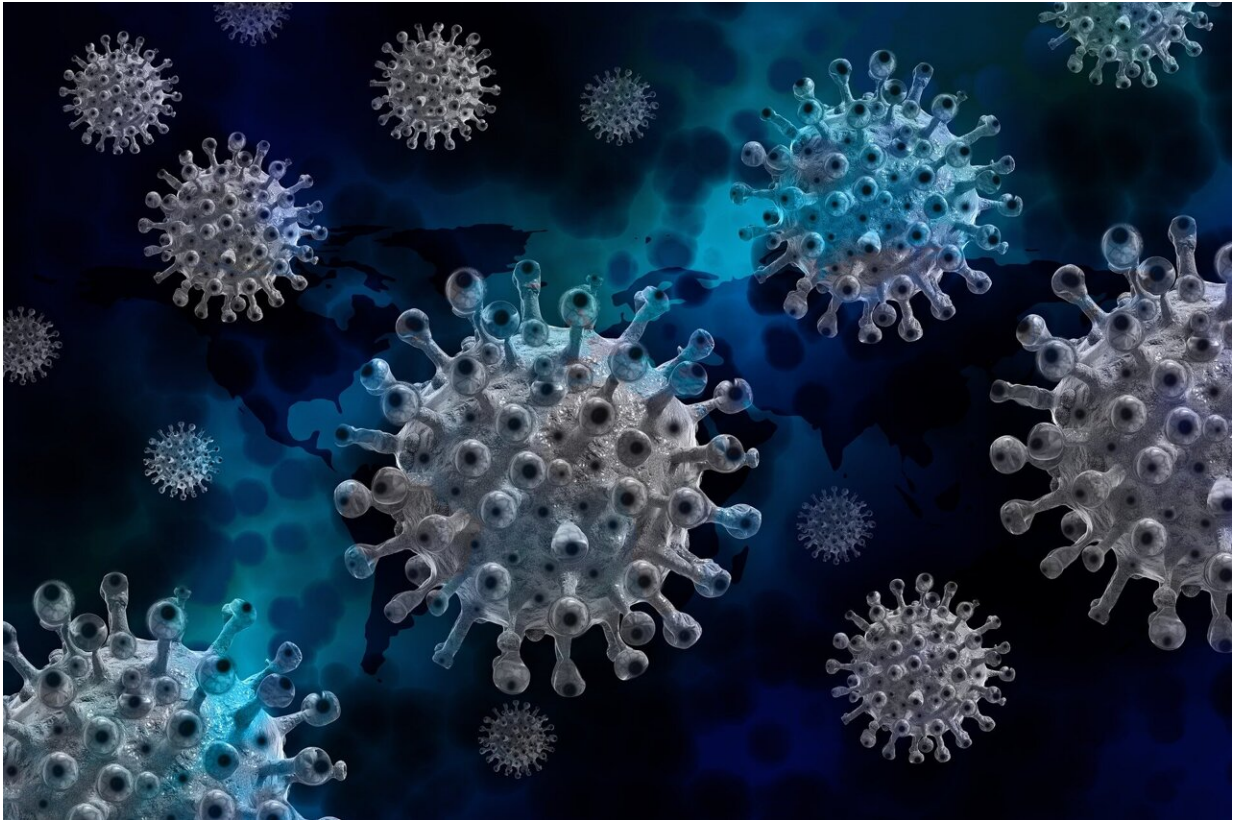


# Who is most at risk for long COVID?

March 9 2023, by Jake Miller

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A new study of more than 800,000 people has found that in the U.S., COVID "long haulers" were more likely to be older and female, with more chronic conditions than people in a comparison group who—after getting COVID—did not have diagnosed long COVID or any of the symptoms associated with long COVID. The findings are published in

the March issue of *Health Affairs*.

The [national study](#), which focused on people with private insurance or Medicare Advantage coverage, aims to inform public health and [clinical care](#) by advancing the understanding of who gets long COVID.

As one of the largest studies of long COVID in the U.S. to date, in terms of the number and diversity of people studied and the length of time symptoms and diagnoses were followed, the study solidifies many previous insights about the demographics and clinical profile of people most likely to get sick.

It also provides new information to consider about the complex interaction of COVID-19 in patients with previously diagnosed chronic illnesses.

"This work in a large population helps to address the question of who is more at risk of long COVID," said Zirui Song, associate professor in the Department of Health Care Policy in the Blavatnik Institute at Harvard Medical School, lead author of the article.

