

Protection, freedom, stigma: a critical discourse analysis of face masks in the first wave of the COVID-19 pandemic and implications for medical education

Protection, liberté, stigmatisation : une analyse critique du discours sur le port du masque lors de la première vague de la pandémie de COVID-19 et de ses implications pour l'enseignement médical

Ran Huo,¹ Maria Athina Martimianakis²

¹Faculty of Medicine, University of Calgary, Alberta, Canada, ²Department of Paediatrics, Wilson Centre for Research in Education, Faculty of Medicine, University of Toronto, Ontario, Canada

Correspondence to: Ran Huo, 3330 Hospital Dr NW, Calgary, AB T2N 4N1; email: ran.huo@albertahealthservices.ca

Edited by: Marcel D'Eon (editor-in-chief)

Published ahead of issue: Feb 22, 2023; published: Dec 30, 2023. CMEJ 2023 14(6) Available at <https://doi.org/10.36834/cmej.73155>

© 2023 Huo, Martimianakis; licensee Synergies Partners. This is an Open Journal Systems article distributed under the terms of the Creative Commons Attribution License. (<https://creativecommons.org/licenses/by-nc-nd/4.0>) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is Accessed on.

Abstract

Background: The COVID-19 pandemic has spotlighted the face mask as an intricate object constructed through the uptake of varied and sometimes competing discourses. We investigated how the concept of face mask was discursively deployed during the first phase of the COVID-19 pandemic. By examining the different discourses surrounding the use of face masks in public domain texts, we comment on important educational opportunities for medical education.

Method: We applied critical discourse methodology to look for key phrases related to face masks that can be linked to specific socio-economic and educational practices. We created an archive of 171 English and Mandarin texts spanning the period of February to July 2020 to explore how discourses in Canada related to discourses of mask use in China, where the pandemic was first observed. We analyzed how the uptake of discourses related to masks was rationalized during the first phase of the pandemic and identified practices/processes that were made possible.

Results: While the face mask was initially constructed as personal protective equipment, it quickly became a discursive object for rights and freedoms, an icon for personal expression of political views and social identities, and a symbol of stigma that reinforced illness, deviance, anonymity, or fear.

Conclusion: Discourses related to face masks have been observed in public and institutional responses to the pandemic in the first wave. Finding from this research reinforce the need for medical schools to incorporate a broader socio-political appreciation of the role of masks in healthcare when training for pandemic responses.

Résumé

Contexte : La pandémie de la COVID-19 a mis en lumière le masque facial comme sujet complexe, construit par des discours variés et parfois contradictoires. Nous avons étudié la manière dont le concept du masque a été déployé discursivement pendant la première phase de la pandémie, notamment en examinant les différents discours entourant son utilisation dans des textes du domaine public, tout en relevant d'importantes perspectives pédagogiques qui en découlent pour l'éducation médicale.

Méthode : Adoptant l'approche de l'analyse critique du discours, nous avons dégagé des énoncés clés qui peuvent être liés à des pratiques socio-économiques et éducatives précises. Nous avons créé une archive de 171 textes en anglais et en mandarin couvrant la période de février à juillet 2020 afin de comparer les discours sur le port du masque au Canada et en Chine, où la pandémie a été observée pour la première fois. Nous avons analysé la rationalisation du port du masque par le discours, ainsi que les pratiques et procédures qu'elle a permis de mettre en place lors de la première vague de la pandémie.

Résultats : Alors qu'au départ, le masque était destiné à servir d'équipement de protection individuelle, il est rapidement devenu un objet discursif lié aux droits et libertés, un étendard du droit de la personne d'exprimer ses opinions politiques et son identité sociale, et un symbole de la stigmatisation qui renforçait la maladie, la déviance, l'anonymat ou la peur.

Conclusion : L'analyse des discours relatifs au port du masque observés dans les réponses publiques et institutionnelles à la première vague de la COVID-19 confirme la nécessité pour les facultés de médecine d'intégrer dans l'enseignement de la gestion pandémique une appréciation sociopolitique plus large du rôle du masque en santé.

