⁻¹⁵

About one-third of Canadians aged 18 or older consume alcohol at least once a week. The drinking patterns of men and women differ sharply, however. Men are almost twice as likely as women to consume alcohol on a weekly basis. In 1998/99, nearly half of men aged 18 or older, but only one-quarter of women, reported having had at least one drink per week. Weekly alcohol consumption was most common in the 25-to-64 age range and less so among seniors. However, in each age group, the proportion of men who reported consuming alcohol weekly significantly exceeded that for women.

The proportion of people consuming alcohol regularly rose with household income, perhaps reflecting differences in disposable income. People in the highest income group were more than twice

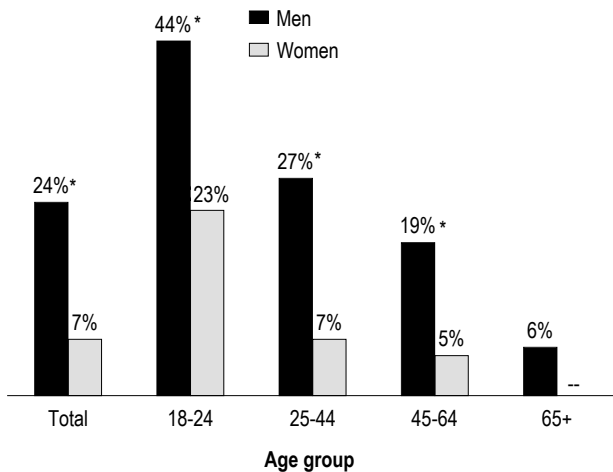
as likely to consume alcohol weekly as those at the lowest level: 44% compared with 21%, respectively. But, whether they belonged to the low, middle or high income group, men were significantly more likely than women to report weekly alcohol consumption.

Drink at least once a week, population aged 18 or older, by age group, 1998/99



Data source: National Population Health Survey, household component
 * Difference between sexes is statistically significant ($p \leq 0.05$).

Binge drink† at least once a month, population aged 18 or older, by age group, 1998/99



Data source: National Population Health Survey, household component
 † At least five drinks in one sitting.
 -- Coefficient of variation greater than 33.3%
 * Difference between sexes is statistically significant ($p \leq 0.05$).

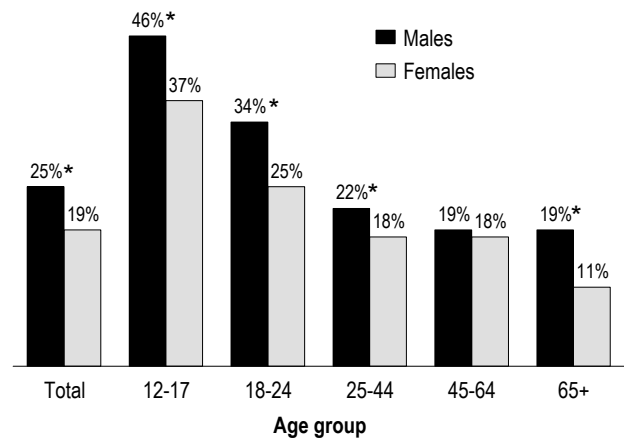
While moderate alcohol consumption is not considered a health risk, binge drinking is a different matter. Binge drinking—defined as consuming at least five alcoholic drinks at one sitting—was far more common among men than women. Nearly one in four men (24%) indulged in binge drinking at least once a month, compared with 7% of women. And 9% of men binged at least once a week, compared with 2% of women. Binge drinking was strongly related to age, particularly among men. At ages 18 to 24, fully 44% of men binged at least once a month, compared with 23% of women. At successively older ages, binge drinking was less frequent, but the sharp difference between men and women persisted.

Physical activity

Regular physical activity is beneficial to both physical and mental health.¹⁶⁻¹⁸ People who exercise are less susceptible to a number of chronic conditions and emotional problems.¹⁹

In 1998/99, 22% of Canadians in the household population aged 12 or older engaged in vigorous physical activity during their leisure time, based on energy expenditure and time spent in participation. To expend sufficient energy to be considered vigorously active, each day an individual would have

Population aged 12 or older who engage in vigorous leisure-time activity, by age group, 1998/99



Data source: National Population Health Survey, household component
 * Difference between sexes is statistically significant ($p \leq 0.05$).

