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Best practice guidelines

To wear or not to wear? Adherence to face mask use during the COVID-19 and Spanish influenza pandemics

ABSTRACT

During the COVID-19 pandemic, face masks have been employed as a public and personal health control measure against the spread of SARS-CoV-2. Their use is intended as personal protection to prevent infection and as source control to limit transmission of the virus in a community or healthcare setting. Yet the wearing of masks has become a catalyst for political conflict, an arena where scientific evidence is often viewed through a partisan lens. The way that anti-maskers chafe at the mask requirement evokes a time when people were advised to wear a mask during the 1918 pandemic. As the Spanish flu swept through the world causing global devastation in 1918 and 1919, face masks became ubiquitous to help in preventing the spread of disease. A century apart, medical authorities urged and urge the wearing of masks to help slow the spread of disease. Nonetheless, people were and remain resistant to this simple and common sense advice. The purpose of this article is twofold: to provide a brief literature review on the unequivocal scientific evidence that masks reduce community transmission in view of the current pandemic, review mask use in children and to compare and contrast attitudes to mask wearing during the Spanish flu and the COVID-19 pandemic, and analyse where these attitudes stem from.

1. Introduction

More than a century ago, as the 1918 influenza pandemic raged in the United States, masks of gauze and cheesecloth became the facial frontlines in the battle against the virus. However, similar to what is currently happening amid the global COVID-19 pandemic, the use of masks also stoked political division. A century apart, medical authorities urged and urge the wearing of masks to help slow the spread of disease. Nonetheless, people were and remain resistant to this simple and common sense advice. The purpose of this article is twofold: to provide a brief literature review on the unequivocal scientific evidence that masks reduce community transmission in view of the current pandemic, to compare and contrast attitudes to mask wearing during the Spanish flu and the COVID-19 pandemic, and analyse where these attitudes stem from.

2. Masks and community transmission

As of July 2020, COVID-19 has infected more than sixteen million individuals worldwide and caused over 600,000 deaths [1]. In the absence of a vaccine, reducing transmission of the virus by social distancing, hand hygiene and use of masks remain paramount. However, the use of face masks by the public remains a contentious topic due to the politicisation of discourse and decision making [1]. At the beginning of the pandemic the World Health Organization (WHO) advised against the use of facemasks by the public as it feared that potential risks, such as self-contamination, could outweigh the possible benefits, and that public use would lead to a depletion of the supply needed for health-care workers [1].

While scientists and health professionals alike had very little knowledge about the disease at the beginning of the pandemic, they are currently trying to keep abreast with the plethora of research publications being churned out. There is now unequivocal scientific evidence that masks reduce community transmission. Until recently, it was thought that the virus could only be transmitted by droplets that are coughed or sneezed out or by contaminated fomites [2]. Airborne transmission of COVID-19 was considered possible only when aerosol generating procedures, such as intubation, bronchoscopy and positive-pressure ventilation were performed [2]. However, other studies demonstrate that the virus is present in exhaled air.

Due to the large proportion of asymptomatic COVID-19 patients who are unaware of their own infection, the universal use of face masks as a means of source control in public places is strongly advocated. Universal use of masks in public complements social distancing and hand hygiene in containing or slowing down the otherwise exponential growth of the pandemic [2].

A review and meta-analysis funded by the World Health Organization examined data from 172 studies from sixteen countries and six continents. The results show that without a mask, the risk of transmitting COVID-19 is 17.4%, while with an N95 respirator or face mask, the number drops to 3.1% [3]. The findings support the contention that masks in general are associated with a large reduction in risk of infection from COVID-19 and similar viruses such as SARS-CoV, and MERS-CoV. Another study conducted by the US Navy’s Bureau of Medicine and

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the Centers for Disease Control and Prevention found that these preventative measures also lowered the infection rate among sailors on board the aircraft carrier the USS Theodore Roosevelt. Sailors who did not wear masks experienced an 80.8% infection rate, while those who used face coverings had a 55.8% infection rate. People who did not follow social distancing guidelines fell sick at a rate of 70% versus 54.7% for those who stayed around six feet away from others [4]. Moreover, sailors who used common areas reported an infection rate of 67.5% while those who avoided these same spaces saw a 53.8% infection rate. Clearly, the use of face coverings and other preventive measures could mitigate transmission in similar settings [4].