Introduction

Throughout history and across the globe, face coverings, including masks, have played various roles in people's lives: to disguise, to protect, to signal values and membership in groups, as a source of profit, and as a commodity of fashion.¹ In 1910, physician Wu Liande developed masks for healthcare professionals (HCPs) and the public to prevent the spread of disease. This first appearance of face masks in the modern medical sense, has evolved to today's central role of masking as part of donning personal protection equipment (PPE).^{2,3} The use of masks by the broader public for health reasons can be traced back to the 17th century when it became common in Britain to wear smog masks¹ filled with perfume and aromatics. In efforts to contain contagion, face masks were encouraged by health officials in Manchuria around 1910⁴ and were widely adopted during the SARS epidemic in 2002.⁵ California in the US, Alberta in Canada, and New South Wales in Australia had mask wearing policies in 1918.⁶ Yet despite their use worldwide, the mandated wearing of face masks has had mixed social and political reactions.⁷ The Anti-Mask League of San Francisco, for example, protested against wearing facemasks during the 1918 influenza pandemic, on the two premises. First, they argued that there was a lack of scientific evidence that masking would prevent illness; and second, that forcing people to wear the coverings was unconstitutional.⁸ Hong Kong residents was deterred from wearing face masks in 2014 so that they would not be perceived as protesters who often wore mask for anonymity during the Umbrella Movement, to avoid political backlash.⁹ Most recently, the COVID-19 pandemic has placed the face mask at the eye of the storm as a complicated object constructed through the uptake of varied and sometimes controversial arguments related to the role of face coverings in the prevention and spread of COVID-19.^{1,10}

Indeed, since the beginning of the pandemic, there have been numerous publications on the efficacy of face masks from a disease-preventing perspective,^{11,12} and several scholars have explored meaning making related to coverings.^{7,13,14} However, the face mask as a discursive object, a symbol of broader moral-ethical arguments related to the role of individuals and governments in pandemic responses, has received little attention. This paper documents the emergence of masks as central to COVID-19 discourses during the first phase of the COVID-19 pandemic. Our analysis considers contemporary assumptions, values, and societal norms reproduced in

debates surrounding the use of masks. By examining the discourses surrounding propositions for using or not using face masks in public media sources we also relate the concept of masking to broader socio-political dimensions of government responses to the pandemic.^{2,15} We end with implications for medical education.^{16,17}

Method

Study design

Critical discourse analysis (CDA) is a useful methodological approach for understanding how "practices systematically form the objects of which they speak."¹⁸ It allows scholars to capture shifts in meaning associated with the embodiment and normalization of different rationales in the governing of people and their conduct.¹⁹ We studied the face mask as a discursive object in the Foucauldian sense²⁰⁻²³ and explored the "inter-related sets of texts and practices of their production dissemination and reception"²⁴ that make possible the idea of using or not using masks in relation the COVID 19 pandemic. We documented how different moral-ethical ideas about face masks were taken up by different actors to be embodied and enacted or resisted.²⁴ We also explored how the discourses of face masks were reproduced in media coverage of the pandemic and sought to understand how mask wearing factors into public health and healthcare institutions' policies and practices related to the pandemic.

Data collection

We built an archive of publicly available texts on face masks. The systematic collection of documents analyzed in this study was a continuous and iterative process. We performed an Internet search by combining text words such as face mask, face coverings, masks, etc., on search engines including Google and Baidu. We limited the archive to texts published during phase one of the Canadian pandemic (February 2020 – July 2020). We applied an upper limit of 200 texts which allowed us to track patterns and trends in public domain discourse related to masks. We included English language and Mandarin texts, to explore how discourses in Canada relate to discourses of mask use in China, where the pandemic was initially observed.

We included texts based on their relation to mask use in the COVID-19 pandemic. The first author (RH) reviewed all texts to ascertain if they fell within the limits described above. We included texts that referenced social, cultural, economic, religious, and political practices associated with masks and facial coverings during the first wave of the pandemic in Canada. RH is a native Mandarin and English

speaker, so collected and analyzed both Mandarin and English texts. If a Mandarin text was perceived to fall within the scope of this project or was somewhat related, we translated the Mandarin text using online translation software, and then discussed with the other reviewer (MM) until consensus was reached about their inclusion and meaning. Consistent with tenets of CDA we searched for representative texts and stopped collecting texts reproducing a particular way of speaking about masks once we noted that this discursive narrative was being reproduced with regularity. Based on these inclusion and exclusion criteria, we included 171 texts in our final archive (available upon request). Demographic information on the texts including date of publication, language, and country of publication is summarized in Table 1 and Table 2.

