

Health Fact Sheet

Sleep Apnea in Canada, 2016 and 2017

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Health Fact Sheets

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Sleep Apnea in Canada, 2016 and 2017

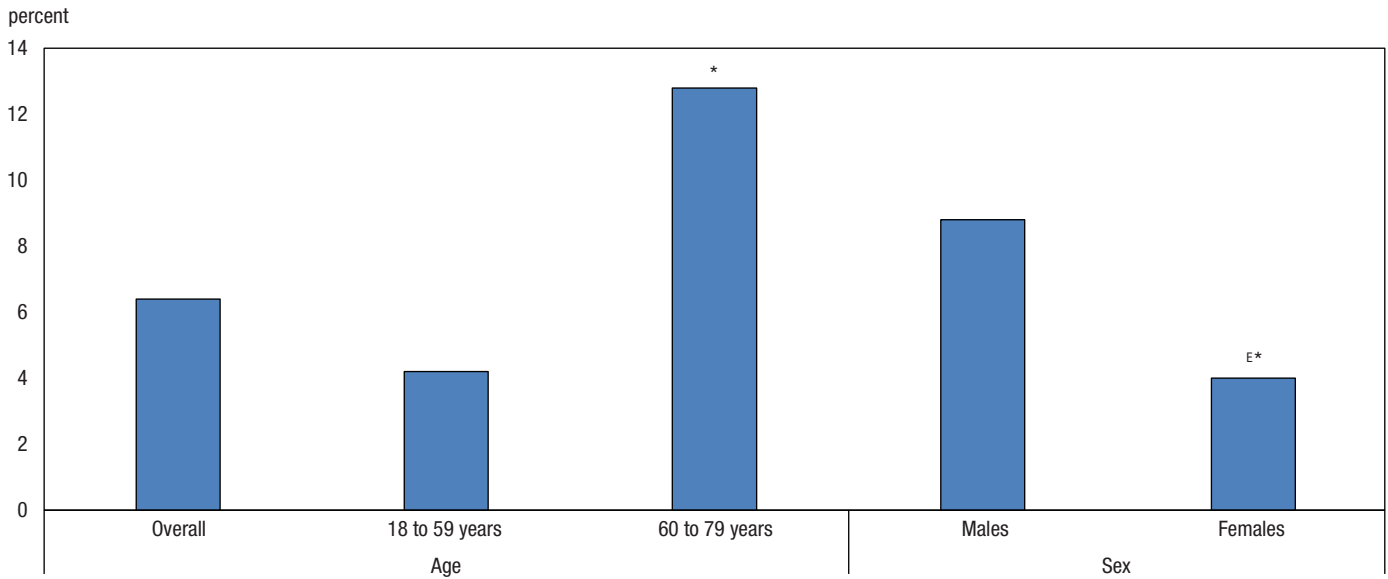
Sleep apnea is characterized by repetitive apneas during sleep. An apnea is the complete interruption of breath for at least 10 seconds. Previous studies have found sleep apnea is associated with cardiovascular, coronary artery disease and other cardiac related conditions, such as heart failure and cardiac arrhythmia.^{1,2} Other known associated diseases of sleep apnea include obesity, diabetes, and depression.^{2,3,4} Sleep apnea affects both men and women^{3,4} and has personal, social and economic impacts that affect our overall healthcare system.^{2,3,4}

The Canadian Health Measures Survey (CHMS) is a biennial survey that collects data on the health habits of Canadians through a household questionnaire and physical measures in a mobile examination centre. The 2016 and 2017 CHMS asked respondents about past diagnosis and treatment of sleep apnea. It also collected responses and physical measurements of several known risk factors for sleep apnea. The risk factors are based on the STOP-Bang Questionnaire, which is an acronym for **S**nooring, **T**iredness, **O**bserved apnea, **B**lood **P**ressure, **B**ody mass index, **A**ge, **N**eck circumference and **G**ender.^{5,6} For more information on the STOP-Bang Questionnaire, see the “About the STOP-Bang Questionnaire” section.