Such findings are also echoed by a British study which concluded that lockdowns alone cannot prevent surges in coronavirus cases and deaths. In this study led by scientists at the Britain’s Cambridge and Greenwich Universities, researchers found that routine face mask use by 50% or more of the population reduced COVID-19 spread to an R of less than 1.0, flattened future disease waves and allowed for less stringent lockdowns [5]. The findings therefore support the immediate and universal adoption of face masks by the public. Combining widespread mask use with social distancing and lockdown measures could be “an acceptable way of managing the pandemic and re-opening economic activity” [5]. This is also substantiated by the WHO which now declares that the use of masks alone is insufficient to provide an adequate level of protection or source control, and other personal and community level measures should also be adopted to suppress transmission of respiratory viruses [6]. Whether or not masks are used, compliance with hand hygiene, physical distancing and other infection prevention and control measures are critical to reduce human-to-human transmission of COVID-19. Masks must therefore be viewed not as an alternative, but as complementary to other public health control measures.

3. The use of masks in children

Currently, the extent to which children contribute to transmission of COVID-19 is not completely understood. According to the limited available evidence, young children may have lower susceptibility to infection compared to adults [7], however available data suggests that this may vary by age among children [8]. Older children (teenagers) may play a more active role in transmission than younger children [7,8]. Indeed, the benefits and harm of children wearing masks to mitigate transmission of COVID-19 and other coronaviruses is also limited. However, findings from studies which have evaluated the effectiveness of mask use in children for influenza and other respiratory viruses, suggested that children between five and eleven years old were significantly less protected by mask wearing compared to adults, possibly related to inferior mask fit and overall compliance with consistent mask wearing, especially among children under the age of fifteen [9]. Therefore the benefits of wearing masks in children for COVID-19 control should be weighed against potential harm associated with wearing masks, including feasibility and discomfort, as well as social and communication concerns. Other factors also come into play including age groups, sociocultural and contextual considerations and availability of adult supervision. The dearth of research calls for an urgent need for data from high quality prospective studies in different settings on the role of children and adolescents in transmission of COVID-19 [10], and on ways to improve acceptance and compliance of mask use and on the effectiveness of masks use in children. Particular emphasis must be placed on studies in schools in low- and middle-income settings.

The WHO also recommends that key information should be collected on a regular basis to accompany and monitor this intervention if mask wearing is made mandatory in children. Monitoring and evaluation should be established from the outset and should include indicators that measure the impact on the child’s health, including mental health; reduction in transmission of COVID-19; motivators and barriers to mask wearing; secondary impacts on a child’s development learning; and impact on children with developmental delays, health conditions, disabilities or other vulnerabilities. The importance of strategies on communication; training and support to teachers, educators, and parents; engagement activities for children; and distribution of materials that empower children to use masks appropriately is also important.

4. The public’s response to mask wearing during a pandemic

A related issue to compliance is the understanding of whether face masks are used for individual protection against contracting the virus versus wearing one to protect others. The manner in which individuals in the community respond to the threat of a respiratory infection is influenced by their beliefs about the efficacy of the intervention and perceived costs of protective behaviours [11]. Behavioural change is highly contingent on the communication of risk, individual appraisal of risk and the perceived ability to make the change [12]. A central challenge to the use of masks is that many individuals view themselves as less vulnerable than others, generally underestimate health risks, or have only a limited awareness of actions that pose a health risk [12]. The advice to wear a mask in public in order to protect both yourself and fellow citizens from COVID-19 is straightforward and evidence-based. Yet the use of masks has become a catalyst for political conflict, an arena where scientific evidence is often viewed through a partisan lens. The fight over masks is playing out against a backdrop of health crisis that has reached historical levels. According to the WHO, more than five million people in the US have tested positive for the virus, and at least 170,640 people have died [13]. Yet, the divide between those who wear masks and the anti-maskers has become increasingly sharp. The latter defend their position, are deeply distrustful of those who advocate mask wearing and blame them for the nation’s economic and public-health crisis [14].

