

NEWS | 09 September 2021

Face masks for COVID pass their largest test yet

A rigorous study finds that surgical masks are highly protective, but cloth masks fall short.

Lynne Peeples



A rickshaw driver and passenger wear masks in Bangladesh. Credit: Maruf Rahman/Eyepix Group/Barcroft Media/Getty

Face masks protect against COVID-19. That's the conclusion of a gold-standard clinical trial in Bangladesh, which backs up the findings of hundreds of previous observational and laboratory studies.¹

Critics of mask mandates have cited the lack of relevant randomized clinical trials, which assign participants at random to either a control group or an intervention group. But the latest finding is based on a randomized trial involving nearly 350,000 people across rural Bangladesh. The study's authors found that surgical masks – but not cloth masks – reduced transmission of SARS-CoV-2 in villages where the research team distributed face masks and promoted their use.

“This really should be the end of the debate,” says Ashley Styczynski, an infectious-disease researcher at Stanford University in California and a co-author of the preprint describing the trial. The research “takes things a step further in terms of scientific rigour”, says Deepak Bhatt, a medical researcher at Harvard Medical School in Boston, Massachusetts, who has published research on masking.

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Styczynski and her colleagues began by developing a [strategy](#) to promote mask wearing, with measures such as reminders from health workers in public places. This ultimately tripled mask usage, from only 13% in control villages to 42% in villages where it was encouraged. The researchers then compared numbers of COVID-19 cases in control villages and the treatment communities.

The team found that the number of symptomatic cases was lower in treatment villages than in control villages. The decrease was a modest 9%, but the researchers suggest that the true risk reduction is probably much greater,

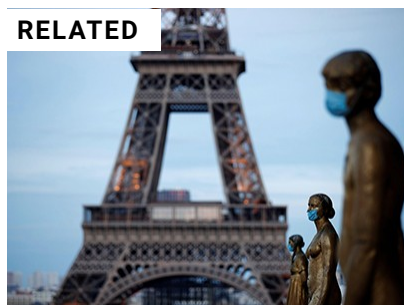
in part because they did no SARS-CoV-2 testing of people without symptoms or whose symptoms did not meet the World Health Organization's definition of the disease.

Material difference

The study linked surgical masks with an 11% drop in risk, compared with a 5% drop for cloth. That finding was reinforced by laboratory experiments whose results are summarized in the same preprint. The data show that even after 10 washes, surgical masks filter out 76% of small particles capable of airborne transmission of SARS-CoV-2, says Mushfiq Mobarak, an economist at Yale University in New Haven, Connecticut, and a co-author of the study. By contrast, the team found that 3-layered cloth masks had a filtration efficiency of only 37% before washing or use.

Neither the laboratory findings nor the mask-trial findings have been peer reviewed.

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The study results prompted Monica Gandhi, an infectious-disease physician at the University of California, San Francisco, to switch from cloth masks. “I bought surgical masks for myself – pink ones,” she says. The only other randomized clinical trial² of masking during the pandemic that has been published to date evaluated the relationship between an individual's infection status and self-reported masking. By

randomizing entire villages, Gandhi says, the latest study improves the assessment of both mask adherence and community-level transmission.

Masks will remain an especially crucial line of defence in Bangladesh and other low- and middle-income countries, where [access to vaccines is limited to non-existent](#). “If this changes the discourse in the US, where masks are being unnecessarily politicized, then that's a bonus,” says Mobarak.

doi: <https://doi.org/10.1038/d41586-021-02457-y>

References

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