"This may help clinicians and health care organizations screen, monitor, and treat patients more effectively. It may also help individuals, who know their own medical history, better assess their risk of long COVID and the value of protecting against getting COVID-19 in the first place," Song said.

The study's findings also indicate that symptoms of long COVID can appear or persist much longer after initial infection than many previous studies had suggested.

Most earlier work showed a peak of long COVID symptoms and diagnoses within the first six months of a person's initial COVID-19

diagnosis, the authors note, but the new research shows another, smaller peak around one year, which the authors note was significantly longer than the follow-up period of most initial studies.

## **Who gets long COVID?**

Whether you call it long COVID, long-haul COVID, post-acute sequelae of SARS CoV-2 infection (PASC), long-term effects of COVID, or chronic COVID, the condition has hit one in five adults in the U.S., according to the CDC, and tens of millions worldwide with sometimes debilitating symptoms including shortness of breath, fatigue, and brain fog.

The symptoms can involve multiple [organ systems](#) and have been thought to last weeks or months after a person's [initial infection](#) has cleared.

A recent review of the scientific literature on the population-wide impact, clinical profile, and biology of long COVID noted that there are many research challenges and many open questions, particularly relating to how the condition develops and progresses, which risk factors determine who gets sick, and what effective treatments are available.

The *Health Affairs* study authors found that the leading risk factors for long COVID included high blood pressure, [chronic lung disease](#), obesity, diabetes, and depression.

"Clinicians and the [public health](#) community are working hard to understand who this condition afflicts, what causes it, and its health and societal consequences," Song said. "More large-scale data from health care systems and payers can help this work for the good of the public."

## **Long COVID research challenges**

Although it has been known almost since the beginning of the pandemic in early 2020 that many patients had long-haul symptoms following initial infections, studying long COVID has remained challenging until recently for many reasons, including lack of population-level data for ethnically, economically, and geographically diverse groups over a long period of time, Song said.

For this study, Song and co-author Mia Giuriato, a data scientist in the Department of Health Care Policy at HMS, looked at two groups of people who might be considered to have long COVID under different definitions that have been in use over the course of the pandemic, plus a comparison group of 600,000 people who similarly had COVID-19 but did not meet any of the definitions of long COVID.

The records came from a database of de-identified, longitudinal health information from people of a diverse mix of ages, ethnicities, and geographical regions across the U.S. who were enrolled in commercial insurance and Medicare Advantage plans.

One group of over 8,300 people met a narrow definition of long COVID, which required an official long COVID diagnostic code in the patient's medical claims.

For people who met this narrow definition, long COVID was associated with multiple common pre-pandemic conditions such as lung disease, depression, diabetes, obesity, and other common conditions, meaning that people who had these conditions before the pandemic were more likely to be diagnosed with long COVID.

Contrary to findings in many previous studies, the researchers found that pre-pandemic HIV/AIDS, metastatic cancer, and solid tumors without metastasis—markers of a suppressed immune system that are typically associated with more severe COVID-19 disease—were not associated

with having a diagnosis of long COVID.

The second group included more than 200,000 people who had new symptoms of long COVID that appeared between 28 and 180 days after initial COVID-19 diagnosis.

In this more broadly defined group of long haulers, long COVID was associated with all categories of preexisting conditions, including those indicating immunosuppression.

One explanation for the difference might be that the group that met the broad definition included a substantially larger sample size in which smaller differences relative to the non-long haulers comparison group were more statistically significant, Song said.

## **Untangling cause and effect of long COVID**

Another challenge for researchers attempting to understand long COVID is that many of the symptoms of chronic COVID—such as respiratory and circulatory problems and mood changes—are similar to the symptoms of many conditions that seem to be risk factors for long COVID.

Explanations include that it's just the normal progression of underlying diseases that people had before the pandemic; COVID is hastening the progression of chronic diseases; some common factor among these preexisting conditions increases the risk of a separate condition that manifests as lingering symptoms from COVID; or that all of these may be true to varying extents, the authors said.

"Answering these questions will require careful planning for data collection and further studies designed to tease out the tangled strands of long-haul COVID," Song said. "Such work will be crucial for

understanding how to deal with the lingering effects of the COVID-19 pandemic and for preparing us for future global health challenges we all could face."

**More information:** Zirui Song et al, Demographic And Clinical Factors Associated With Long COVID, *Health Affairs* (2023). [DOI: 10.1377/hlthaff.2022.00991](https://doi.org/10.1377/hlthaff.2022.00991)

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