Table 1. The number of publications based on their country, language, and date of publication. In total, 171 texts are included. Most texts are collected April to May 2020.

Publication Country (language)	Feb	Mar	Apr	May	Jun	Jul	Total
Canada (English)	0	5	11	29	3	4	52
USA (English)	0	11	34	24	2	2	73
China (Chinese)	7	12	7	7	3	1	37
Other (English)	0	1	4	4	0	0	9
Total	7	29	56	64	8	7	171

Table 2. The main media sources of the included texts are The New York Times, CBC, Toronto Star, Sina Corporation, and Xinhua News Agency. The included texts are from a wide range of media platforms.

Source	Number Of Publications
The New York Times	28
Canadian Broadcasting Corporation (CBC)	12
Toronto Star	21
Sina Corporation	10
Xinhua News Agency	9
Other	91
Total	171

Data analysis

During the initial phases of analysis, we tracked the perceived role of the face mask reproduced in the text by noting the speaker and any subject positions they represented (patient, health care provider, advocate etc.), the language, and the purpose of referencing masks in the text. We then compared the perceptions of face masks across different texts to see how their uptake is

rationalized and what practices or processes this uptake made possible or impossible.

We developed codes to broadly group social, economic, political, and cultural comments linked to the use of the face masks. Sample codes include medical use/safety, freedom, solidarity, and social norm, etc. We documented codes and analytical memos in Microsoft Excel. RH read and coded all texts without translation, while the second author (MAM) read a subset of the texts and coded these independently. MAM met with RH several times to review the coded results to ensure consensus and discuss discourses related to mask wearing. Throughout the process, both authors collected additional texts. We identified and/or incorporated codes into the existing identified discourses if new documents presented relevant information.

As all texts collected for the archive were publicly available, Research Ethics Board (REB)/ Institutional Review Board (IRB) approval and consent procedures were not needed for this study.

Results

Our analysis showed that mask-wearing during phase one of the pandemic became a polarizing issue, that amplified socio-political divisions historically associated with face-coverings. While initial accounts focused on the mask as an object of personal protective equipment, masks quickly became a symbol for personal expression, much like a patterned band-aid. Mask wearing during the pandemic featured strongly in socio-political demonstrations where protestors wrote messages on their face mask. The act of covering one's mouth, became a powerful vehicle of expression. The discourse of wearing a face mask evolved along with the changing social norms as fashion, stigma, and political views evolved throughout the COVID-19 pandemic.

We summarize the findings of mask use in three sections (Figure 1): the face mask as PPE, the face mask as a symbol of rights and freedoms, and the face mask as a symbol of stigma. Within the broad category of stigma, the face mask is a discursive object that represents illness, deviance, anonymity of the face, and spreading fear of the pandemic. Each section depicts the mask as a discursive object in the health, political, and social fields. The different discourses that have constructed the conditions of acceptable and unacceptable mask use during the pandemic are co-existent. Thus, there are overlaps in the way these discourses find expression.

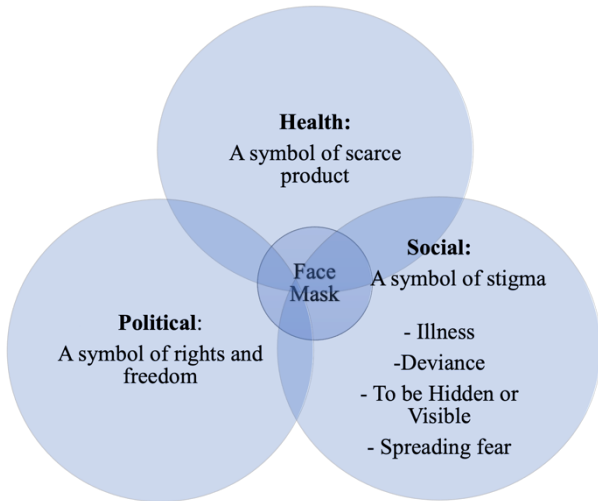


Figure 1. Discourses of Mask Wearing during Phase 1 of the COVID-19 Pandemic. The discourses are divided into the health, social, and political arenas.



