

Article

Health Fact Sheet

Chronic obstructive pulmonary disease in Canadians, 2009 to 2011

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The following symbols are used in Statistics Canada publications:

.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0 ^s	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
^p	preliminary
^r	revised
x	suppressed to meet the confidentiality requirements of the <i>Statistics Act</i>
^E	use with caution
F	too unreliable to be published
*	significantly different from reference category ($p < 0.05$)



Chronic obstructive pulmonary disease in Canadians, 2009 to 2011

While 4% of Canadians aged 35 to 79 self-reported being diagnosed with chronic obstructive pulmonary disease (COPD), direct measurements of lung function from the Canadian Health Measures Survey (CHMS) indicate that 13% of Canadians had a lung function score indicative of COPD.

Chronic bronchitis and emphysema, together with similar respiratory illnesses, are collectively known as chronic obstructive pulmonary disease (COPD). COPD is characterized by progressive and chronic airflow limitation that is not fully reversible and is most commonly diagnosed in individuals 35 years of age and older. COPD is preventable as the majority of cases are caused by smoking.¹ Nonetheless, it is expected to become one of the major health challenges of the next few decades.²

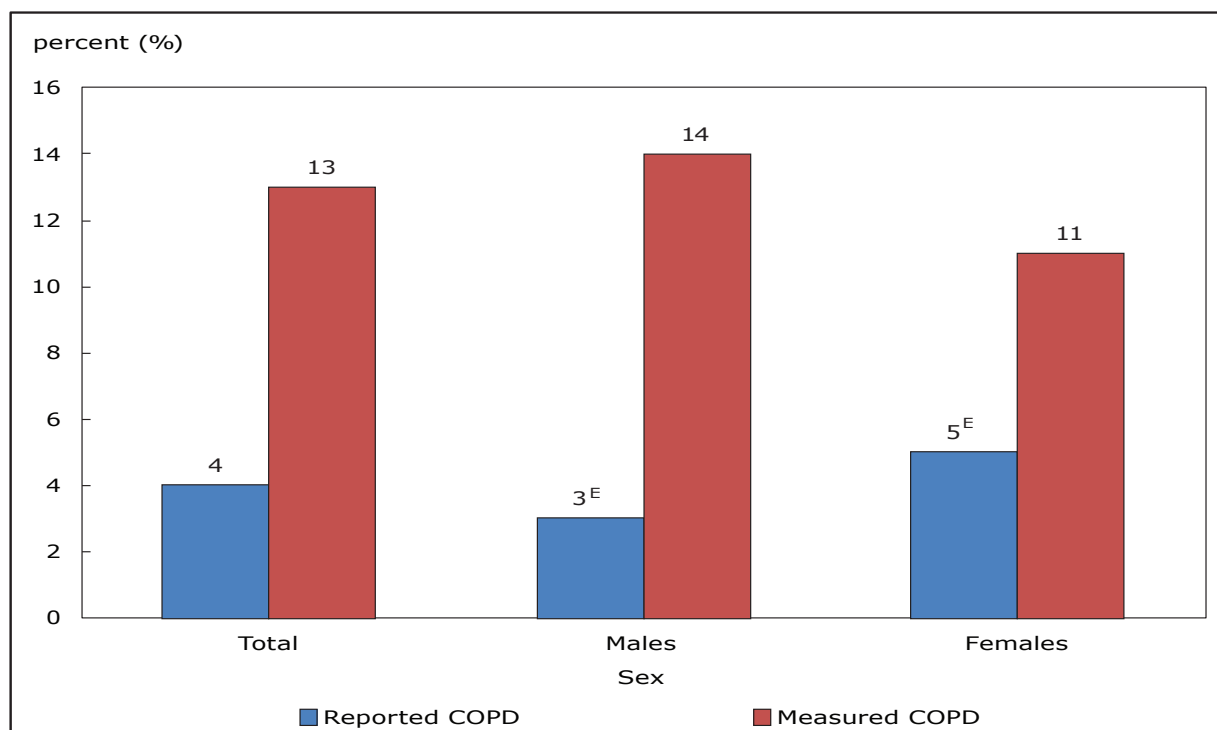
Among Canadians aged 35 to 79 years, 4% reported having been diagnosed by a health professional with COPD, chronic bronchitis or emphysema (Chart 1). Women (5%) were significantly more likely to report a diagnosis than men (3%). There were no significant differences between 40 to 59 year olds and 60 to 79 year olds in reported COPD.

Meanwhile, spirometry (see definition below) data collected by the CHMS revealed that 13% of Canadians aged 35 to 79 had a measured airflow obstruction consistent with COPD, defined as an FEV_1/FVC ratio less than 0.70 (Chart 1). This is more than 3 times greater than the 4% that self-reported a diagnosis of COPD. There was no significant difference in the likelihood of having measured airflow obstruction between males and females. However, Canadians aged 60 to 79 (19%) were more likely to have measured COPD than those aged 40 to 59 (11%).

Despite the gravity of COPD, it has a high occurrence of under diagnosis: 60 to 85% of patients, most with mild to moderate severity of disease, are thought to remain undiagnosed.² The disparity between reported and measured COPD in the CHMS suggests under diagnosis of the disease in Canada. Among Canadians with measured airflow obstruction consistent with COPD, 86% did not report being diagnosed with the disease. Over-diagnosis however appears to be minimal with only 2% of those who did not have measured airflow obstruction reporting a diagnosis of COPD.



