The Mask Studies You Should Know

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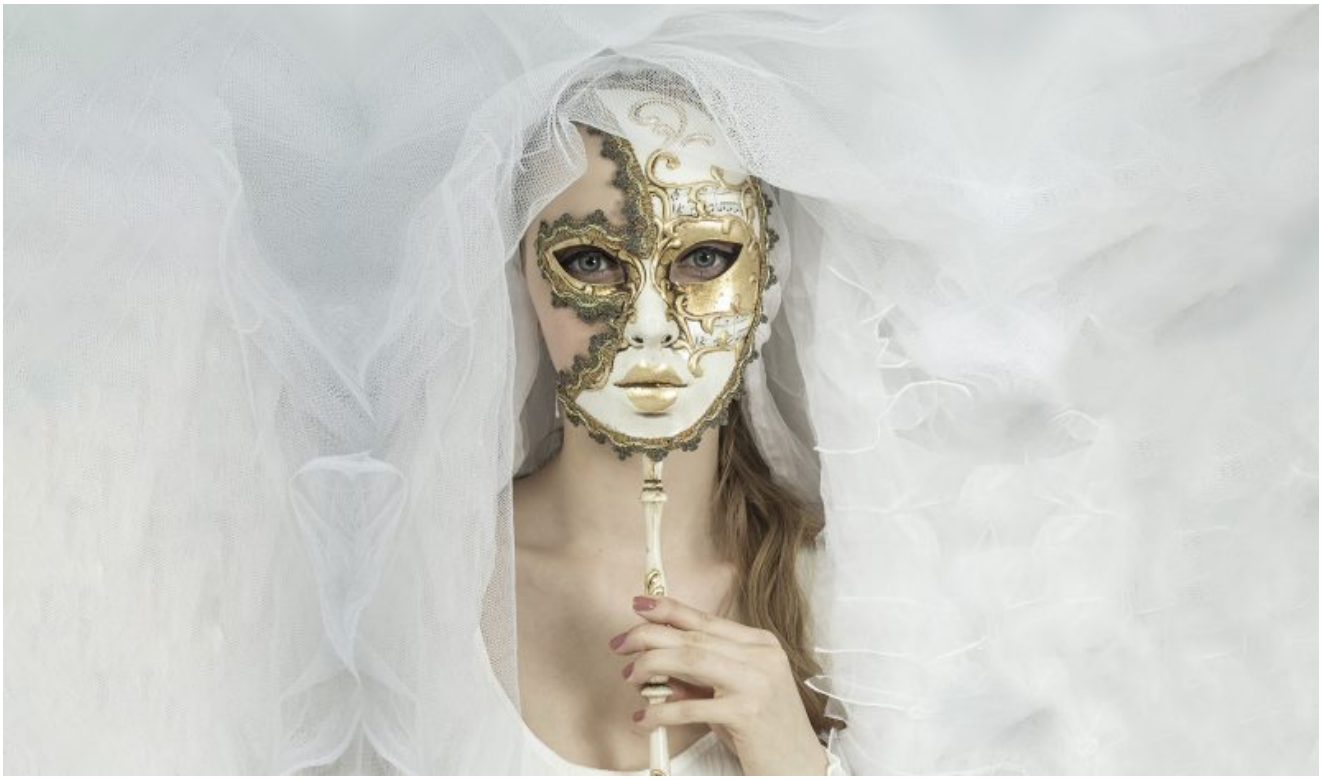
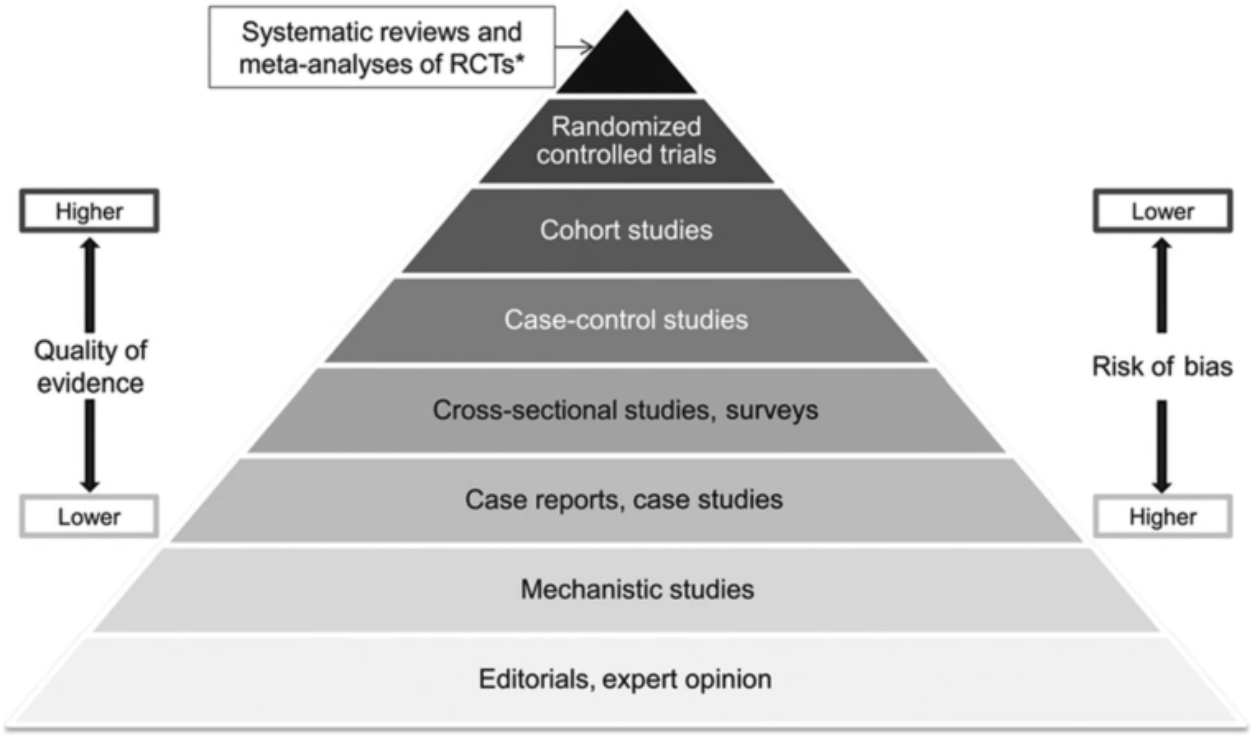