In 2016 and 2017, 6.4% of Canadians reported they had been diagnosed by a health care professional with sleep apnea (Chart 1). This is higher than results from a 2009 survey which found that the prevalence of self-reported sleep apnea was only 3% among adults 18 years and older.⁷

Self-reported sleep apnea differed by age and sex. Older adults (60 to 79 years) were three times as likely to report being diagnosed compared to their younger counterparts. Males were two times more likely to report being diagnosed compared with females. These trends were also found in the 2009 survey.⁷

Chart 1 Prevalence of sleep apnea among adults aged 18 to 79 years, by age group and sex, Canada, 2016 and 2017



^E use with caution

* significantly different: females from males ($p < 0.05$); 60 to 79 years from 18 to 59 years ($p < 0.05$)

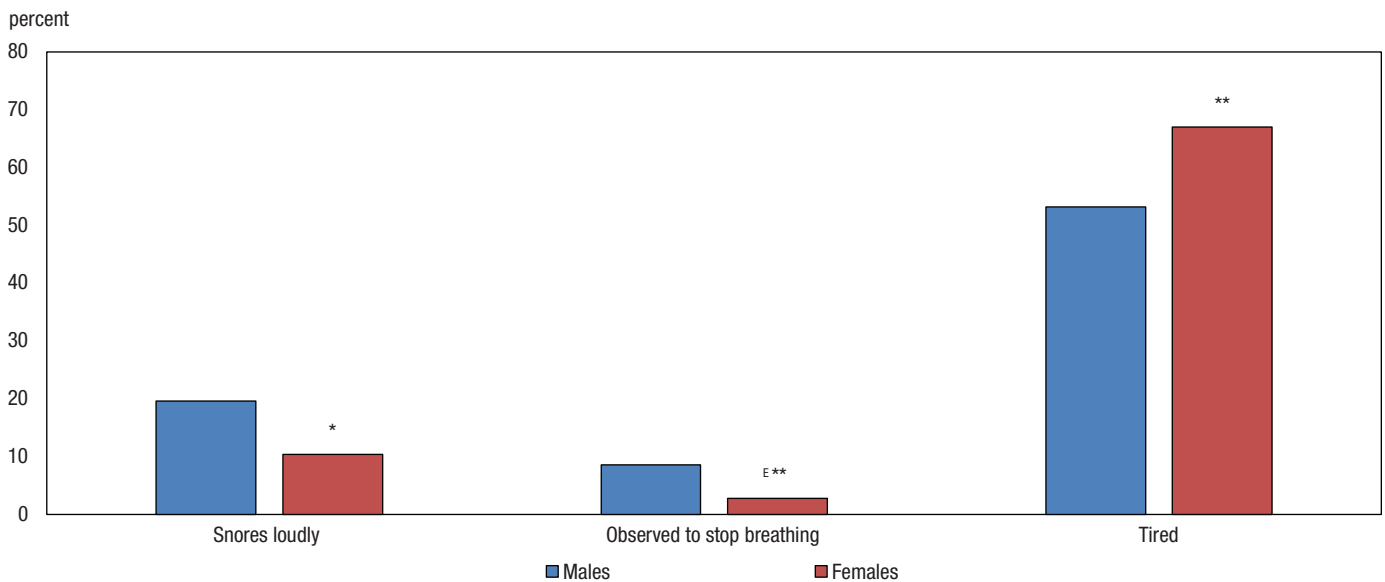
Source: Canadian Health Measures Survey, Cycle 5 (2016 and 2017).

Sleep apnea symptoms differ between males and females

Males and females tend to present different symptoms related to sleep apnea, which may partly explain the difference in diagnosis between the sexes.^{1,3,4}

Males tend to display more classical symptoms such as snoring or trouble breathing compared with females.^{2,3,4} In 2016 and 2017, males (20%) were almost two times more likely to report snoring loud enough to be heard through closed doors compared with females (10%) (Chart 2). Males (9%) were three times more likely to report that someone had observed them stop breathing during sleep compared with females (3%). These results are similar to those in the U.S.⁸

Chart 2 Distribution of sleep apnea symptoms and risk factors among adults aged 18 to 79, by sex, Canada, 2016 and 2017