The way that anti-maskers chafe at mask requirement evokes a time when people were advised to wear a mask during the 1918 pandemic. As the Spanish flu swept through the world causing global devastation in 1918 and 1919, face masks became ubiquitous to help in preventing the spread of disease [15]. However, many refused to wear them, claiming that government-mandated mask enforcement violated their civil liberties. An “Anti-Mask League” was even formed in San Francisco to protest the legislation [16]. According to a 2010 report, men needed more convincing than did women to heed the advice of public health officials, as they associated masks with femininity [17]. More worryingly, behaviours like spitting, careless coughing and otherwise dismissal of hygiene made men the “weak links in hygiene discipline” during the 1918 pandemic. Many of the advertisements and public health messages during the 1918 pandemic encouraging the public to practice good hygiene therefore depicted men and young boys.

In 1918, as in 2020, Americans responded to mask regulations with behaviours ranging from eager compliance, to indifferent neglect, to open defiance. The arrest of individuals for defying the mask ordinance in San Francisco received the most attention, highlighting the confrontation between policy mandates and individual actions [18]. This incident raises questions on how representative these defiant actions were among the population as a whole and why. Reports by newspapers show that defiance of the mask ordinance was justified by claims that masks themselves were unsafe or not healthy. Although the sources do not provide detailed information about the social status of those who resisted mask wearing, the available evidence suggests that they probably represented a range of occupations, but were more likely to come from lower-middle social strata that included mechanics, conductors or clerks. The mask backlash of 1918 teaches us the importance of situating individual behaviour in the context of the COVID-19 pandemic [18]. Problematically, the behaviours associated with preventing the spread of the virus are difficult to adhere to, as they include vigilant hand-washing, donning facial masks, and most disruptively, practicing extreme social distancing measures. This makes it challenging for public health officials to create messages that are effective in motivating behaviour change. Understanding the science of human behaviour thus
becomes crucial in this scenario [18].

Adherence is based on three concepts: individualism versus collectivism; trust versus fear; and obeying social distance rules. Jay Van Bavel opines that some countries tend to be higher on individualism [19]. People in individualist cultures tend to reject rules and ignore attempts by public health authorities to “nudge” behaviour change with risk messages or appeals for altruism. On the other hand, in collectivist cultures, people are more likely to do what is deemed best for society. Trust and fear are also significant influences on human behaviour [19]. In countries with political division, people are less likely to trust advice from one side or the other and they are more likely to form pro- and anti-camps. This may also undermine advice issued by public health professionals. The last and most difficult to attain is social distancing.

5. Shifting the narrative

To cultivate an ingrained sense of responsibility and civic duty, it must be acknowledged that adherence to face mask use needs to be grounded in the social and cultural practices and realities of affected communities. Campaigns should not only inform, but also work to shape new sociocultural norms [26]. Wearing to need to be depicted as altruistic or even as protectors as this could create a new symbolism around wearing masks that is based on social responsibility and solidarity against a common threat [27].

In order to change the cultural narrative, however, new meanings of socially constructed deviance need to be generated [28]. As a community adopts face coverings, the first members wearing a face covering will be seen as deviant, but later those without coverings become deviants from the new norm [29]. Social norms around how deviance is tolerated are likely to vary between a society’s tightness (for example, Singapore) and looseness (for example, Brazil) and can contribute to learning through the behaviour of others [30]. Drawing on existing social and behavioural science research of previous respiratory epidemics, such as the 1918 pandemic, is therefore key [31].

6. Conclusion

Protracted debates about face coverings as a medical intervention have delayed implementation of a valuable preventive tool. Now that most countries have shifted to support face coverings to reduce disease transmission, we must also shift the focus to implementation. Instead of continuing to debate technical specifications and efficacy, sociocultural framings should be explored to encourage their use. This can be done by emphasizing underlying values such as solidarity and communal safety. Drawing on past knowledge on public behaviour during earlier pandemics, such as the 1918 pandemic, can also shed light on the causes of non-adherence and dissent in facemask use. Such measures are likely to enhance the uptake of face coverings and help curb the devastating impact of the pandemic.

Declarations

No funding was required for this project.

There are no conflicts of interest, actual or potential.

No human subjects were involved so no ethical approval or data protection was applied for.

No consent was needed.

We give consent for publication of this article.

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