Biology unlikely to drive ethnic differences in COVID-19 risk for healthcare workers

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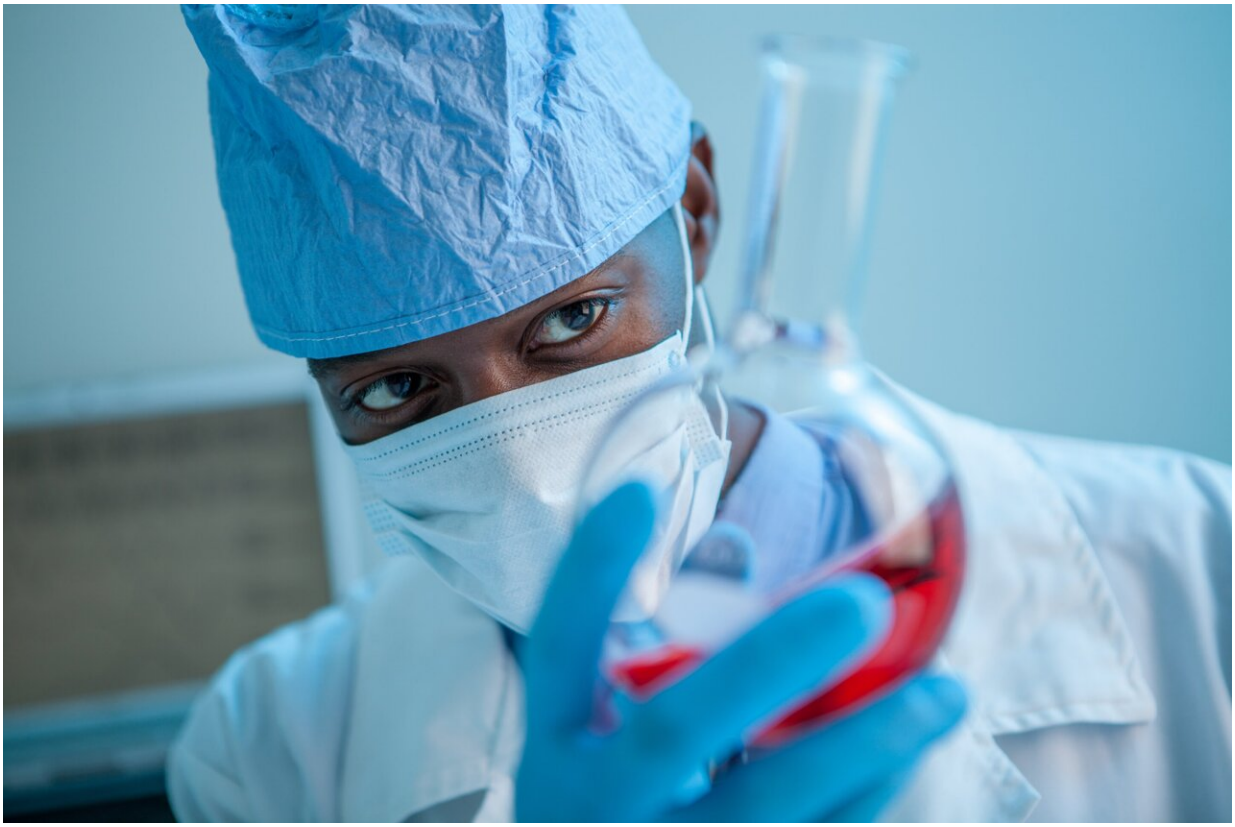

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The differences in COVID-19 infection risk between ethnic minority healthcare workers and their white colleagues is likely due to home and work factors rather than biology, finds the largest and most detailed

study on the subject, co-led by researchers at University College London (UCL).

Previous research has shown that healthcare workers from ethnic minority groups are at a disproportionately higher risk of contracting COVID-19 than their white colleagues. Baseline data from the UK-REACH study confirms this. Out of 10,772 healthcare workers on the study, Black healthcare workers were significantly more likely to have evidence of COVID-19 infection than white healthcare workers.