^E use with caution

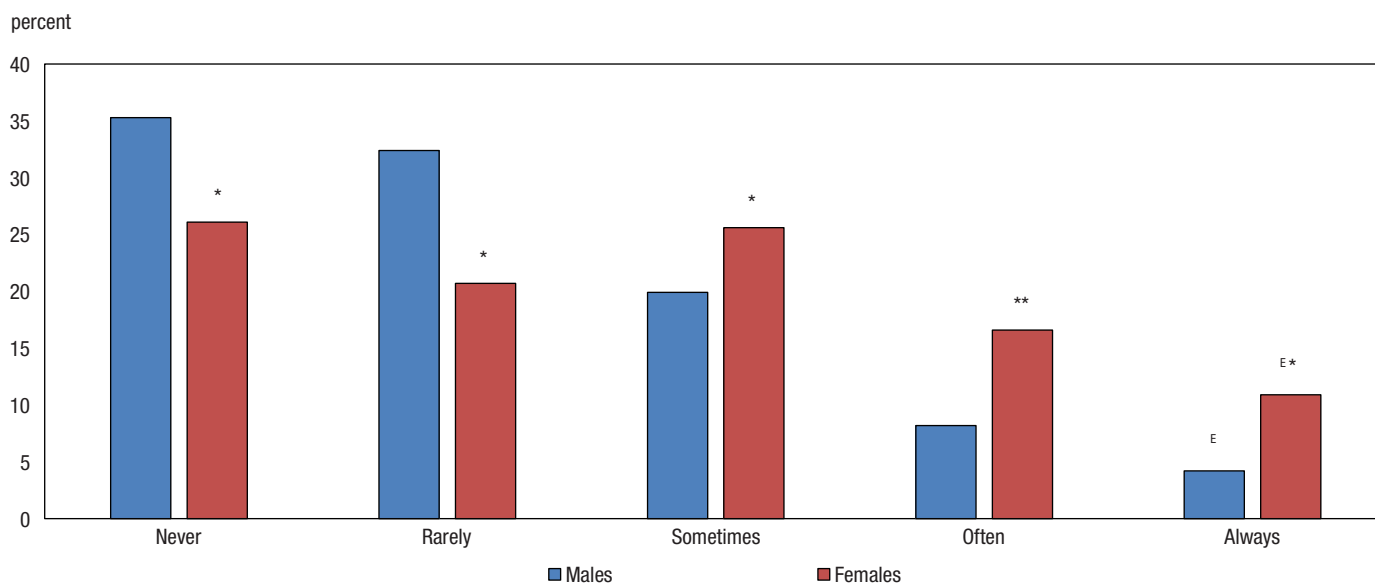
* significantly different from males ($p < 0.05$)

** significantly different from males ($p < 0.001$)

Source: Canadian Health Measures Survey, Cycle 5 (2016 and 2017).

By contrast, women tend to present symptoms such as fatigue or insomnia.^{2,3,4} In 2016 and 2017, females were more likely than males to report that they often felt tired, fatigued or sleepy during the day time (Chart 2). Females were also more likely to report having trouble going to sleep or staying asleep sometimes, often or always (without the use of sleeping aids) (Chart 3).

Chart 3 Distribution of trouble going to sleep or staying asleep among adults aged 18 to 79, by sex, Canada, 2016 and 2017



^E use with caution

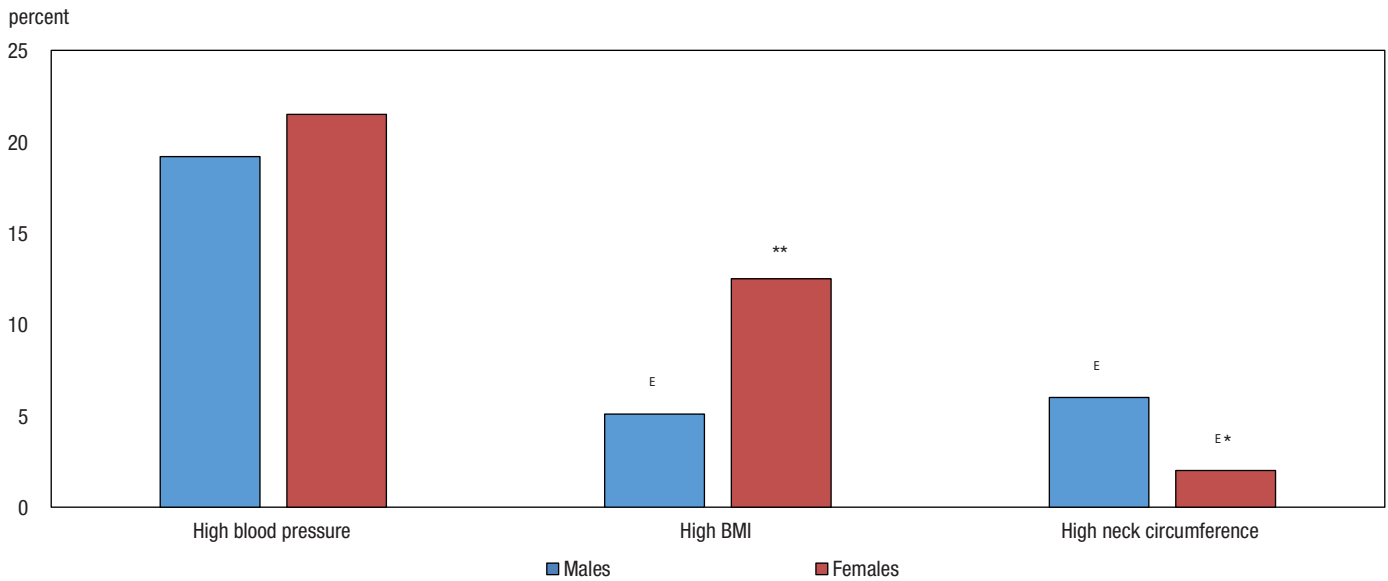
* significantly different from males ($p < 0.05$)