Top five leisure-time physical activities, population aged 12 or older, 1998/99

Males		Females	
	Average sessions per month		Average sessions per month
Walking	8	Walking	11
Gardening/Yardwork	3	Home exercises	4
Home exercises	3	Gardening/Yardwork	3
Bicycling	2	Swimming	1
Weight training	2	Bicycling	1

Data source: National Population Health Survey, household component

to, for instance, walk for an hour, bicycle for 45 minutes, or jog for 20 minutes. Males were more likely than females to engage in vigorous activity, a pattern that held at all ages except 45 to 64.

Walking is by far the most popular leisure-time physical activity of Canadians. In 1998/99, people aged 12 or older reported taking walks an average of 10 times per month, with males averaging 8 sessions, and females, 11. (These figures reflect year-round averages; activities and frequencies may vary according to the season.) The frequency increased

Average sessions per month, most popular leisure-time physical activities, population aged 12 or older, 1998/99



Data source: National Population Health Survey, household component
 -- Not among top three leisure-time physical activities

with age, from 7 walks per month for 12- to 17-year-olds to 13 for seniors. In general, females reported taking walks more often than did males—seniors were the exception.

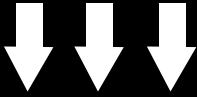
The second most common physical activity for females was home exercise. This includes workouts on stationary bikes, rowing machines or stair climbers, for example, and using televised or videotaped programs. Gardening/yardwork ranked third, followed by swimming, then bicycling. For males, gardening/yardwork placed second, and home exercises, third. Cycling ranked fourth before weight training, males' fifth most common physical activity.

As expected, leisure-time physical activity varied with age. Bicycling ranked first for teenage boys and second for teenage girls. Among young adults (18 to 24), walking was the activity most often mentioned by both sexes, but weight training was second for men; home exercises, second for women. At older ages, walking was the number one physical activity for both men and women, with home exercises and gardening/yardwork ranking second or third.

Activity levels varied with income. People in the highest household income group were most likely to be vigorously active. Nonetheless, within each household income level, a significantly higher percentage of males than females were vigorously active during their leisure time.

Leisure-time accounts for only part of an individual's total energy output. Paid work or household chores can also be physically demanding. However, almost a quarter of people aged 12 or older reported that "sitting" best described their usual daily non-leisure activity. Just under half of the population reported that their time was usually spent standing or walking, and 20% mentioned lifting and carrying light loads. A small minority—6%—reported that they typically did heavy labour. Not surprisingly, a significantly higher percentage of males than females (9% versus 2%) did heavy work.

Even among people whose usual daily routine involved mostly sitting, a higher percentage of males than females had vigorously active leisure time. This



Weight, exercise, smoking linked to disease

For both men and women, lifestyle factors—high BMI, physical inactivity and smoking, for example—have been linked to an increased incidence of many chronic conditions, and to earlier death.²⁰⁻²⁴ Similarly, analysis of National Population Health Survey (NPHS) data for people aged 18 or older who were followed over time indicate significant associations between specific lifestyle factors reported in 1994/95 and a subsequent diagnosis of certain chronic conditions. Associations with body weight, level of leisure-time physical activity and smoking persisted even when taking into account the effects of age and socio-economic status, factors associated with the onset of most chronic diseases.

Of course, the four years over which people were followed does not necessarily reflect the full period between the beginning of exposure to a risk factor and diagnosis of disease. In many cases, characteristics reported in 1994/95 had probably existed for some time.

Previous research indicates that excess weight is associated with life-threatening health problems such as heart disease, type II diabetes, certain forms of cancer, and stroke.²⁵ Relationships have also been found with chronic conditions such as high blood pressure and arthritis.

