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**RAPID REPORTS AND PERSPECTIVES FROM THE FIELD****Unmasking reasons for face mask resistance**Ivry Zagury-Orly<sup>1</sup><sup>1</sup> Faculty of Medicine, Université de Montréal, Montreal, Quebec, Canada

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The relaxing of physical distancing has resulted in a spike of cases in several American states (1). In a recent systematic review and meta-analysis in the *Lancet* (2), Chu and colleagues suggest that while waiting for an effective vaccine, a combination of interventions, including physical distancing and mask use, are needed to reduce aerosol transmissions of SARS-CoV-2—the virus responsible for coronavirus 2019 disease (COVID-19) (3). Notably, states who mandated the use of face masks in the community, in addition to other existing interventions, saw a significant decline in the daily increase of COVID-19 transmission (4). Mass masking may protect well wearers and reduce transmission from infected individuals who show no symptoms (5): asymptomatic or the highly infectious presymptomatic (6); distinguishing between both remains a challenge (7). Yet, face masking is subject to variable levels of uptake and adherence. Many possible factors are contributing to this.

First, it's the image that a mask wearer portrays. Consistent with studies in the prior coronavirus pandemic (SARS-CoV) on gender and the likelihood of adopting preventative measures, a recent study revealed that males are less likely than females to wear masks (8), as wearing a mask is “not manly.” Also, men tend to perceive themselves as less susceptible to contracting the disease and its health-related consequences (8).

Another reason for not wearing masks is culture. Individuals belonging to East Asian, collectivist cultures, whose social norms promote selflessness and widespread mask use, may feel guilty and discriminated against for not masking to fulfill their civic duty to protect others (9). Contrarily, in Western, individualistic cultures, people may be resistant to masking for fear of being stigmatized for appearing weak or for looking ill. Xenophobia against people from China, who originate from the assumed source of the current and previous coronavirus pandemics, is yet another reason (9).

Biases may also play a role. During this situation of coronavirus-related fear and uncertainty, we are prone to making errors in our decision-making, falling prey to a wide range of cognitive biases (10). Socially, there is groupthink phenomenon and a desire for conformity, resulting in dysfunctional judgments, including the bandwagon bias—when we tend to *do* or not *do* something because it is the norm (11). Similarly, uncertainty leads us to use the principle of social proof

(12); in our efforts to determine the appropriate behavior in a given situation, we assume others *know* best: “I was planning to wear my mask, but I noticed most people weren't wearing theirs. They must have a good reason—no need to wear mine.”

In addition to social biases, we as individuals make unconscious and deliberately erroneous judgments regarding mask use as well. For example, the reactance bias (13), where individuals are intentionally not wearing a mask out of a perceived attack to their freedom. This perception of constraint has become a political issue in America, but this is not unprecedented. In 1918, the first wave of the influenza virus hit America. Confinement and face masks were imposed by the health department (14). When the curve flattened, mask regulations were lifted, and the number of cases spiked, leading to a second, deadlier wave (15). The public health requirement on wearing face masks was re-established, and the 1919 anti-mask league was born, protesting against the so-called “Unhealthy Mask Ordinance” for constraining their freedom (14).

The influence of health agencies and entrenched views of these agencies also play a role in mask non-adherence. The WHO and the US Center for Disease Control (CDC) and Prevention have issued conflicting messages regarding the use of face masks (16). The WHO has actively discouraged community mask use, and following the publication of its own commissioned study (2), reluctantly recommended community mask use in crowded settings where physical distancing is not possible (17). The US CDC shifted from actively recommending against community mask use to recommending it, and several states have now mandated community mask use across the US (4). These inconsistent communications have likely contributed to common thinking flaws such as the anchoring bias (18)—where people rely too heavily, or *anchor*, on initial reports—or confirmation bias (19)—our tendency to preferentially recall information which confirms our assumptions. We may think, “I don't think I am going to catch the virus at my grocery store, so I'm not going to wear my mask. Anyway, the CDC didn't even recommend masks until this month, so it's probably not that important.”

It is indisputable that the use of anecdotal evidence in administering unproven drugs, without reasonable evidence of effectiveness poses important scientific and

ethical concerns (10). Yet these concerns are not analogous to precautionary measures like face masking. Face masking not only poses *no* threat to science or ethics but is, in fact, altruistic; we wear a mask to protect others, and others wear a mask to protect us (20). Moreover, the use of masks is potentially effective and cheap (21). Mass masking in the community (at least 70%) using high efficacy masks, such as surgical masks, could lead to COVID-19 elimination, and using low efficacy masks (home-made), may still have some impact on the disease burden, depending on the quality of the mask (22). Masks do not violate our freedom; as Nassim Nicholas Taleb suggests, “the entire concept of liberty lies in the Non-Aggression Principle ... [to] not harm others” (23). If wearing a mask is harmless to oneself, benefits others, and can reduce the spread of the disease, the decision should be simple. Yet the WHO and other agencies use negative messaging, that mask use will make people take risks, forget to wash their hands, or stop physical distancing. There is no evidence to support this—in fact, the evidence shows the opposite, that masks protect (2). Such arguments are commonly used against other public health interventions such as HPV vaccination—that vaccination will encourage promiscuity. Yet there is no evidence this is the case (24).

Recognizing why people may be resistant to wearing masks is the first, critical step to ensure the adherence to face masking. We are influenced by the culture we live in; we fall prey to biases and misinterpretations in our decision-making. Halting a pandemic requires collective, altruistic efforts from every individual, critical thinking, risk communication, and health promotion that engages the community and addresses their concerns.

### Competing Interests

The author has no competing interests to declare.

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