** significantly different from males ($p < 0.001$)

Source: Canadian Health Measures Survey, Cycle 5 (2016 and 2017).

Other factors, such as differences in fat distribution or upper airway anatomy may also be contributing to the difference in sleep apnea diagnosis between males and females.^{1,3,4} Females were more than two times more likely than males to have a high body mass index (BMI of >35kg/m²) (Chart 4). By contrast, males were three times more likely to have a high neck circumference (≥17 inches for males or ≥16 inches for females).

Chart 4 Distribution of high blood pressure, BMI and neck circumference among adults aged 18 to 79, by sex, Canada, 2016 and 2017



^E use with caution

* significantly different from males (p<0.05)

** significantly different from males (p<0.001)

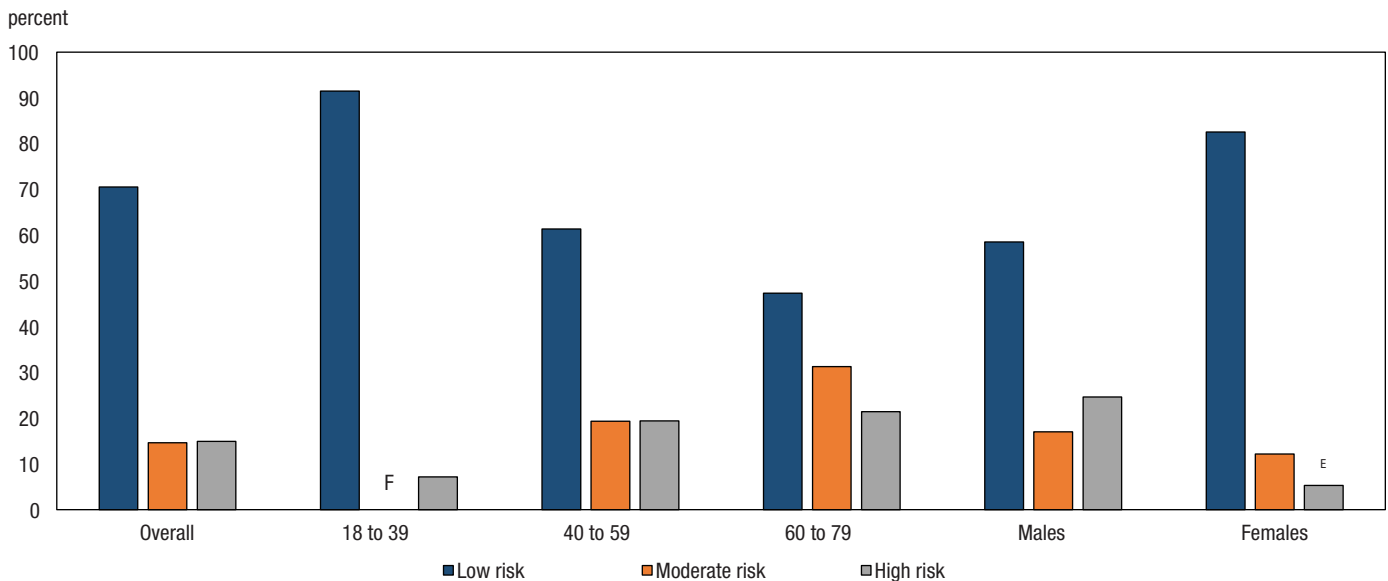
Source: Canadian Health Measures Survey, Cycle 5 (2016 and 2017).

