

You snooze, you lose? — Sleep patterns in Canada

by **Cara Williams**

We live in a society that moves at a rapid pace and we face conflicting pressures at every turn. Many people juggle families and jobs, trying to be everything to everyone. The fast pace of our lives and the stress associated with this pace can contribute to sleep disorders such as insomnia. Ironically, some Canadians are finding that one of the few ways to squeeze more time out of a day is to cut back on sleep.

Sleeplessness can cause irritability and affect our performance of physical tasks such as driving or operating machinery, or of mental tasks requiring high levels of concentration. Studies show that chronic sleep loss may pose serious health problems such as increased risk of heart disease and depression. It can also make us much more irritable, upsetting our relations with family, friends and co-workers.

A number of factors can affect our sleep. Some — such as age, health status, stress and the presence of children — are personal; others — such as shift work — are societal. This article investigates certain aspects of Canadians' sleep patterns: whether they are cutting down on their sleep to meet other demands and, if so, which groups are doing this; how their sleeping patterns changed

CST What you should know about this study

This article is based on questions asked about sleep in Statistics Canada's 1992 and 1998 General Social Survey (GSS) of Canadians aged 15 and over. The following two questions were examined:

- Do you regularly have trouble going to sleep or staying asleep? (yes or no)
- When you need more time, do you tend to cut back on your sleep? (yes or no)

The GSS also asked respondents to provide a diary of their time use over a 24-hour period. This diary provided information on how Canadians allocated their time, including night sleep and incidental sleep (naps).

This article examines the responses to the two questions above and also looks at the average duration of night sleep and incidental sleep based on the information respondents supplied in their time-use diaries.

between 1992 and 1998; and which groups are having problems falling and staying asleep.

While you were sleeping...

Many researchers believe that adults generally require an average of 8 hours of uninterrupted sleep. However, some recent research indicates that if able to follow their own natural rhythms, adults would sleep about 10 hours each night, challenging the belief that 8 hours is adequate for peak performance and alertness.¹

While the fast pace of our lives may not allow us this amount of sleep, the 1998 General Social Survey (GSS) found that Canadians slept an average

1. Research shows that, in the absence of clocks and scheduled routines, both children and adults sleep between 10 and 12 hours and are able to perform better on a number of psychological tasks requiring participants to focus on details for an extended period of time. Coren, Stanley. 1996. *Sleep Thieves*. New York: The Free Press. p. 255.

of 8.1 hours a night, up slightly from the 1992 average of 8.0 hours. And while the percentage of Canadians that slept less than 6.5 hours a night remained constant at 15% in 1998, 47% of Canadians stated that they cut down on sleep in an attempt to squeeze more time out of the day, up from 44% in 1992.

Sleep — for some an elusive dream

One of the physical requirements of our bodies is the need for sleep. Insomnia, defined as too little sleep, is a disorder of initiating and maintaining sleep. Experts refer to three types of insomnia: transient, short-term and long-term. Studies suggest that prolonged insomnia may interfere with the body's growth and repair functions. Most people periodically experience an occasional night of sleeplessness, but for some a deep, restful sleep can be elusive. The 1992 GSS found that 20% of adults regularly had problems going to sleep or staying asleep. By 1998, this had risen to 25% of adults.

Stress can also greatly affect sleep patterns. Time-stressed individuals are more likely to have problems going to sleep or staying asleep. In 1998, over 40% of individuals who were severely time stressed² had problems sleeping.

Men, women and sleep

On average, women get more sleep than men (8.2 versus 8.0 hours a night). This is similar to 1992 GSS results for women and men (8.2 and 7.9 hours respectively). However, in 1998, 29% of women, compared with 21% of men, reported having trouble going to sleep or staying

2. Respondents were asked a series of 10 questions about time. If they answered yes to seven or more of these questions, these individuals were considered severely time stressed.