Figure 2 Lowe’s announcing that large shipments of PPE are donated to the HCP. Large corporations such as Lowe’s, Home Depot, and Target donated PPE to the hospitals and first responders.”³¹

I. The face mask as PPE: face mask as a scarce product. Is not wearing mask a risk to one’s health? (Table 3, Figure 2)

The face mask as PPE is featured as an important discursive object from the onset of the pandemic. Early press accounts documented mask shortages with language that communicated the importance of the production and distribution of face masks in the health economy. The face mask as a commercial product that is highly sought after during the COVID-19 pandemic established symbolic and

material conditions for judging public health preparation and governmental success in responding to the health care emergency.

The gap between supply and demand varied largely by country.^{25,26} China is the world's largest producer and exporter of face masks.²⁷ In 2019, China produced 5 billion masks, accounting for 50% of the global total volume.^{27,28} Other countries frantically attempted to secure masks amid fierce competition and fraud.²⁹ When Zambia tried to place an order for N95 masks, brokers tried to sell them for five to ten times more than the usual cost.²⁶ In another example, of all the potential mask suppliers with whom a potential buyer had come into contact, “less than 20 percent were real.”³⁰

In media portrayals, sellers were depicted as continuing business as usual, relating to medical supplies as simply another hot product to flip for a profit. However, the construction of the race to stockpile face masks highlighted several ethical questions and some mask production companies resisted this discourse. In one text 3M Company warned, “there are ‘humanitarian implications for face mask shortages.”²⁶ For example, Home Depot stated it had “ordered all 2,300 of its stores in North America to stop sales of N95 masks to try to free them up for those on the front lines.”³¹ On a global level, the discourse of face mask as PPE and the purchasing trends that are linked to this discourse made visible how countries with less purchasing powers were at a disadvantage at the negotiation table compared to much wealthier countries. Most importantly it drew attention to a trend that would only exasperate existing global health disparities.²⁶

The face mask as PPE featured as a scarce commodity also made visible the health disparity that exists on a local level. The scarcity of masks and PPE was constructed as a danger to unprotected HCPs. The call to duty and other altruistic moral positions did not constitute rationales for minimizing the “rights” of healthcare workers to be “safe” and “protected.”^{32,33} Indeed, discursively, protected healthcare workers were equated with the better protected public.^{34,35}

Face mask as PPE – and medical risk evaluation

A social hierarchy emerged related to the supply of face masks rationalized on models evaluating risk from COVID infection. A dominant argument emerged calling for HCPs who are in direct contact with COVID-19 patients should be offered the most protection.

The discourse of risk evaluation existed within the HCP community as well. We noted practices such as the allocation of PPP based on the “spectrum of risk” of infection with COVID-19 according to various risk evaluation models.³⁶ For instance, the Healthcare Worker Personal Protection Decision Framework document by McMaster University³⁶ stipulated conditions under which masks should be worn. Similar protocols were adopted in other medical institutions.^{37,38} Practices such as rationing the use of masks and using them in high-risk areas emerged.

However, conflicts arose in contexts where different views on what constituted “risk” were present. Initially, Canada’s Chief Public Health Officer, Dr. Teresa Tam, stated that “putting a mask on an asymptomatic person is not beneficial,” but then one week later, the recommendation reversed to “wearing a non-medical mask, even if you have no symptoms, is an additional measure that you can take to protect others around you.”³⁹ In a time of crisis, the public’s faith in their government’s capacity to manage the crisis is fundamental for the government to institute effective policies.⁴⁰ When institutions publicly acknowledge their concern that recommending masks for general use would deplete the supply, the public may perceive that their safety is no longer the priority. Not surprisingly, the contradicting policies on face mask use led to confusion and lowered credibility of public institutions.³⁹ “Governments should not have downplayed the importance of face masks as a protective measure for the public, because it will make them seem very foolish when they change their stance,” stated Lei Yu Shi, a researcher on comparative health systems and health policy at Johns Hopkins University.⁴¹