However, once work factors—such as job role and location, and number of patients with COVID-19 they cared for, and lifestyle factors—such as living with other healthcare workers and age are taken into account, this difference in risk is no longer seen. This implies that such home and lifestyle factors, rather than anything innate/biological, are responsible for driving the disproportionate COVID-19 risk in ethnic minority healthcare workers.

The study, published on the pre-print server MedRxiv and carried out with the University of Leicester and University of Nottingham found that higher risk of infection from COVID-19 in healthcare workers was associated with working in nursing or midwifery, exposure to increasing numbers of patients with COVID-19, lack of access to PPE, living with another key worker, and working in hospital inpatient or ambulance settings.

Additionally, those working in Scotland and South West England were are lower risk of infection compared to healthcare workers in the West Midlands, as were those working in intensive care units (ICU).

Co-author Professor Katherine Woolf (UCL Medical School) said, "It is concerning that Black healthcare workers were at greater risk of reporting COVID-19 infection. Our study suggests that this higher risk

was due to Black healthcare staff being more exposed to the virus at work and/or outside work, rather than because of any inherent biological or genetic factors. These findings underline just how important it is to make sure healthcare workers, especially those working in higher-risk jobs or areas, are given proper protection to reduce their chances of catching COVID-19 including being supported to take up booster vaccines. This is especially important now because the Omicron variant of the virus is much easier to catch than previous variants."

Dr. Manish Pareek, Associate Professor of Infectious Diseases at the National Institute for Health Research (NIHR) Leicester Biomedical Research Centre, and chief investigator for the UK-REACH study, said, "Our study shows the importance of occupational risk and some home life factors. For example it shows a strong association between the number of patients with COVID-19 attended by a healthcare worker and the healthcare worker's risk of infection. This is not in all situations: Where healthcare workers reported lack of access to appropriate PPE at all times their risk of infection was higher than those who did not report access issues. In terms of roles, ambulance workers were at twice the risk of infection compared to those not working in this setting.

"By contrast, those working in ICU settings, where long-sleeve gowns and respirator facemasks are recommended at all times, were at lower risk that those who did not work in this setting. This supports the idea that upgrading PPE standards for all healthcare workers attending COVID-19 patients, regardless of location or type of procedure being done, may have a beneficial impact on reducing infection rates among staff."

Dr. Christopher Martin, Academic Clinical Fellow in Infectious Diseases at University Hospitals of Leicester NHS Trust and first author of the study, said, "We identified key risk factors associated with COVID-19 infection amongst UK healthcare workers—such as younger age, job

role and living with other key workers. Healthcare workers from Black ethnic groups in our study were younger, more likely to work in settings such as inpatient care, more likely to see a higher number of COVID-19 patients and less likely to report access to appropriate PPE at all times than white colleagues. They were also more likely to live with other key workers and in areas of greater deprivation.

"All these factors increase their risk of COVID-19. However, once these factors were accounted for, the difference in infection risk between Black and white healthcare workers was negligible, suggesting that differences in work and home lives of ethnic minority healthcare workers—some of which are linked to inequalities more generally—are driving differing infection rates. These important findings should inform policies, including targeted vaccination strategies and risk assessments aimed at protecting healthcare workers in future waves of the COVID-19 pandemic."

The results are especially timely, given the emergence of the highly infectious Omicron variant of coronavirus, which may be better able to evade vaccine-induced protection against infection, potentially leading to higher number of healthcare workers contracting the disease.

The authors acknowledge that the study has limitations, such as the potential for self-selector bias, meaning that healthcare workers might be more inclined to complete the survey if they felt they had a greater risk of infection, for example. However, the study is the largest and most detailed to date looking specifically at risks for healthcare workers. The sample of 10,772 people is largely representative of the NHS workforce, albeit with fewer ancillary staff, and infection rates reported in the study are in line with those reported in other UK studies.

The results have been published on MedRxiv as a pre-print, which means the findings have yet to be peer-reviewed.

More information: Christopher A. Martin et al, Predictors of SARS-CoV-2 infection in a multi-ethnic cohort of United Kingdom healthcare workers: a prospective nationwide cohort study (UK-REACH), (2021). DOI: 10.1101/2021.12.16.21267934