	Average hours of sleep/night	Sleep less than 6.5 hours	Cut down on sleep
	Hours	%	
Total population (15+)			
Men	8.0	17	48
Women	8.2	13	45
Parents			
Men	7.7	19	53
Women	8.0	14	51
Shiftwork			
Men	7.7	25	62
Women	7.9	19	61
Nappers			
Men	7.8	19	40
Women	8.2	17	38
Trouble sleeping			
Men	7.7	22	62
Women	8.1	16	56

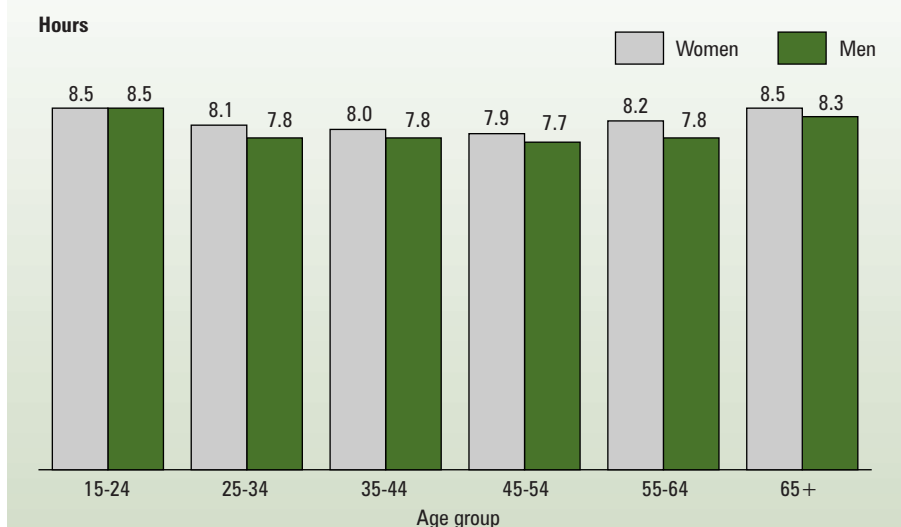
Source: Statistics Canada, General Social Survey, 1998.

asleep. Individuals that regularly had trouble sleeping were also more likely to cut down on sleep when pressed for time — 62% of men and 56% of women, compared with 48% and 45%, respectively, in the general adult population.

Parenting also changes sleep patterns for both men and women. During their early years, children require a large amount of parental time for personal care, such as washing, feeding and dressing, as well as for playing. The responsibilities of parents for school-aged children change to helping with teaching, reading, talking and travel. Many Canadians juggle the demands of parenting and jobs. Consequently, in order to meet all these demands, many parents cut down on sleep. The 1998 GSS found that both men and women sleep less when children are in the home. The average amount of sleep for women aged 25 to 54, with

children living in the home, is 7.9 hours a night (compared with 8.1 hours for women of the same age without children in the home). Men between the ages of 25 and 54 with children at home sleep 7.7 hours a night, while men the same age without children at home average 7.8 hours a night.

Over half of these mothers and fathers (52% and 56% respectively) will cut down on sleep when pressed for time, compared with 51% of adults of the same age without children. While parents sleep less on average than those without children in the household, a lower proportion of parents regularly have trouble going to sleep or staying asleep. Less than 20% of fathers, versus 25% of men without children, had trouble initiating or sustaining sleep, and one quarter of mothers, compared with 33% of women without children, had lower-quality sleep.



Source: Statistics Canada, General Social Survey, 1998.

Aging and sleep

Sleep patterns vary across ages. Men and women between the ages of 15 and 24 sleep an average of 8.5 hours a night. During the prime working and child-rearing years, the amount of sleep decreases and is at a low for both men and women between the ages of 45 and 54. The average time spent in sleep begins increasing again after age 55.

A substantial amount of research documenting the issue of aging and sleep shows that aging can be one of the causes of sleep disturbance, as many of us experience difficulty with our internal clocks. Additionally, as people age, they may experience health problems and the associated aches and pains that can affect sleep. The 1998 GSS shows that seniors sleep more than their 15- to 64-year-old counterparts (8.4 hours compared with 8.0 hours a night). However, while the average time spent in night sleep for seniors is considered healthy, 9% of seniors sleep 6.5 hours a night or less. Slightly more than 40% of those who sleep 6.5 hours or less a night have an activity limitation such

as circulatory or respiratory disease, arthritis, or heart disease, compared to only 30% of seniors who sleep more than 6.5 hours each night. This finding supports the notion that health problems affect sleep patterns. Finally, quality of sleep in seniors differs for men and women. One-third of senior women reported regular problems initiating or sustaining sleep compared with just one-fifth of senior men.