The varying presentation of symptoms between men and women underline a potential under-diagnosis of sleep apnea in women. This is problematic from a public health perspective because of the higher risk of cardiovascular disease and other diseases associated with sleep apnea.³ Previous results showed that Canadian adults who reported being diagnosed with sleep apnea were more likely to report having other diseases such as diabetes, hypertension, heart disease, and mood disorders (e.g. depression).⁷

One in four males at high risk for developing sleep apnea

In 2016 and 2017, nearly one-third (30%) of Canadian adults were considered to be at intermediate or high risk for sleep apnea based on the STOP-BANG tool—15% were high risk and 15% were moderate risk (Chart 5).

Chart 5 Distribution of sleep apnea risk among adults aged 18 to 79, Canada, 2016 and 2017



^E use with caution

^F too unreliable to be published

Source: Canadian Health Measures Survey, Cycle 5 (2016 and 2017).

Older adults (aged 40 to 79) were at an elevated risk of sleep apnea compared to their younger counterparts (aged 18 to 39) (Chart 5). One in five adults aged 40 to 59 was at high risk, and one quarter of older adults aged 60 to 79. Less than 10% of younger adults were at intermediate or high risk.

The overall risk of sleep apnea was higher in males compared with females. One in four males was considered high risk for sleep apnea, which was five times higher than females where one in twenty was considered high risk.

About the STOP-BANG

The STOP-BANG questionnaire⁵ uses a series of questions⁹ and results of physical measurements to calculate the risk for sleep apnea in adults aged 18 and older.

Snoring – Do you snore loudly (loud enough to be heard through closed doors)?

Tired – Do you often feel tired, fatigued or sleepy during the daytime?

Observed – Has anyone observed you stop breathing or choking/gasping during your sleep?

Pressure – Do you have or are being treated for high blood pressure?

Body mass index (BMI) – Body mass index more than 35kg/m²?

Age – Age older than 50?

Neck circumference – Neck size 17 inches or larger for males or 16 inches or larger for females?

Gender – Male?⁶

Positive answers to the above questions are then used to determine risk:

Low risk – Yes to 0 to 2 questions

Intermediate risk – Yes to 3 to 4 questions

High risk – Yes to 5 to 8 questions

OR yes to 2 or more of 4 STOP questions + male gender

OR yes to 2 or more of 4 STOP questions + BMI > 35kg/m²

OR yes to 2 or more of 4 STOP questions + neck circumference ≥ 17 inches for males or ≥ 16 inches for females

References and notes

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2. Garvey J.F., Pengo M.F., Drakatos P., et al. 2015. Epidemiological aspects of obstructive sleep apnea. *Journal of Thoracic Disease*. Vol. 7, no. 5: 920-929.
3. Lin C.M., Davidson T.M., Ancoli-Israel, S. 2008. Gender differences in obstructive sleep apnea and treatment implications. *Sleep Medicine Reviews*. Vol. 12, no. 6: 481-496.
4. Jehan S., Auguste E., Zizi F., et al. 2016. Obstructive Sleep Apnea: Woman's Perspective. *Journal of Sleep Medicine and Disorders*. Vol. 3, no. 6.
5. STOP-Bang Questionnaire. Property of University Health Network, for further info: www.stopbang.ca modified from Chung F., et al. *Anesthesiology*. 2008. Vol. 108: 812-821; Chung F., et al. *British Journal of Anaesthesia*. 2012. Vol. 108:768-75; Chung F., et al. *Obesity Surgery*. 2013. Vol. 23: 2050-2057; Chung F., et al. *Journal of Clinical Sleep Medicine*. 2014.
6. Although the STOP-Bang Questionnaire⁵ uses the term gender, the CHMS collected sex as opposed to gender, therefore sex was used in the analysis, not gender.
7. Public Health Agency of Canada. 2013; *What is the Impact of Sleep Apnea on Canadians? Fast Facts from the 2009 Canadian Community Health Survey – Sleep Apnea Rapid Response*; <https://www.canada.ca/en/public-health/services/chronic-diseases/sleep-apnea/what-impact-sleep-apnea-on-canadians.html>. (accessed: May 14, 2018).
8. Centers for Disease Control. <https://wwwn.cdc.gov/Nchs/Nhanes/Search/DataPage.aspx?Component=Questionnaire&CycleBeginYear=2015>. (Accessed: July 15, 2018).
9. Certain questions for the STOP-Bang tool were slightly modified for use in the Canadian Health Measures Survey Questionnaire. For more information, go to Canadian Health Measures Survey (CHMS) (<http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5071>).

For more information on the Canadian Community Health Survey, please contact Statistics Canada's Statistical Information Service (toll-free 1-800-263-1136; 613-951-8116; STATCAN.infostats-infostats.STATCAN@canada.ca).