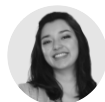




4 in 10 people with a SARS-CoV-2 infection may have no symptoms



Written by [Annie Lennon](#) on December 17, 2021 — [Fact checked](#) by Harriet Pike, Ph.D.



A recent study finds that 40.5% of people with a SARS-CoV-2 infection do not develop symptoms. Andrew Aitchison/Getty Images

- **Researchers investigated what proportion of confirmed SARS-CoV-2 infections are asymptomatic.**
- **They found that across different contexts, 40.5% of people who contract the virus have no symptoms.**
- **The researchers say that the high percentage of asymptomatic SARS-CoV-2 cases highlights a potential transmission risk within communities.**

All data and statistics are based on publicly available data at the time of publication. Some information may be out of date. Visit our [coronavirus hub](#) and follow our [live updates page](#) for the most recent information on



As of December 16, 2021, there have been more than **272 million** confirmed SARS-CoV-2 infections globally, plus more than 5.3 million confirmed COVID-19-related deaths.

The symptoms of COVID-19 vary in severity, with some people experiencing symptoms of a mild respiratory infection and others developing pneumonia or **acute respiratory distress syndrome**. Some people, however, develop no symptoms and are **asymptomatic**.

Those who are asymptomatic may not seek medical care, and temperature screening may not detect that they have the infection. However, the virus **can still transmit** from asymptomatic people.

One **study** found that upper respiratory viral loads in asymptomatic people were similar to those in symptomatic people. Another **study** suggested that infectiousness peaks on or before symptom onset.

Unlike other viruses, such as the virus that causes severe acute respiratory syndrome (SARS), there has been little comprehensive research on transmission rates among asymptomatic people with a SARS-CoV-2 infection. Knowing these rates could help improve public health policies to manage the virus.

In a recent study, researchers from Peking University in China conducted a review of 95 studies, which included a total of almost 30 million individuals. They calculated the percentage of asymptomatic people among those with confirmed infections, as well as among individuals undergoing testing.

They found that of all of those tested, 0.25% had a SARS-CoV-2 infection and were asymptomatic. Of those who received a positive test result, 40.5% were asymptomatic.

“The high percentage of asymptomatic infections from this study highlights the potential transmission risk of asymptomatic infections in communities,” write the authors of the paper.



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Variation in asymptomatic cases

The researchers included 95 studies of various types written in both Chinese and English containing health data on 29,776,306 individuals. Of these studies:

- 35 took place in Europe
- 32 were in North America
- 25 were in Asia

Among all the people who underwent testing for SARS-CoV-2, the researchers found that 11,516, or 0.25%, had an infection but no symptoms. This figure, however, varied among different contexts. For instance, asymptomatic cases were present among:

- 4.52% of tested nursing home residents or staff
- 2.02% of tested air or cruise travelers
- 2.34% of tested pregnant women



- 0.75% of tested healthcare workers or in-hospital patients
- 0.40% of tested community residents

The researchers further found that the percentage of asymptomatic cases was higher:

- **in developed countries**
- **among populations with an average age of 60 years or older**
- **in studies with a sample size of less than 100**

When analyzing data for the percentage of asymptomatic cases among the population confirmed as having the infection, the researchers excluded 18 studies because all of their confirmed cases were asymptomatic.

The remaining 77 studies included 19,884 confirmed SARS-CoV-2 infections, of which 11,069 were asymptomatic.

The researchers found that among those with a confirmed SARS-CoV-2 infection, the pooled percentage of asymptomatic infections was 40.5%.

Of the confirmed SARS-CoV-2 infections, the percentage of asymptomatic infections varied across different contexts:

- 54.11% in pregnant women
- 52.91% in air or cruise travelers
- 47.53% in nursing home residents or staff
- 39.74% in community residents
- 30.01% in healthcare workers and hospital patients
- 26.94% in close contacts

These rates also varied by continent. While they accounted for 46.32% of confirmed infections in North America, they accounted for 44.18% in

5. 107.50% in Asia



The researchers also found that the rate was higher among those younger than 20 years.

The importance of the results

To explain their results, the researchers say that lower rates of asymptomatic cases in Asia might be due to the large city-wide [SARS-CoV-2 screening program](#) in China.

They add that the percentage of asymptomatic cases was higher when excluding studies with large sample sizes.

The researchers further explain that those younger than 39 years were more likely to have asymptomatic infections than those belonging to older age groups. This, they say, is probably because young adults are more likely to show only [mild or moderate](#) clinical symptoms.

“These findings suggest that asymptomatic infections might contribute to the transmission of SARS-CoV-2 within the community,” write the researchers.

“To prevent further transmission in communities, asymptomatic individuals among the general population should be tested. If resources are limited, workers in specific industries, such as air transportation, should be routinely tested.”

“In addition, we found that approximately one-third of individuals with confirmed [SARS-CoV-2 infections] were asymptomatic among healthcare workers or in-hospital patients. Because asymptomatic healthcare workers might contribute to disease spread in and out of hospitals, surveillance of asymptomatic individuals is important for infection control and transmission reduction in healthcare settings and [the] community,” they add.

The researchers conclude that the high percentage of asymptomatic infections highlights a potential transmission risk within communities.



Some limitations

The authors explain that their study has several limitations. Firstly, their research did not include preprint studies, so they may have missed some relevant data.

The researchers also did not search Chinese literature databases, which means that they may have missed some relevant articles written in Chinese.

They also explain that most of the studies did not include follow-ups to identify presymptomatic and covert COVID-19 cases.

Medical News Today spoke with [Prof. Irene Petersen](#), a professor of epidemiology and health informatics at University College London in the United Kingdom, who was not involved in the study. She said:

“[This study] is a mixture of many different study designs, and, hence, an overall estimate of the proportion of asymptomatic cases should be considered with some uncertainty.”

“Also, we should be aware that symptoms of COVID-19 have changed over time. Thus, many would consider symptoms such as headache and runny nose also to be symptoms of COVID-19 in addition to the three classic symptoms,” she added.

Nevertheless, when we asked whether this study was of good quality, Prof. Petersen confirmed: “Yes. This is a good study that seeks to



“The findings are not surprising, as we have known for a long time that many people may have COVID without having the ‘typical’ COVID-19 symptoms. Some people may develop symptoms several days after [their infection becomes transmissible],” she added.

“While [the virus may be more likely to spread from] people with symptoms, they will often isolate because they are aware that [they have the infection]. [Meanwhile], those without symptoms, or those who are presymptomatic, won’t know that they [have the infection] and hence they may pose a greater risk of transmission.”

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