By Josh Stevenson April 21, 2022 April 21, 2022 Masks 11 minute read

First, a primer on the levels of the different levels of quality of research and the “Hierarchy of evidence.” Not all studies are equal in their level of certainty or quality, but the absolute most reliable and most certainty we can get usually comes from Systematic Reviews and Meta-Analysis of Randomized Control Trials.

See the chart below from the Center for Evidence Based Medicine:



Luckily we have the highest possible evidence we can get on the effectiveness of masks. A Systematic Review of Randomized Control Trials. Cochrane Library (widely considered a gold standard in evidence based medicine and medical research), was actually censored for posting their own link to their Systematic Review of Mask evidence.

Cochrane Database of Systemic Reviews: Physical interventions to interrupt or reduce the spread of respiratory viruses

"We included nine trials (of which eight were cluster-RCTs) comparing medical/surgical masks versus no masks to prevent the spread of viral respiratory illness (two trials with healthcare workers and seven in the community). There is low certainty evidence from nine trials (3507 participants) that wearing a mask may make little or no difference to the outcome of influenza-like illness (ILI) compared to not wearing a mask (risk ratio (RR) 0.99, 95% confidence interval (CI) 0.82 to"1.18. There is moderate certainty evidence that wearing a mask probably makes little or no difference to the outcome of laboratory-confirmed influenza compared to not wearing a mask."