NPHS data support previous reports linking overweight/obesity with the onset of numerous diseases. Both sexes were affected. Even when age, education, household income, smoking, alcohol consumption, physical activity level and personal stress were taken into account, men classified as overweight/obese in 1994/95 had 1.6 times the odds of being diagnosed with arthritis sometime in the next four years, compared with men in the acceptable weight range. The odds that overweight/obese men would develop high blood pressure or heart disease in that period were 1.8 times the odds for men whose weight was acceptable. And compared with men of acceptable weight, the odds that overweight/obese men would be diagnosed with diabetes were 3.8 times as high.

In comparison with women of acceptable weight, those who were overweight/obese had

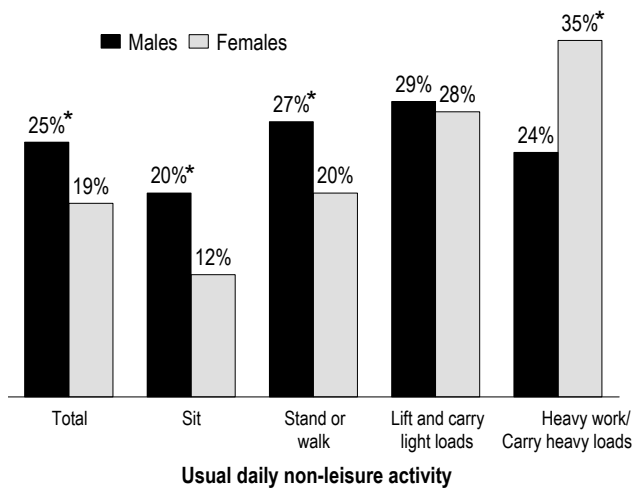
approximately one and a half times the odds of being diagnosed with arthritis, high blood pressure, migraine or asthma between 1994/95 and 1998/99, and 5.2 times the odds of being diagnosed with diabetes.

Notwithstanding the association of weight with subsequent disease, people who are overweight may be able to reduce their level of risk of some health consequences by being physically fit. Overweight/obese men who reported at least a moderate level of leisure-time physical activity in 1994/95 had significantly lower odds (0.5) of being diagnosed with heart disease over the next four years, compared with overweight/obese men with a low level of activity. Furthermore, a recent study in the United States reported that unfit men who were within the acceptable weight range had a higher risk of mortality than did overweight men (defined as BMI ≥ 27.8) who were fit.²⁶ However, this finding was not observed in the NPHS data (BMI ≥ 25.0).

Not surprisingly, smoking was associated with a subsequent diagnosis of respiratory and cardiovascular disease, as well as other chronic conditions. When the effects of age, education, household income, alcohol consumption, physical activity level, body mass index and personal stress were controlled, men who were daily smokers in 1994/95 had more than twice the odds of being diagnosed with bronchitis (2.4) or heart disease (2.2) by 1998/99, compared with men who had never smoked daily. And the odds that male daily smokers would report a new diagnosis of arthritis or back problems were one and a half times the odds for those who had never been daily smokers.

Compared with women who had never smoked daily, those who were daily smokers in 1994/95 had 1.8 times the odds of being diagnosed with asthma and 3.3 times the odds of being diagnosed with chronic bronchitis or emphysema by 1998/99. Furthermore, women who were heavy smokers (20 or more cigarettes per day) had increased odds of a new diagnosis of high blood pressure (1.5) or arthritis (1.8), compared with women who had never smoked daily.

Population aged 12 or older who engage in vigorous leisure-time activity, by usual daily non-leisure activity, 1998/99



Data source: National Population Health Survey, household component
 * Difference between sexes is statistically significant ($p \leq 0.05$).

was true for all age groups 25 or older. As well, among people with somewhat more strenuous daily activities (typically, standing or walking), a higher proportion of males than females had vigorously active leisure time. By contrast, the relatively few females who did heavy work were more likely than their male counterparts to engage in vigorous leisure-time pursuits (35% compared with 24%).

