

COVID-19: Longer-term symptoms among Canadian adults - First report

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The first report, Frequency and impact of longer-term symptoms following COVID-19 in Canadian adults, was published in the Fall of 2022

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Context

Coronavirus Disease 2019 (COVID-19), caused by an infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has had a substantial impact in Canada. As of September 3, 2022, about 4.2 million

infections, confirmed by polymerase chain reaction (PCR), had been officially reported to the Public Health Agency of Canada by the provinces and territories. The severity of an acute SARS-CoV-2 infection can vary from being completely asymptomatic to severe complications. In addition, some people may experience persistent, recurring, or new symptoms beyond the acute infection stage. These longer-term symptoms are commonly known as “post COVID-19 condition” and may also be referred to as “long COVID” or “post-acute sequelae of SARS-CoV-2 infection”.

Estimates of the percentage of Canadian adults who experience longer-term COVID-19 symptoms are currently sparse and based on non-representative samples. Further, information gaps exist regarding the severity and duration of symptoms experienced, and the impact on daily life. To address these gaps, the Public Health Agency of Canada, in partnership with Statistics Canada, measured the burden of longer-term COVID-19 symptoms in Canadian adults, aged 18+ years, through the second cycle of the Canadian COVID-19 Antibody and Health Survey (CCAHS). The CCAHS is a sample survey with a cross-sectional design and participants were randomly selected to respond to the survey.

This publication is based on Statistics Canada’s second provisional data release, which includes 29,853 Canadian adults who completed their questionnaire as of August 15, 2022. All presented provisional results have been weighted to be representative of the Canadian adult population eligible for participation in the survey.

Various case definitions have been used to define post COVID-19 condition. In this release, longer-term COVID-19 symptoms are defined as those occurring three or more months after a self-reported positive COVID-19 test (either PCR or rapid antigen test) or suspected infection. The results focus on Canadian adults who self-reported a positive COVID-19 test or

suspected they were infected, three or more months prior to completing the questionnaire. Individuals who reported a suspected infection, without confirmation through testing, were included because of the difficulty in accessing tests during parts of the study period.

The CCAHS covers the period since the beginning of the COVID-19 pandemic until August 31st 2022. Over the course of the survey period, several variants of SARS-CoV-2 with varying virulence and contagiousness have emerged and evolved. As well, vaccination against SARS-CoV-2 has become gradually available to different age groups, and a growing percentage of the Canadian population was vaccinated.

This publication is part of a joint release with [Statistics Canada](#).

How common are longer-term COVID-19 symptoms and who is more likely to experience them?

Among adults who self-reported a positive COVID-19 test or a suspected infection three or more months ago, 14.8% (95% CI: 13.7%, 16.0%) experienced longer-term symptoms.

- Females (18.0%, 95% CI: 16.4%, 19.8%) were more likely than males (11.6%, 95% CI: 10.1%, 13.4%) to report longer-term symptoms.
- The percentage of adults having longer-term symptoms varied little with age: 14.9% (95% CI: 12.7%, 17.5%) among those aged 18 to 34 years; 14.1% (95% CI: 12.3%, 16.0%) among those aged 35 to 49 years; 16.2% (95% CI: 14.1%, 18.6%) in those 50 to 64 years; and 14.0% (95% CI: 11.6%, 16.8%) among those aged 65+ years.
- The percentage of adults experiencing longer-term symptoms increased with the severity of the initial SARS-CoV-2 infection symptoms: from 2.5% (95% CI: 1.5%, 4.2%) for adults with no initial symptoms to 36.4% (95% CI: 32.7%, 40.2%) for adults with severe initial symptoms (Table 1)

Severity of initial SARS-CoV-2 infection symptoms	Percent reporting longer-term symptoms (95% confidence interval)
no symptoms	2.5% (1.5%, 4.2%)
mild symptoms — didn't affect my daily life	6.3% (5.2%, 7.6%)
moderate symptoms — some effect on my daily life	15.0% (13.3%, 16.9%)
severe symptoms — significant effect on my daily life	36.4% (32.7%, 40.2%)

- The percentage of adults with longer-term symptoms varied by self-reported testing status: 19.7% (95% CI: 17.5%, 22.1%) of adults with a positive PCR test experienced longer-term symptoms compared to 10.5% (95% CI: 9.0%, 12.2%) of adults with a positive rapid antigen test, and 15.1% (95% CI: 13.1%, 17.4%) of adults who suspected they were infected but did not have a positive test.

What symptoms are most commonly reported by adults with longer-term COVID-19 symptoms?

Canadian adults reporting longer-term COVID-19 symptoms were asked if they experienced each of 13 symptoms, three or more months after their self-reported infection. The most commonly reported symptom, experienced by 72.1% (95% CI: 68.1%, 75.8%) of adults, was fatigue, tiredness or loss of energy (Table 2).

Symptoms	Percent reporting symptom (95% confidence interval)
fatigue, tiredness or loss of energy	72.1% (68.1%, 75.8%)
coughing	39.3% (35.0%, 43.8%)
shortness of breath or difficulty breathing	38.5% (34.2%, 43.0%)
difficulty thinking or problem solving (brain fog)	32.9% (28.9%, 37.0%)
general weakness	30.9% (27.1%, 34.9%)

Symptoms	Percent reporting symptom (95% confidence interval)
headache	29.7% (26.1%, 33.5%)
loss of taste or smell	27.9% (23.3%, 33.1%)
stress or anxiety	24.2% (20.9%, 27.9%)
pain (e.g., muscular, abdominal, joint)	22.8% (19.6%, 26.3%)
sadness, pessimism, hopelessness or depression	18.8% (15.7%, 22.3%)
chest pain	17.0% (13.9%, 20.5%)
symptoms relating to the heart (e.g., fast, pounding or irregular heartbeat)	11.8% (9.1%, 15.1%)
fever	10.1% (8.1%, 12.5%)

How long do symptoms last in adults with longer-term COVID-19 symptoms?

