

COVID-19 study: face masks and coverings work – act now

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Cloth face coverings, even homemade masks made of the correct material, are effective in reducing the spread of COVID-19—for the wearer and those around them—according to a new study from Oxford's Leverhulme Centre for Demographic Science.

A comprehensive study, the report investigates the effectiveness of different [face mask](#) types and coverings, including an international comparison of policies and [behavioural factors](#) underlying usage.

Professor Melinda Mills, Director of the Leverhulme Centre and author of the study, says, 'The evidence is clear that people should wear [masks](#) to reduce virus transmission and protect themselves, with most countries recommending the public to wear them. Yet clear policy recommendations that the public should broadly wear them has been unclear and inconsistent in some countries such as England.'

Professor Mills' team found that, after the WHO announced the pandemic in mid-March, some 70 countries immediately recommended mask wearing. But more than 120 now require mask wearing—most, everywhere in public.

Asian countries that had previous experiences of the SARS outbreak experienced early and virtually universal mask usage. But, says Professor Mills, many other countries have seen a reversal of behaviour. She maintains, 'There is a general assumption that countries such as the UK, which have no culture or history of mask wearing, will not rapidly adopt them. But this just doesn't hold when we look at the data. As of late April, mask-wearing was up to 84% in Italy, 66% in the US and 64% in Spain, which increased almost immediately after clear policy recommendations and advice was given to the public.'

The study was prompted by the need for a comprehensive systematic literature review of mask wearing—beyond medical research. Professor Mills maintains, 'There has been a blind spot in thinking about the behavioural factors of how the general public responds to wearing masks. Also, by looking at lessons learned about face mask wearing from previous epidemics and other countries, we get a broader and clearer picture.'

The study found:

- Cloth face coverings are effective in protecting the wearer and those around them.
- Behavioural factors are involved, including how people understand the virus and their perceptions of risk, trust in experts and government, can adversely affect mask wearing.
- Face masks need to be seen as part of 'policy packages' with other measures such as social distancing and hand hygiene.
- Clear and consistent policies and public messaging are key to the adoption of wearing face masks and coverings by the general public

Professor Mills says, 'The public is confused about wearing face masks and coverings because they have heard the scientific evidence is inconclusive and advice from the WHO and others has changed. People also feared they might be competing for scarce PPE resources and they need clear advice on what to wear, when to wear them and how to wear them.'

Around the world, the study finds, 'Next to hand washing and social distancing, face masks and coverings are one of the most of widely adopted non-pharmaceutical interventions for reducing the transmission of respiratory infections.'

But, the study shows, some coverings are not as effective as others. Loosely woven fabrics, such as scarves have been shown to be the least effective. Professor Mills says, 'Attention must also be placed on how well it fits on the face; it should loop around the ears or around the back of the neck for better coverage.'

She insists, 'The general public does not need to wear surgical masks or respirators. We find that masks made from high quality material such as

high-grade cotton, multiple layers and particularly hybrid constructions are effective. For instance, combining cotton and silk or flannel provide over 95% filtration, so wearing a mask can protect others.'

Crucially, the report also finds that wearing a cotton mask protects the mask wearer as well—combining all research on cloth masks in a new meta-analysis. But the report finds that face covering policy has been impacted by a lack of clear recommendations, likely because of an 'over-reliance on an evidence-based approach and assertion that evidence was weak due to few conclusive RCT (randomized control trial) results in community settings, discounting high quality non-RCT evidence'.

Professor Mills insists this should not be the sole consideration, 'RCTs don't fit well when looking at behaviour and it was clear that high quality observational and behavioural research had been largely discarded. It is hard to understand why the policy resistance has been so high. There have been no clinical trials of coughing into your elbow, social distancing and quarantine, yet these measures are seen as effective and have been widely adopted.'

By learning from mask-wearing experiences from previous epidemics, such as SARS, H1N1 and MERS, today's review revealed five key behavioural factors underpinning the public's compliance to wearing a mask.

First, people need to understand virus transmission and how masks protect them and others. They need to understand the risks. Professor Mills says, 'We learned from previous pandemics that individuals underestimate their own risks of contracting the virus or transmitting it to others and think that 'it won't happen to me'.'

Socio-political systems, public trust in governments and experts and previous experience with pandemics is also key. The report shows, for

instance, how political polarisation can impede a government's ability to provide a coordinated response.

Individual characteristics are also important with 'younger people and men having a lower threat perception and compliance of interventions'. Professors Mills notes, 'Women have a higher incidence of compliance with public health measures such as wearing face coverings, which may be a contributing factor to the higher COVID-19 deaths amongst men.'

Barriers to wearing face masks were also isolated as paramount including lack of supply of surgical masks and perceived competition with medical resources, resource constraints to obtain coverings and concerns about the comfort and fit of wearing them.

More information: Face masks and coverings for the general public: Behavioural knowledge, effectiveness of cloth coverings and public messaging: [royalsociety.org/-/media/polic ...
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