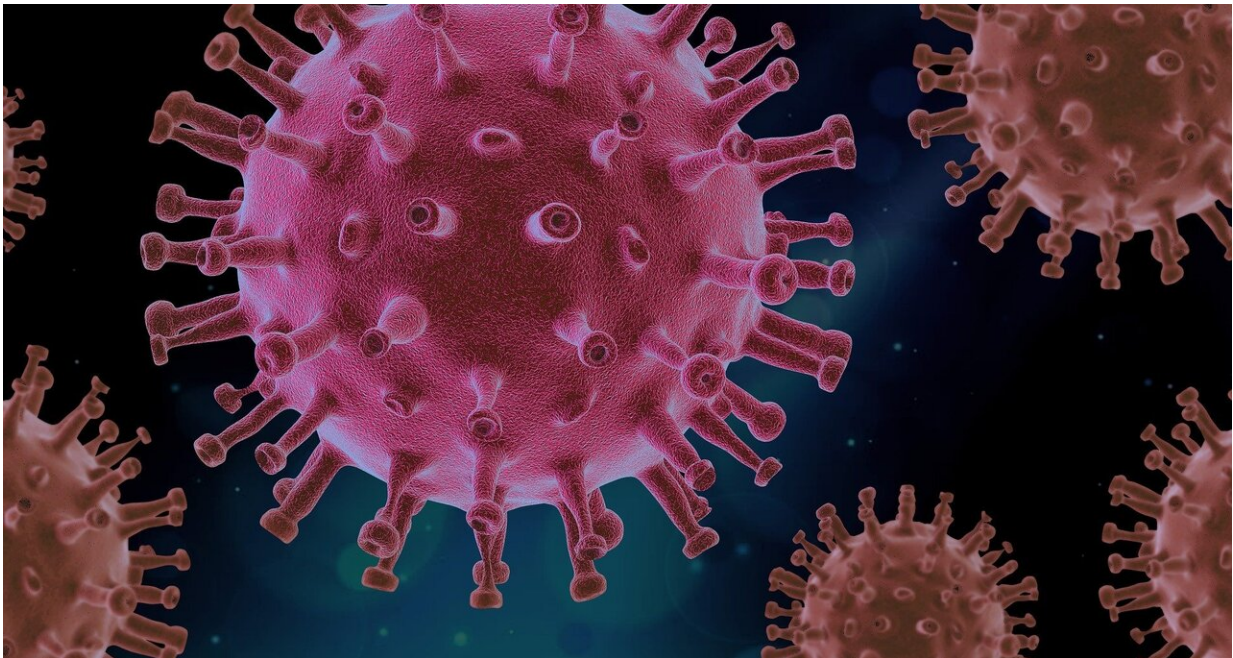


COVID-19 study shows that men have over double the death rate of women

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The COVID-19 pandemic has exploded across the globe, leaving healthcare staff, policy makers and ordinary people struggling. We still don't completely understand why some people are more severely affected by the virus than others.

So far, the elderly and those with certain pre-existing conditions appear

to be at greater risk. A new study in open-access journal *Frontiers in Public Health* is the first to examine [gender differences](#) in COVID-19 patients. The study finds that men and women are equally likely to contract the virus, but men are significantly more likely to suffer severe effects of the [disease](#) and die. The results suggest that additional care may be required for older men or those with underlying conditions.

While most people with COVID-19 experience mild symptoms, identifying the factors that predispose people to severe disease and death could help society to protect and treat those most at risk.

So far, researchers have confirmed that older COVID-19 patients and those with certain underlying conditions, such as heart disease and respiratory conditions, are at greater risk of severe disease and death. However, Dr. Jin-Kui Yang, a physician at Beijing Tongren Hospital in China, noticed a trend among COVID-19 patients who died.

"Early in January we noticed that the number of men dying from COVID-19 appeared to be higher than the number of women," said Yang. "This raised a question: are men more susceptible to getting or dying from COVID-19? We found that no-one had measured gender differences in COVID-19 patients, and so began investigating."

Yang and a group of colleagues analyzed several patient datasets to see if there were differences in how men and women respond to COVID-19. This included data on 43 patients who the doctors had treated themselves and a publicly available dataset on 1056 COVID-19 patients.

The virus responsible for COVID-19 is similar to the virus behind the 2003 SARS outbreak, and it attaches to the same protein, called ACE2, on cells it attacks. Given this similarity, the doctors also analyzed a dataset of 524 SARS patients from 2003.

Among the COVID-19 patients, the researchers confirmed that older people and those with specific underlying conditions tended to have more severe disease and were more likely to die. The age and numbers of infected men and women were similar, but men tended to have more severe disease.

Strikingly, in the largest COVID-19 dataset, over 70% of the patients who died were men, meaning that men had almost 2.5 times the death rate of women. And interestingly, being male was a significant risk-factor for worse disease severity, regardless of age.

In the SARS dataset from 2003, the researchers found a similar trend, with a significantly higher mortality rate amongst males compared with females. Interestingly, levels of ACE2, the protein involved in the viral attack in both SARS and COVID-19, tends to be present in higher levels in men, and also patients with cardiovascular disease and diabetes, all of whom have worse outcomes in COVID-19.

However, further research is needed to determine exactly why men with COVID-19 tend to fare worse than women. While the current study has a [small sample size](#), and larger studies are needed to confirm the results, this is the first preliminary indication that male gender is a significant risk factor for COVID-19 severity and death.

The study may have important implications for patient care. "We recommend that additional supportive care and prompt access to the intensive care unit may be necessary for older male patients," said Yang.

More information: *Frontiers in Public Health* ,
[www.frontiersin.org/articles/1 ... pubh.2020.00152/full](http://www.frontiersin.org/articles/1...pubh.2020.00152/full)

Provided by Frontiers

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