A direct implication of the discursive relations supporting the application of risk to the use of masks included sending health care students home. To provide safer and thus better patient care during the pandemic, medical education in the clinical setting took a back seat. The pause in clerkship programs across North America was partially due to efforts to conserve PPE for practicing physicians.^{16,17} The Association of American Medical Colleges’ statement on new guidelines for medical schools during the COVID-19 outbreak states that the pause “will help with current concerns about the availability of personal protective equipment.”¹⁶ As Isaac J. Kirstein, Dean at the medical school’s Cleveland campus states, “It amazes me how much of our education was predicated by PPE availability. It

continues to be a primary driver of what we are able to do.”¹⁷

II. The political mask: the face mask as a symbol of rights and freedoms. Is it a risk to one’s freedom? (Table 3, Figure 3)



Figure 3.. A demonstrator holds a placard with a face mask stating, “THE NEW SYMBOL OF TYRANNY MUZZLE.” People had gathered outside the Pennsylvania Capitol Building to protest the continued closure of businesses due to the coronavirus pandemic on May 15, 2020 in Harrisburg, Pennsylvania.¹¹⁰

The discourse of mask as a symbol of rights and freedoms was constructed in opposition to the idea perpetuated with the circulation of the discourse of mask as PPE. The later discourse was deployed in efforts to limit the virus’ spread by appealing to the individual decisions of millions to comply with public health directives to wear masks in public. As bioethicist Nancy Kass, deputy director for public health of Johns Hopkins University’s Berman Institute stated, “masks can be a form of virtue-signaling. By wearing a mask, people show their concern for keeping other people safe.”⁴² Habitual mask wearing is constructed as a civic duty in the discourse of face mask, both to protect others and to take responsibility for oneself, especially seen in Eastern Asia cultures, such as China and Japan. An article by the South China Morning Post acknowledged that “wearing face masks is often seen as a collective responsibility to reduce disease transmission and can symbolise solidarity.”⁴³

The biggest argument used against the rationale for wearing a mask as a form of social responsibility is the idea that mandating mask wearing curtailed the fundamental rights and freedoms of individuals.^{44,45} Texts that reproduced this discourse referred to the mask as a visual presentation of the political debate between those willing to follow government’s recommendations versus those who did not because it violated their personal freedom. The unmasked face was represented as an identity

statement for “anti-liberal, anti-media, anti-elite values.”⁴⁶ The act of not wearing a mask became a rebellion against what was regarded as an opportunistic attempt to curtail hard won personal rights and freedoms.^{47,48} The discourse of masks as a political object was particularly prominent in the United States, where protection of personal liberties from government incursion has a long history.⁴⁹ These historical values were used to rationalize arguments against public health limitations of people’s movement, business operations and travel.^{50,51,52} The face mask was equated with airport security, “Nobody is forcing anyone to fly on a plane but for those who want to fly, they must go through security.”⁵³ Wearing masks in public spaces, were interpreted as optional since “wearing a face mask should be a personal choice.”⁵² When a customer was asked to put on mask, she refused because “we are in America here, land of the free”.⁵⁰ Although less prominent, similar discourses on individual freedom are found in the Canadian context. “I’m all about choice”, a Canadian told CBC News. Alberta Premier Jason Kenney states that “[the government wants] to trust people to exercise personal responsibility rather than policing everybody in a heavy-handed way.”⁵²

III. Masking and stigma: is mask-wearing a risk to social identity? (Table 3, Figure 4-6)

The face mask is associated with various types of social uses around the world some of which carry considerable stigma.^{48,54} Below we contrast different ways we identified that mask wearing was linked to social identities drawing out both positive and negative implications for the wearer.