Body mass index

Body mass index, or BMI, is commonly used to determine if an individual is in a healthy weight range (see *Weight, exercise, smoking linked to disease*). It is calculated by dividing weight in kilograms by the square of height in metres. Values are sometimes not calculated for teenagers, whose weight may change substantially in adulthood, or seniors, whose loss of height may affect the validity of the measure. Nonetheless, in this report, as in many others, BMI is calculated for everyone aged 15 or older. Pregnant women are excluded.

In 1998/99, the average height of Canadian women was 1.62 metres (5 feet, 4 inches) and their average weight was 65.1 kilograms (144 pounds). The average man was 1.76 metres tall (5 feet, 9 inches) and weighed 80.4 kilograms (177 pounds). The average woman's BMI was 24.7, and the average man's, 25.8.

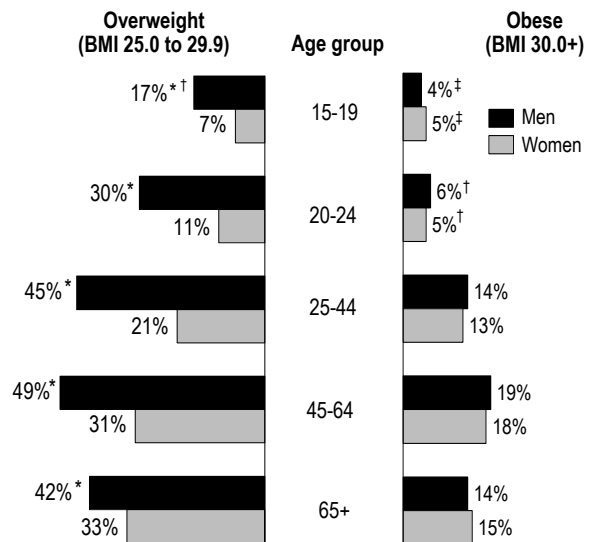
The BMI categories endorsed by the World Health Organization are: 18.5 or less (underweight), 18.6 to 24.9 (acceptable weight), 25.0 to 29.9 (overweight), and 30 or more (obese). According to this international standard, in 1998/99, about half of Canadians aged 15 or older were in the acceptable weight range, and only 3% were underweight. Close to one-third were overweight, and 14% were considered obese.

Despite the higher likelihood that men would be physically active, a higher percentage of men (42%) than women (24%) were overweight. Further, while the prevalence of overweight tended to increase with age for both sexes, the proportion of men who were overweight exceeded that for women in each age group.

Regardless of age, women were more likely than men to be in an acceptable weight range. And, from ages 15 to 44, a higher percentage of women than men were underweight.

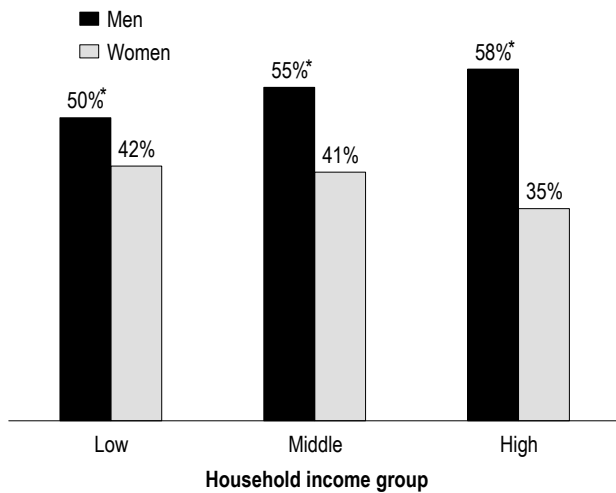
For obesity, there was no difference between the sexes: 14% of both men and women. The likelihood of obesity did vary with age, from less

Percentage of population aged 15 or older who were overweight or obese, by age group, 1998/99



Data source: National Population Health Survey, household component
 † Coefficient of variation between 16.6% and 25.0%
 ‡ Coefficient of variation between 25.1% and 33.3%
 * Difference between sexes is statistically significant ($p \leq 0.05$).

Percentage of population aged 15 or older who were overweight/obese, by household income group, 1998/99



Data source: National Population Health Survey, household component
* Difference between sexes is statistically significant ($p \leq 0.05$).

than 5% at ages 15 to 19, peaking at over 18% at ages 45 to 64, and falling to around 15% among seniors.