Of course this research was collected in the "pre-Covid" era, so some would criticize it just for that reason. However, as much as social media and government sources might want to claim otherwise, there is a boat load of published research on the ineffectiveness of mask mandates, cloth masks, and medical masks, and even mixed results on N95 masks. There's also a lot of published medical research on the harms and downsides of masks, particularly to children.

As far as the evidence for masking, there have been a lot of very bad “studies” that offered no control group or any comparison group at all that have been published during Covid to try to “prove” masks work (Not to mention the mechanistic studies performed in a lab with mannequins). Perfect example would be the recent CDC Studies that were so poorly designed it was pathetic- you might hear people reference these. However, they are easily refutable. Here is a concise refutation from Dr Vinay Prasad on the CDC study, and you can find my previous post with my criticism of the Pediatrics Mask Study here.

Below you will find 10 papers (of more than 150) that describe the lack of effectiveness of Masks and Mask mandates, and 14 papers on the harms and potential harms of masks. I hope these links and summaries can be a valuable reference. As we finally move past this massive psychological experiment, we should address the secondary effects that masks have had on our society, especially our children, and one day actually insist that our government and public health leaders commit to risk/benefit analysis instead of blindly following the urge to “do something.”

Mask Studies

Evidence for Community Cloth Face Masking to Limit the Spread of SARS-CoV-2: A Critical Review

“More than a century after the 1918 influenza pandemic, examination of the efficacy of masks has produced a large volume of mostly low- to moderate-quality evidence that has largely failed to demonstrate their value in most settings. Ideally, high-quality evidence will eventually provide clarification. When repeated attempts are undertaken to demonstrate an expected or desired outcome, there is a risk of declaring the effort resolved once results consistent with preconceived notions are generated, regardless of the number or extent of previous failures”

Effectiveness of Adding a Mask Recommendation to Other Public Health Measures to Prevent SARS-CoV-2 Infection in Danish Mask Wearers

“The recommendation to wear surgical masks to supplement other public health measures did not reduce the SARS-CoV-2 infection rate among wearers by more than 50% in a community with modest infection rates”

“Although the difference observed was not statistically significant, the 95% CIs are compatible with a 46% reduction to a 23% increase in infection.”

N95 Respirators vs Medical Masks for Preventing Influenza Among Health Care Personnel: A Randomized Clinical Trial

“As worn by health care personnel in this trial, use of N95 respirators, compared with medical masks, in the outpatient setting resulted in no significant differencein the rates of laboratory-confirmed influenza.”

New England Journal Of Medicine: Universal Masking in Hospitals in the Covid-19 Era

"We know that wearing a mask outside health care facilities offers little, if any, protection from infection."

"The extent of marginal benefit of universal masking over and above these foundational measures is debatable.

"It is also clear that masks serve symbolic roles. Masks are not only tools, they are also talismans that may help increase health care workers' perceived sense of safety."

A cluster randomised trial of cloth masks compared with medical masks in healthcare workers – British Medical Journal

"The rates of all infection outcomes were highest in the cloth mask arm, with the rate of ILI statistically significantly higher in the cloth mask arm (relative risk (RR)=13.00, 95% CI 1.69 to 100.07) compared with the medical mask arm. Cloth masks also had significantly higher rates of ILI compared with the control arm. An analysis by mask use showed ILI (RR=6.64, 95% CI 1.45 to 28.65) and laboratory-confirmed virus (RR=1.72, 95% CI 1.01 to 2.94) were significantly higher in the cloth masks group compared with the medical masks group. Penetration of cloth masks by particles was almost 97% and medical masks 44%."

Facemask versus No Facemask in Preventing Viral Respiratory Infections During Hajj: A Cluster Randomised Open Label Trial

" In intention-to-treat analysis, facemask use was neither effective against laboratory-confirmed vRTIs (OR 1.35, 95% CI 0.88-2.07) nor against CRI (OR 1.1, 95% CI 0.88-1.39), not even in per-protocol analysis (OR 1.2, 95% CI 0.87-1.69; OR 1.3, 95% CI 0.99-1.83)."