1. Masking as a symbol of illness (Figure 4)

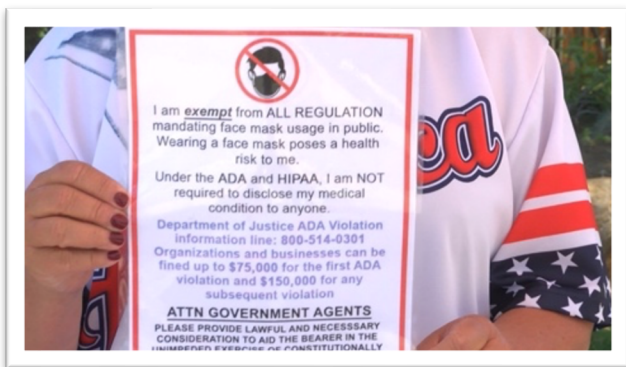


Figure 4. On an article by KSBY News, Christine Miller is letting people know she does not have to wear a mask with a placard. She said that she thinks wearing a mask is dehumanizing and uncomfortable.¹⁰⁰

The U.S. Centers for Disease Control and Prevention has almost never advised healthy people to wear masks in public to prevent respiratory diseases.⁵⁵ As such, people tend to only wear masks when they are sick, so the mask has become a discursive object closely linked to disease. In contrast, in China and East Asia, wearing a mask is associated with positive messages. East Asia has experienced contagion before.^{56,57} Mask wearing is seen as safer and more considerate to those who are vulnerable. From air pollution to the SARS pandemic in 2003, the respirator never really faded from significance in China.⁵⁷ Rather than associate mask with sickness, wearing a face mask was seen as socially responsible behaviour and a representation of health in these regions of the world.⁵⁶ The face mask as a symbol of illness in the North American context provoked and intensified xenophobia during the pandemic.¹⁰

China was the first country to experience the massive outbreak of COVID-19 and started mandatory mask wearing.⁵⁸ Mask wearing, perceived as a behavior consistent with the Chinese culture and political reality, caused a backlash of rejection from Western countries and peoples.^{48,52} The ideology clash transmitted from policy level down to the community, leading to stigma associated with wearing or not wearing a mask. Globe and Mail interviewed a British Columbia resident Jong Yun Park, who stated that “if you wear a mask [in Canada], people will [consider] you as another patient, I just tried to adapt to Canadian culture more when I am here. But back at home [in Korea]...if you don’t wear it, then people would be like ‘what a freak.’”⁵⁹

2. Masking as a symbol of deviance

In our archive, we noted accounts of people of color experiencing exacerbated racism associated with mask wearing.^{60,61} Some have expressed fear of covering their faces with a mask, lest this be associated with violence and criminality.⁶² Others attributed the exacerbation of racialization to scapegoating. “If racial profiling occurs during times of normalcy, one can only hypothesize that wearing a mask while black during this most trying of times can occur,” stated Chad Dion Lassiter, executive director of the Pennsylvania Human Relations Commission.⁶³

3. Masking to be hidden or to be visible (Figure 5)



Figure 5. A San Francisco designer created “Resting Risk Face” masks by custom-printing the respirator masks with images of wearers’ faces. It has been advertised as “be protective and be recognized. It’s so easy.”¹¹¹

The face and by extension face coverings, have always been constructed with both denotative and connotative meanings related to social communication.^{64,65} In North America for example,⁶⁶ masks were constructed as barriers to communication during the pandemic because they jeopardized people’s ability to judge facial expressions.^{65,66} In contrast, the anonymity offered by face masks was presented as helping people to keep desired social distances in East Asian cultures,⁶⁷ where it is perceived as polite and modest not to show obvious emotions.^{56,68} Face masks were used to send messages and carry messages throughout the pandemic. A dichotomy of being hidden versus being visible grew out of the face mask as stigma discourse. The common place use of masks in some parts of the world turned it quickly into a popular culture item. For example, Korean and Chinese celebrities often lead public fashion discussions on the face masks they wear.^{69,70} Amidst the pandemic and with the broad adoption of masking around the world, face masks emerged as a new genre of fashion accessory, and an expression of personal style, and were sold by all clothing companies.⁷¹ The U.S.-based online marketplace Etsy says its total sales doubled in April 2020, mostly from face mask sales.⁷² Masks were also turned into an object for political communication as protestors printed messages on their masks to march in response to George Floyd’s death.⁷³