Among adults reporting longer-term COVID-19 symptoms, 62.3% (95% CI: 57.5%, 66.9%) continue to experience symptoms at the time of questionnaire completion. To quantify how long these longer-term symptoms may last, self-reported symptom duration was examined among adults who reported being infected a year or more in the past; 47.3% (95% CI: 40.3%, 54.3%) of adults reported having symptoms lasting 1 year or longer (Table 3). Since the SARS-CoV-2 infection can initially be asymptomatic or symptoms can occur months after the acute phase resolves, or be episodic in nature, it is possible for the duration of symptoms to be less than 3 months¹.

¹Among those who reported longer-term symptoms 3 or more months after initial SARS-COV-2 infection, duration of some of the symptoms they have experienced may vary. Symptoms may be new onset, following initial recovery from an acute COVID-19 episode, or persist from the initial illness. Symptoms may also fluctuate or relapse over time. As such, some of these longer-term symptoms may have lasted less than 2 months. For example, someone may experience a new onset of symptoms 3 months after the initial infection, and these lasted for two months.

Duration of symptoms	Percent reporting duration (95% confidence interval)
less than 2 months	11.3% (7.1%, 17.5%)
between 2 months and less than 3 months	8.6% (5.3%, 13.6%)
between 3 months and less than 6 months	21.9% (16.3%, 28.6%)
between 6 months and less than 1 year	11.1% (7.9%, 15.2%)
1 year or longer	47.3% (40.3%, 54.3%)

How do longer-term COVID-19 symptoms affect daily activities, paid work, and schooling?

Adults with longer-term COVID-19 symptoms were asked how often their symptoms limited their daily activities (e.g., preparing meals, housework, running errands, personal care, moving around in one's home). More than 1 in 5 adults reported being often to always limited by their symptoms (Table 4).

How often daily activities were limited	Percent reporting level of limitation (95% confidence interval)
never	16.9% (14.1%, 20.2%)
rarely	29.4% (25.5%, 33.7%)
sometimes	32.3% (28.6%, 36.3%)
often	15.7% (12.9%, 18.9%)
always	5.6% (4.1%, 7.6%)

Among adults with longer-term COVID-19 symptoms who had a paid job or were attending school, 74.1% (95% CI: 69.3%, 78.3%) reported missing one or more days from work or school because of their symptoms up to the

date of completing the survey. The average number of missed days from work or school due to symptoms was 20 (95% CI: 15.8, 25.2).

Future work

The estimates presented in this release are within the expected range based on current state of the evidence. Systematic reviews that looked at infections with a pre-Omicron variant found that 30%-40% of non-hospitalized adults during initial illness reported at least one symptom beyond 12 weeks after the acute SARS-CoV-2 infection; however, estimates were higher among those hospitalized during their initial infection, up to 80%. Evidence examining the prevalence according to the different variants are showing that infections caused by the Omicron variant – where severe initial illness is not as common – seem to result in a lower proportion of individuals going on to experience longer-term symptoms compared with the Delta variant, around 10%-20% (ranging from 5%-30%).

While the findings presented here provide an important first picture of the situation in Canada, there are still important knowledge gaps to address, such as prevalence by waves, vaccination status, vulnerable groups, etc.

This release is one of a suite of products related to this survey to be prepared and released by the Public Health Agency of Canada (PHAC) over the Winter/Spring 2023 to further our knowledge about longer-term symptoms of COVID-19. These products will include, for example, technical reports, journal articles and infographics, intended for a range of audiences. Future analyses will provide a more detailed portrait of the burden of longer-term symptoms following SARS-CoV-2 infection in population subgroups defined by socio-economic factors as well as explore risk and protective factors for those longer-term impacts, including vaccination. Direct biological measures of SARS-CoV-2 infection and antibody status (i.e., dried blood spot tests and PCR testing of saliva samples) will also be examined to assess the accuracy of self-reported

infection and vaccination, and gain more comprehensive estimates of the infection and immunity status of Canadian adults, including adults unaware they were infected.

Technical notes

The data presented here are based on self-reports. Questions about SARS-CoV-2 infection relate to the first infection with a positive test result. In the absence of a positive test result, questions relate to the first suspected infection. The survey does not account for multiple infections in the same person.

It is important to note that these data do not account for all Canadians who have been infected. Not everyone who acquired COVID-19 may have been aware or tested.

Respondents reporting a positive COVID-19 test together with an unknown test type were categorized as having a polymerase chain reaction if the test occurred prior to December 2021 and a rapid antigen test thereafter.

The method of defining longer-term COVID-19 symptoms after a self-reported confirmed or suspected SARS-CoV-2 infection aligns with the World Health Organization's post COVID-19 condition case definition, with the exception that the latter requires a symptom duration of at least 2 months.

Data were collected between April 1, 2022 and August 15, 2022 and relate to the period since the start of the pandemic. Populations excluded from the survey are persons living in the three territories, persons under 18 years of age, persons living on reserves and other Indigenous settlements in the provinces, full-time members of the Canadian Forces, persons living in institutions, and residents of certain remote regions.