Use of Surgical Masks in the Operating Room: A Review of the Clinical Effectiveness and Guidelines – Canadian Agency for Drugs and Technologies in Health

"No evidence was identified that examined a potential role for surgical face masks in protecting staff from infectious material encountered in the operating room"

Mask Mandates:

SOUTHERN MEDICAL JOURNAL: Analysis of the Effects of COVID-19 Mask Mandates on Hospital Resource Consumption and Mortality at the County Level

"There was no reduction in per-population daily mortality, hospital bed, ICU bed, or ventilator occupancy of COVID-19-positive patients attributable to the implementation of a mask-wearing mandate"

Use of face masks did not impact COVID-19 incidence among 10–12-year-olds in Finland

“We compared the differences in trends of 14-day incidences between Helsinki and Turku among 10–12-year-olds, and for comparison, also among ages 7–9 and 30–49 by using join point regression. According to our analysis, no additional effect seemed to be gained from this, based on comparisons between the cities and between the age groups of the unvaccinated children (10–12 years versus 7–9 years)”

Mask mandate and use efficacy in state-level COVID-19 containment

“Mask mandates and use are not associated with slower state-level COVID-19 spread during COVID25 19 growth surges”

Harms of Masking

CEREBRAL CORTEX: Reading Covered Faces

“ Au fait research on reading covered faces reveals that: 1) wearing masks hampers facial affect recognition, though it leaves reliable inferring basic emotional expressions; 2) by buffering facial affect, masks lead to narrowing of emotional spectrum and dampen veridical evaluation of counterparts; 3) masks may affect perceived face attractiveness; 4) covered (either by masks or other veils) faces have a certain signal function introducing perceptual biases and prejudices; 5) reading covered faces is gender- and age-specific, being more challenging for males and more variable even in healthy aging; 6) the hampering effects of masks on social cognition occur over the globe; and 7) reading covered faces is likely to be supported by the large-scale assemblies of the neural circuits far beyond the social brain.”

Masking Emotions: Face Masks Impair How We Read Emotions

“The main insight of the present research is that face masks’ use influences emotion inference from faces for all ages and especially for toddlers.”

Making pre-school children wear masks is bad public health

“In summary, the benefits of masking pre-school children are unclear but are probably too small to make a major difference to individuals risks from SARS-CoV-2 or epidemic control (even before considering variable likely compliance amongst toddlers). In contrast, the harms of this policy are likely to be damaging, potentially considerably so. Given this, and the influence that the CDC and Dr Fauci have both in the US and globally, we believe an urgent re-consideration of this policy is needed”

Little evidence for facemask use in children against COVID-19

“Face masks also have potential disadvantages, such as hindering verbal and non-verbal communication. There is a risk that children will keep touching their masks and actually increase the viral load on their hands. Using face masks also risks replacing social distancing, as some parents may be tempted to send their children to school or daycare

wearing a mask if they have minor symptoms rather than keeping them at home. Finally, the commercially made masks that are currently available, especially the N95 masks that are said to offer greater protection, rarely fit children. Hence the use of such masks might lead to a false sense of safety, despite leaking viruses due to their poor fit. However, the most important drawback of face masks in children may well be that their use could reduce the focus from other measures that may be more important, such as hand washing, social distancing and staying at home when they are sick."

Wearing N95, Surgical, and Cloth Face Masks Compromises the Perception of Emotion

"Across conditions, participants perceived significantly lower levels of the expressed (target) emotion in masked faces, and this was particularly true for expressions composed of more facial action in the lower part of the face. Higher levels of other (non-target) emotions were also perceived in masked expressions. In the second study, participants rated the extent to which three categories of smiles (reward, affiliation, and dominance) conveyed positive feelings, reassurance, and superiority, respectively. Masked smiles communicated less of the target signal than unmasked smiles, but not more of other possible signals. The present work extends recent studies of the effects of masked faces on the perception of emotion in its novel use of dynamic facial expressions (as opposed to still images) and the investigation of different types of smiles."

