

Difficulty breathing and COPD key predictors for severe COVID-19

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Heart pain. Credit: Pixabay

Shortness of breath (dyspnoea) is the only symptom of COVID-19 significantly associated with severe cases of the disease and admission to intensive care units (ICU), according to a new systematic review and meta-analysis led by UCL.

The findings, published in MedRxiv as a pre-print prior to peer-review, also showed that underlying health conditions do not all present the same risk of severe COVID-19, with [chronic obstructive pulmonary disease](#) (COPD) being the greatest risk factor for severe COVID-19 among hospitalized patients.

The meta-analysis of seven peer-reviewed retrospective cohort studies from China included a total of 1813 patients, with 116 ICU patients and 315 patients classified as severe, all hospitalized with laboratory-confirmed COVID-19.

They found that the prevalence of dyspnoea in ICU patients was 67.2%, compared with 10.2% in the non-ICU group. Patients with dyspnoea were 3.7 times more likely to have severe disease and 6.6 times more likely to have an ICU admission,

compared to those without.

"Our analysis finds that dyspnoea is the only [symptom](#) strongly predictive for both severe disease and ICU admission, and could be a useful symptom to help guide clinical management decisions," said lead author and academic clinical fellow Dr. Vageesh Jain (UCL Institute for Global Health).

"Whilst dyspnoea was not a particularly common symptom in COVID-19 patients (the most common symptoms for non-severe cases being fever and cough), its significant association with both severe disease and ICU admission may help clinicians discriminate between severe and non-severe COVID-19 cases."

COPD is a chronic progressive lung disease causing long-term breathing problems. There are currently more than 1.2 million people with a COPD diagnosis in the UK but up to three times as many could be undiagnosed, according to the NHS.

Of pre-existing health conditions associated with COVID-19 severity, COPD was the most strongly predictive for both severe disease and ICU admission, despite its low prevalence in severe disease and ICU groups (4.5% and 9.7%, respectively). Those with COPD were 6.4 times more likely to develop severe disease, and 17.8 times more likely to be admitted to ICU.

Cardiovascular disease (CVD) and hypertension, more prevalent conditions in the study population, were also strongly predictive for both severe disease and ICU admission. Those with CVD and hypertension were 4.4 and 3.7 times more likely to have an ICU admission, respectively, compared to patients without the comorbidity.

The researchers say findings can be used to inform targeted [public health](#) and clinical management strategies, through the prioritization of those at

highest-risk of severe illness with COVID-19.

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More information: Vageesh Jain et al.

Systematic review and meta-analysis of predictive symptoms and comorbidities for severe COVID-19 infection, (2020). [DOI: 10.1101/2020.03.15.20035360](#)

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