

Vitamin D deficiency increased risk of COVID in healthcare workers, new study shows

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Healthcare workers who self-isolated after developing symptoms of COVID-19 were more likely to have a vitamin D deficiency, with

workers from Black, Asian or ethnic minority backgrounds particularly affected, a new study by experts at the University of Birmingham has found.

The study, an extension of previous work to establish convalescent immunity in NHS [staff](#) at University Hospitals Birmingham NHS Foundation Trust, analyzed [blood samples](#) from 392 healthcare workers recruited in May 2020 towards the end of the first surge of the COVID-19 pandemic. Samples were first tested for the presence of SARS-Cov-2 antibodies using a unique in-house assay developed by the University's Clinical Immunology Service in partnership with The Binding Site before undergoing testing to establish the concentration of [vitamin D](#)

Of the 392 workers, over half (55%) had SARS-Cov-2 antibodies, showing that they had been infected with the virus. A total of 61 (or 15.6%) were deficient in vitamin-D with significantly more of these staff coming from from BAME backgrounds or in junior doctor roles. Vitamin D levels were lower in younger and male staff, and those who had a high BMI.

Results also showed that staff who were vitamin D deficient were more likely to report symptoms of body aches and pains, but interestingly, not respiratory symptoms including breathlessness or a continuous cough. Vitamin levels were also lower in staff who reported symptoms of fever. Within the cohort as a whole, there was an increase in seroconversion (or the development of detectable SARS-Cov-2 antibodies) in staff with vitamin D deficiency (72%) compared to those without a deficiency (51%) suggesting that lower vitamin D levels could increase susceptibility to the virus. This was particularly prevalent in the proportion of BAME males who were vitamin D deficient (94%) compared to non-vitamin D deficient BAME males (52%).

Author Professor David Thickett, from the University of Birmingham's Institute of Inflammation and Aging said: "Our study has shown that there is an increased risk of COVID-19 infection in healthcare workers who are deficient in vitamin D. Our data adds to the emerging evidence from studies in the UK and globally that individuals with severe COVID-19 are more vitamin D deficient than those with mild disease. Finally, our results, combined with existing evidence further demonstrates the potential benefits of vitamin D supplementation in individuals at risk of vitamin D deficiency or who are shown to be deficient as a way to potentially alleviate the impact of COVID-19."

The full pre-print paper "Vitamin D status and seroconversion for COVID-19 in UK [healthcare workers](#) who isolated for COVID-19 like symptoms during the 2020 pandemic" is available on MedRxiv.

More information: Aduragbemi A Faniyi et al. Vitamin D status and seroconversion for COVID-19 in UK healthcare workers who isolated for COVID-19 like symptoms during the 2020 pandemic., *medRxiv* (2020). [DOI: 10.1101/2020.10.05.20206706](https://doi.org/10.1101/2020.10.05.20206706)
www.medrxiv.org/content/10.1101/2020.10.05.20206706v1

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