4. Masking as a source of fear (Figure 6)



Figure 6. Murder hornets. A comic by Michael De Adder, published on Toronto Star. The Corona virus is compared to the murder hornet, and the face mask is depicted as a protective gear for both.¹¹²

Wearing or not wearing a mask was complicated by accounts that linked mask-wearing to fear. Fear was perceived to have dual function. On one hand, fear could be a lever in public health initiatives used to urge people to wear face masks for self-protection. People were urged to wear masks so to prevent contagion, to alleviate fears of contracting the virus, especially in environments carrying a higher risk of exposure such as crowded elevators. The president of the Association for Canadian Studies, Jack Jedwab, stated that the poll “indicated that fear and anxiety are what’s prompting more people in Canada to wear masks.”⁷² On the other hand, not wearing a mask was also linked to fear. Jason Seidel, the director of the Colorado Center for Clinical Excellence and a practicing psychologist, suggested that people may not wear a mask because of fear, “in wearing a mask they would have to fully acknowledge the pandemic.”⁷⁴ The act of putting on a mask or not putting on a mask can thus both prime feelings of fear.⁶⁶

Discussion

Implications for medical education

The three main areas of focus synthesized based on the study results are tightly linked to medical education. As face masks continue to serve as a PPE, it is a natural discursive object in the medical field and a necessary part of health professional education. In addition to the appropriate donning and doffing of masks as PPE, and protocols for different mask uses across the hospital or in the clinic, the political and ethical dimensions of deciding who should wear a mask and in what context must also be

discussed in medical schools. The pandemic brought to the fore additional health professional education concerns that emerged through the promotion of mask wearing as an epistemic debate. Despite the controversial scientific research on the effectiveness of face mask in disease prevention, some have argued that based on the precautionary principle, we do not need to prevent every

transmission of every droplet or every viral particle.⁷⁵ In addition, the face mask can serve as an important component of wider community resilience strategies.⁷⁶ Those who reported wearing masks in public places were also more likely to report more hand-washing and social distancing.^{77,78}

Table 3. Quotes and associated figures reflecting face mask as a discursive object for rights and freedoms, an icon for personal expression of political views and social identities, and a symbol of stigma that reinforced illness, deviance, anonymity, or fear.