Face Masks Impair Basic Emotion Recognition

"These main effects indicated that emotion recognition was significantly reduced overall when faces wore masks (M = 0.52, SE = 0.007) relative to when they did not (M = 0.75, SE = 0.007) with this reduction evident across all emotions"

Facial masks affect emotion recognition in the general population and individuals with autistic traits

"Results showed that the ability to identify all facial expressions decreased when faces were masked, a finding observed across all three studies, contradicting previous research on fear, sad, and neutral expressions. Participants were also less confident in their judgements for all emotions, supporting previous research; and participants perceived emotions as less expressive in the mask condition compared to the unmasked condition, a finding novel to the literature. An additional novel finding was that participants with higher scores on the AQ-10 were less accurate and less confident overall in facial expression recognition, as well as perceiving expressions as less intense. Our findings reveal that wearing face masks decreases facial expression recognition, confidence in expression identification, as well as the perception of intensity for all expressions, affecting high-scoring AQ-10 individuals more than low-scoring individuals."

Impact of Face Masks on Audiovisual Word Recognition in Young Children with Hearing Loss During the Covid-19 Pandemic

“Standard surgical and custom apron shield masks significantly hampered word recognition, even in quiet conditions.”

Face masks reduce emotion-recognition accuracy and perceived closeness

“Our preregistered study with 191 German adults revealed that face masks diminish people’s ability to accurately categorize an emotion expression and make target persons appear less close. Exploratory analyses further revealed that face masks buffered the negative effect of negative (vs. non-negative) emotion expressions on perceptions of trustworthiness, likability, and closeness.”

Pilot study on burden of fungal contamination in face masks: need for better mask hygiene in the COVID-19 era

“High rates of fungal contamination observed in our study emphasizes the need for better mask hygiene in the COVID-19 era”

Short report on the effects of SARS-CoV-2 face protective equipment on verbal communication

“The use of face personal protective equipment causes significant verbal communication issues. Healthcare workers, school-aged children, and people affected by voice and hearing disorders may represent specific at-risk groups for impaired speech intelligibility.”

Titanium dioxide particles frequently present in face masks intended for general use require regulatory control

“However, the warning of Palmeiri et al.5 for the possible future consequences caused by a poorly regulated use of nanotechnology in textiles should be extended to face masks where TiO2 particles are applied conventionally, as a white colorant or as a matting agent, or to assure durability reducing polymer breakdown by ultraviolet light3,4. These properties are not critical for the functioning of face masks, and synthetic fibers suitable for face mask can be produced without TiO229 as was observed in the layers of several masks (Table 1). Moreover, uncertainties regarding the genotoxicity of TiO2 particles remain14. Therefore, these results urge for the implementation of regulatory standards phasing out or limiting the amount of TiO2 particles, according to the ‘safe-by-design’ principle.”

Need for assessing the inhalation of micro(nano)plastic debris shed from masks, respirators, and home-made face coverings during the COVID-19 pandemic

“the risk of inhaling plastic microfibers, particles, and fragments from the inside of masks and respirators has only been anecdotally examined”

Use of face mask by blood donors during the COVID-19 pandemic: Impact on donor hemoglobin concentration: A bane or a boon

“This study including 19504 blood donors spanning over one and a half year shows that prolonged use of face mask by blood donors may lead to intermittent hypoxia and consequent increase in hemoglobin mass”

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Josh lives in Nashville Tennessee and is a data visualization expert who focuses on creating easy to understand charts and dashboards with data. Throughout the pandemic, he has provided analysis to support local advocacy groups for in-person learning and other rational, data-driven covid policies. His background is in computer systems engineering & consulting, and his Bachelor’s degree is in Audio Engineering. His work can be found on his substack “Relevant Data.”

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