Shift work and struggling to stay awake

Our bodies require sleep in order to function optimally. While we are asleep our bodies both rest and restore our physical functioning. Everyone has a daily sleep-wakefulness cycle, or circadian rhythm, which reflects the physiological variations in his or her body during the day. These variations include changes in blood pressure and body temperature. While sleep requirements vary by age and individual, everyone experiences two peak periods of sleepiness during the sleep-wakefulness cycle. The first peak occurs between 1 and 4 a.m. and the second, 12 hours later, between

1 and 4 p.m. — a time that coincides with the 'siesta' in warmer climates. Although our North American culture does not officially acknowledge daytime sleepiness by closing stores and businesses in the afternoon, until World War II very few were open during the first peak period of sleepiness, between 1 and 4 a.m. However, since the war, our demand for goods and services has required more around-the-clock production: shift work and night work have become more common and can be very disruptive of the body's natural rhythm. Numerous studies have shown that commercial truck drivers, night workers and shift workers do not get adequate sleep and build up a large sleep debt over their shift cycles.³ In 1998, one-third (32%) of working Canadians worked something other than a regular daytime schedule or shift.⁴ Of these shift workers, the average duration of night sleep was 7.8 hours, the same as that of day workers. However, regular night-shift and split-shift workers slept the least of all the shift worker groups at 7.7 hours a night, and over one-quarter of night-shift workers slept less than 6.5 hours a night — thereby accumulating a large sleep debt.

The quality of sleep for shift workers differs from that of regular daytime workers. About 30% of shift workers (versus 23% for regular daytime workers) had trouble going to sleep or staying asleep and 62% (versus 55% of regular daytime workers) cut down on sleep when pressed for time.

3. A number of studies documenting the effects of shift work and extended working hours can be found on the Transport Canada Web site at www.tc.gc.ca.

4. This includes regular evening and night shifts, rotating shifts, split shifts and on-call or casual shifts, or an irregular schedule.

Playing catch-up on the weekend

Weekdays can be very hectic for many adult Canadians. Between work and school, leisure activities and child-care, we race around trying to get everything done. Before we know it, we have cut into the time we hoped to spend sleeping. For many, weekends provide a much-needed reprieve from the weekday rat race, and many people play “catch-up” by sleeping more on the weekends. Indeed, the 1998 GSS time-use diaries show that adult Canadians sleep, on average, 48 minutes more on Friday and Saturday nights, for a total of 8.6 hours each night.

Caught snoozing

The afternoon snooze is not common in Canada and is much maligned as a practice of the lazy. The pace of our lives and the structure of society prevent many from taking naps. Daytime sleepiness is natural and usually occurs between 1 and 4 p.m. as our bodies go through the second ebb in their biological rhythms. We may try to fight this urge to rest by drinking coffee, getting fresh air or just trying to ignore it. However, research at the Stanford Sleep Disorders Clinic⁵ indicates that a well-timed nap during this period can improve performance and alertness for hours after the nap: a 45-minute nap is said to improve alertness for the next six hours.⁶ While on an average day, only 13% of Canadians 15 and older take naps, those that do nap sleep for an average of 1.7 hours. Certain groups are more likely to nap than others. For example, 26% of seniors, 16% of those keeping house and 13% of those looking for paid work — people more likely to be at home — take naps. Students and paid workers are the least likely to nap.

Naps can be a very effective way of reducing sleep debt and improving alertness. This can be especially important for shift workers or for

CST Circadian roulette

Not surprisingly, chronic lack of sleep results in sleep debt and can have serious consequences, such as illness and accidents resulting from impaired judgement. Recent studies suggest that even moderate sleep deprivation (being awake more than 18 hours daily) results in reaction times that are slower than for those who are legally impaired from alcohol.¹

Nearly every major industrial accident in recent decades has occurred after midnight: both the Chernobyl and Three Mile Island nuclear disasters occurred between 1 and 4 a.m. Indeed, some of the world’s most horrific accidents have been attributed to sleep debt: for example, the oil spill from the Exxon Valdez and the explosion of the Challenger space shuttle both have been attributed to sleep deprivation and sleep debt.²

Many commercial transportation accidents have been attributed to driver fatigue. The risk of a single-vehicle truck crash is four times as high between the hours of 3 and 5 a.m.³ Current regulations in Canada allow commercial truck drivers to legally work more than 100 hours a week. Proposed legislation will cap the allowable work time to 84 hours a week (an average of 14 hours in a six-day workweek).