Analysis of BMI in relation to household income revealed that a significantly higher proportion of men than women were overweight/obese at all income levels. In addition, while the proportion of women who were overweight fell as household income level increased, the opposite was true for men. Consequently, the male–female gap in the percentage overweight was greatest in the highest income group.

Smoking

Smoking is widely recognized as the major cause of preventable death and illness. It is the leading cause of lung cancer and a risk factor for other cancers, as well as cardiovascular and respiratory diseases. Nonetheless, in 1998/99, 23% of Canadians aged 12 or older—an estimated 5.7 million people—smoked cigarettes daily. The proportion of males (24%) was higher than that of females (21%). However, among teens and young adults (ages 12 to 17 and 18 to 24), females were as likely as males to be smokers.

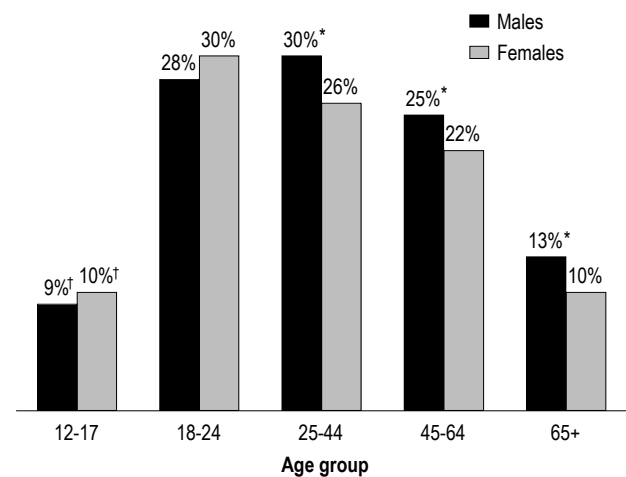
Despite widespread knowledge of tobacco's harmful effects, 6% of non-smokers aged 12 or older started smoking sometime between 1994/95 and 1998/99. A slightly but significantly higher proportion of males (7%) than females (5%) started smoking during this period.

Teenagers were the age group most likely to have begun smoking: one-fifth (21%) of teens aged 12 to 17 who had been non-smokers in 1994/95 were smokers by 1998/99. The difference in the proportions of boys and girls these ages who started smoking was not statistically significant. Furthermore, 72% of 12- to 17-year-olds who had been smokers in 1994/95 were still smoking by 1998/99. This compares with 66% among young adult smokers aged 18 to 24.

For smokers of all ages, the percentage who quit between 1994/95 and 1998/99 did not differ significantly between males (24%) and females (27%).

Smoking prevalence varied sharply by income. People in the lowest income households were nearly twice as likely to be current smokers (30%) as were those in the highest (16%). In contrast, the likelihood of smoking initiation or quitting did not vary by income.

Percentage of population aged 12 or older who were daily smokers, by age group, 1998/99



Data source: National Population Health Survey, household component
* Difference between sexes is statistically significant ($p \leq 0.05$).
† Coefficient of variation between 16.6% and 25.0%

Concluding remarks

Data from the National Population Health Survey (NPHS) indicate that men and women differ in a number of health-related behaviours. Women are more likely than men to select food with health concerns in mind, to use vitamins regularly, and to be an appropriate weight for their height. Women are also less likely to be smokers or binge drinkers. However, except for those involved in heavy labour on the job, women are less likely than men to pursue vigorous physical activity in their leisure time.

Lifestyle practices vary by income, with a generally greater likelihood of healthful behaviour among people of higher means. (An important exception was the pattern of overweight for men, which was more prevalent at successively higher income levels.) However, for most factors, significant differences emerged between men and women even within the same income category. This suggests that there are influences on health-related behaviour beyond socio-economic status that affect the sexes differently. Men and women are likely responding differently to similar influences within the same social context. For example, the importance of body weight is probably greater for women, while participating in physical activity and regular consumption of alcohol are more typical for men.

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