Chart 1 Self-reported versus measured COPD,[†] by sex, household population aged 35 to 79, Canada, 2009 to 2011



COPD = chronic obstructive pulmonary disease

^E Use with caution (data with a coefficient of variation (CV) from 16.6% to 33.3%)

[†] According to GOLD³ as measured by spirometry

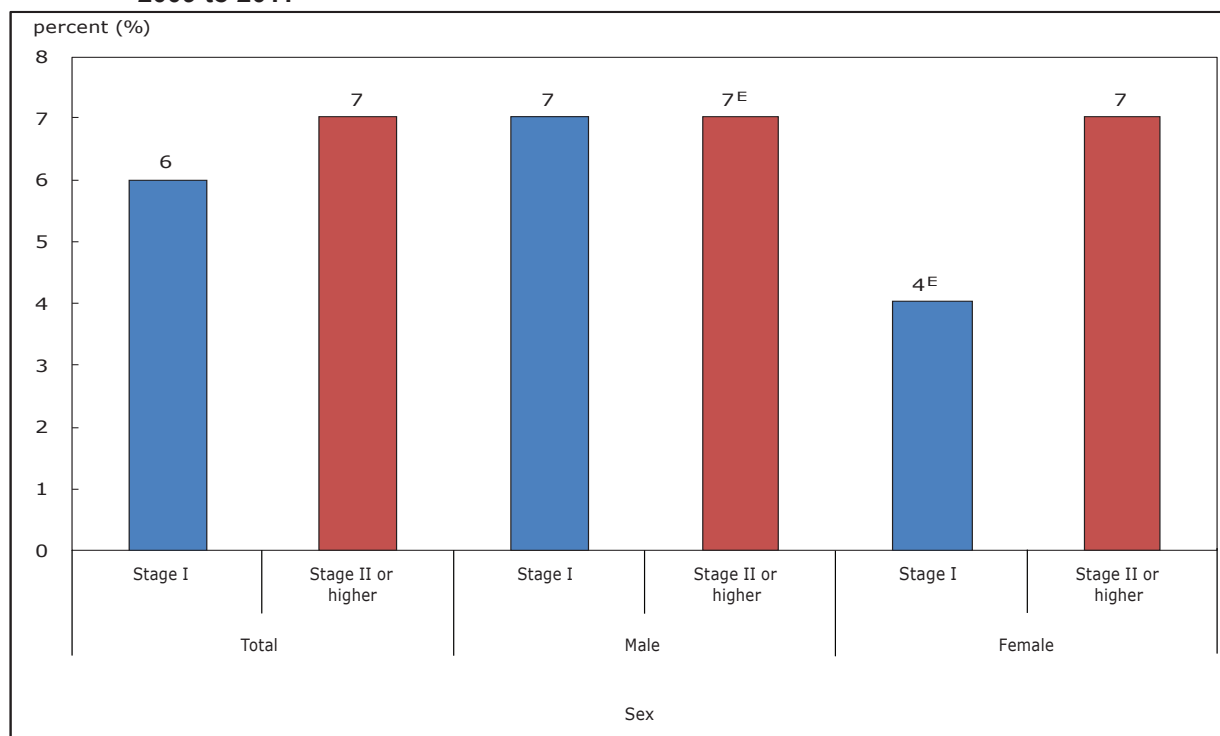
Source: Canadian Health Measures Survey, 2009 to 2011. The CHMS collects health information on the Canadian household population aged 3 to 79.

Severity of COPD in Canadian adults

COPD is a progressive disease that advances through four stages, from mild to very severe. Measured airflow obstruction consistent with stage I (mild) COPD was found in 6% of Canadians aged 35 to 79, while 7% had results consistent with stage II or higher, however this difference was not significant. Although females appear to have a lower prevalence of stage I COPD, there were no significant differences between the sexes in terms of severity of disease. Among Canadians with undiagnosed COPD, there was no significant difference between the prevalence of stage I and stage II or higher COPD.



Chart 2 Measured COPD, by GOLD³ stage and sex, household population 35 to 79, Canada, 2009 to 2011



COPD = chronic obstructive pulmonary disease

^E Use with caution (data with a coefficient of variation (CV) from 16.6% to 33.3%)

Source: Canadian Health Measures Survey, 2009 to 2011. The CHMS collects health information on the Canadian household population aged 3 to 79.



About spirometry and COPD

Spirometry is a test that measures the volume of air an individual inhales or exhales and the rate at which the air is moved into or out of the lungs. In the same manner that blood pressure measurements provide important information about general cardiovascular health, spirometry is invaluable as a screening test of general respiratory health. Used in conjunction with other tests, spirometry allows medical practitioners to monitor respiratory health for conditions such as COPD and cystic fibrosis. Spirometry results are interpreted by comparing measurements to the expected values for a normal healthy individual with the same anthropometric and ethnic characteristics.⁴

The spirometry measurements of primary interest are:

- forced vital capacity (FVC): the total volume of air that can be forcibly exhaled after a maximum inspiration
- forced expiratory volume in one second (FEV₁): the volume of air that can be forcibly exhaled in the first second of a FVC manoeuvre
- the ratio between FEV₁ and FVC

Spirometry measurements are used to both diagnose COPD and determine the severity of disease. One of the most commonly used classification systems for COPD is the Global Initiative for Chronic Obstructive Lung Disease (GOLD)³:

Spirometry determined GOLD COPD stage

Stage	FEV ₁ /FVC Ratio	FEV ₁
I. Mild	<0.70	≥80% of predicted
II. Moderate	<0.70	50-79% of predicted
III. Severe	<0.70	30-49% of predicted
IV. Very Severe	<0.70	<30% of predicted

References

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4. Miller MR, Hankinson J, Brusasco V, et al. Standardisation of spirometry. *European Respiratory Journal*. 2005;26(2):319-38.

For more information on the Canadian Health Measures Survey, please contact Statistics Canada's National Contact Centre (toll-free 1-800-263-1136; 613-951-8116; infostats@statcan.gc.ca).