Because shift work and other jobs with variable work hours can wreak havoc with our circadian rhythms, a number of studies have been conducted on the effect of fatigue on commercial truck drivers, pilots, flight crews, air traffic controllers and doctors — all professions that can require extended hours or variable shifts, or both. The general conclusion of these studies is the same: individuals working extended hours or variable shifts suffer from sleep deprivation and have significant sleep debt, and this in turn results in a decrease in their ability to concentrate, a deterioration in their performance, and a high variability in their moods.⁴

1. *The Globe and Mail*. Sept. 19, 2000. p. A8.

2. Dement, William A. 1999. *The Promise of Sleep*. New York: Delacorte Press. p. 51 and 53.

3. *The Windsor Star*. July 14, 2000. p. A7.

4. See Transport Canada’s Web site at www.tc.gc.ca for a list of studies.

those who work long hours, such as truck drivers and pilots. However, in 1998, only 8% of shift workers took naps.

Summary

Thomas Edison believed that sleep was wasteful, unproductive time and that the continuous daylight that his light bulb provided would revolutionize

the world. Indeed it has, but while we produce goods and provide services 24 hours a day, our physiology

5. The Stanford sleep laboratory was created in 1970 as the world’s first sleep disorder center.

6. Dement, William A. 1999. *The Promise of Sleep*. New York: Delacorte Press.

CST The largest creditor — sleep debt

Sleep debt is calculated by subtracting the amount of sleep an individual gets from the amount of sleep that an individual needs.¹ Not getting enough sleep over an extended period results in considerable sleep debt. Scientists believe that the effects of prolonged sleep loss may affect a person's health since the effect of sleep loss accumulates over time. Even a small sleep debt of seven to eight hours has direct effects on mental performance, memory and reaction times.² Periodically, many people may have one or two nights when they don't get enough sleep, but they usually make up for missed sleep somewhere down the road (for example, sleeping in on a Saturday morning, or taking a nap during the day). Using the 1998 GSS data, on an average day, 15% of Canadians 15 and older sleep less than 6.5 hours a night. Certain groups are more likely than others to do so. For example, 19% of fathers and 25% of male shift workers sleep less than 6.5 hours a night. Not surprisingly, individuals with lower-quality sleep (not being able to initiate or sustain sleep) accumulate substantial sleep debt because they not only have trouble initiating sleep, but about 18% of these individuals sleep less than 6.5 hours a night.

1. The amount of sleep an individual needs varies based on body chemistry, age and activity levels, but for an adult it is thought that between 8.0 and 8.5 hours a night is healthy.

2. Coren, Stanley. 1996. *Sleep Thieves*. New York: The Free Press.

has not kept up with the technological advances society has made. Sleep remains a vital component in a healthy life. Without adequate sleep we are more likely to be moody and less able to concentrate. Over the long run, a chronic lack of sleep can affect our health. Our bodies run on a clock. As the skies darken at the end of the day, our brains signal that it is time to get ready for sleep. The 1998 General Social Survey indicated that the average amount of time spent in night sleep for adult Canadians was up slightly from the 1992 figures. However, when push came to shove, the 1998 GSS showed that almost half of Canadians cut back on their sleep when they need more time.

Not surprisingly, certain groups slept less than others; overall men slept less than women, and Canadians with children in the household slept less than those without children.

Seniors and individuals aged 15 to 24 slept more than any other group — an average of 8.4 and 8.5 hours a night, respectively.

Finally, perhaps as a result of our frantic pace, the quality of our sleep comes into question. One-quarter of the general adult population, 40% of severely time-stressed people and about 30% of shift workers regularly had problems going to sleep or staying asleep.



Cara Williams is an analyst with Housing, Family and Social Statistics Division, Statistics Canada.

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