The face mask as PPE: face mask as a scarce product, and the ethical considerations in its distribution	
Scarcity	<p>"Million dollars are wire transferred to strangers. Rumors of hidden supplies in forgotten warehouses."²⁹</p> <p>"Wheeler-dealers trying to talk regulators and customs officials into letting that one precious shipment through. It's a global free-for-all."²⁹</p>
Ethics	<p>"Canada's doctors and nurses are calling a critical lack of personal protective equipment outrageous and unacceptable."³⁴</p> <p>"Would we expect a firefighter to enter a burning building, risking his or her life, without adequate protective equipment to keep them from harm?"³⁴</p>
The political mask: the face mask as a symbol of rights and freedoms versus of social responsibility	
Social responsibility	<p>"I want to protect myself and protect others, and also because I want to make it be a symbol for people to see that that's the kind of thing you should be doing."⁴⁴</p> <p>"Sometimes I do feel upset because I'm trying to do what I can, and I want other people to do what they can as well. Even if I'm not concerned about getting the virus, I don't know who else is at risk when I walk around so I wear it for others and I'm happy to wear it."⁷⁴</p> <p>"It's not politics and it's not numbers. It's about [you] willing to be that person that may have passed it on to somebody who could not fight it. I'm not going to be that person."¹⁰⁰</p> <p>"I do think that you are not being kind to others if you're in a place with vulnerable people."¹⁰¹</p>
Right and Freedoms	<p>"I think it's more of a scare tactic to continue to push people to see what they're willing to trade as far as their liberty. I think it's an extra layer of control or influence from the government"⁴⁷</p> <p>"There's such a strong culture of individualism that, even if it's going to help protect them, people don't want the government telling them what to do."¹⁰²</p> <p>"Look at all of these sheep that are here."⁵⁰</p> <p>"I'm sure the virus is real. Why do we have the beaches closed? Why the parks? This is like a punishment to us. We the people need these things to keep our sanity."⁴⁸</p>
Masking and Stigma: Is mask-wearing a risk to social identity?	
1. Masking as a Symbol of Illness	
<p>"Wearing a mask is somewhat stigmatized in the U.S, and doing so represents that you are sick, timid, weak"¹⁰³</p> <p>"In Hollywood's version of the Old West, masks were for bad guys."⁷¹</p> <p>"Some (especially male) Conservatives see the lockdowns and mask wearing as expressions of cowardice that they reject as unmanly."¹⁰⁴</p> <p>"The predilection toward using face-coverings to prevent exposure to bad air is something that predates the germ theory of disease and extends into the very foundations of East Asian culture."⁵⁶</p>	
2. Masking as a Symbol of Deviance	
<p>"For [an African American], the fear of being mistaken for an armed robber or assailant is greater than the fear of contracting Covid-19."¹⁰⁵</p> <p>"Those who do wear masks have been shunned or even attacked. It hasn't helped that many of these mask wearers are Asians."¹⁰⁶</p>	
3. Masking to be hidden or to be visible	
<p>"Because I'm being someone else, I feel freer to do things I've never done. A mask covering your face is similar. It's a superhero effect because you're incognito."¹⁰⁷</p> <p>"You're showing others that you're abiding by social etiquette, and so people feel reassured."⁸¹</p> <p>"I am 100% against [masks]. I work in a people business, I am a people person, I don't want to talk to a mask."¹⁰⁰</p> <p>"There are no doubt kids, and plenty of adults, find [masks] unsettling, if not downright scary."¹⁰⁸</p>	
4. Masking as a Source of Fear	
<p>"You don't need everybody to [wear face masks], but you need enough people to do it, so you sway it."⁷²</p> <p>"I think it's the degree to which you are fearful of getting the contagion that probably is more of a determining factor."⁷²</p> <p>"Will we look back at our pre-pandemic societies - faces bared to the world - with nostalgia or hard-gained wisdom?"¹⁰⁹</p> <p>"Amid the confusion, furious and terrified, doctors and nurses say they must trust their own judgment. Administrators counter that doctors and nurses, motivated by fear, are writing their own rules."³³</p> <p>"I'm afraid too ... I'm afraid to go to work."⁷⁹</p>	

It was clear from the start of the pandemic that power dynamics within the healthcare field created new ethical and moral dilemmas for healthcare providers. The Ontario Nurses' Association filed a court order, alleging four Ontario long-term care homes of restricting or denying the use of PPE in their facilities.⁷⁹ The discourse of the distribution and restriction on face mask use is a reminder of the power struggles within healthcare. These important topics must be integrated in health professional education curricula to prepare trainees to function in the current reality. In addition, the decision to send home health professional trainees needs to be considered in future training models. Knowing that they were sent away from the clinical environment partially for cost-benefit reasons, medical students needed to reconcile the potentially new awareness of their place in the medical community. Students must learn how to balance the status of being a learner versus a future HCP who can valuably contribute to the health crisis and during subsequent phases of the COVID pandemic.

The discourse of face mask usage enforcement has brought the centuries-long political debate of the individual versus the state to the forefront. Arguments appeared urging the public to sacrifice personal freedoms to enjoy the benefits afforded by the collective protection from the contagion. Wearing a mask was equated with security checks when flying, vaccine requirements for children in schools, the mandated wearing of seatbelts, and prohibitions on drunk driving.⁵⁰ The temporary limitation of freedom was presented as necessary and leading to more prolonged freedom later. The concept of individual freedom is often referenced as a distinguishing characteristic of Western societies, setting them apart from societies that are identified as having collectivist socio-cultural and political make-up. Such East/West comparisons are indicative of Orientalism,⁸⁰ and can lead to oversimplifications and negative stereotyping of Eastern civilizations. As an example, Frédéric Keck, a French anthropologist specializing in pandemics, notes "mask-wearing was seen through an individual's perspective [in the west], i.e. to protect oneself from the virus. However, in collectivist Asian societies, one wears a mask because if all individuals wear masks, the society will be protected."⁸¹ The west-east dichotomy of individualism versus collectivism warrants more nuanced and extensive discussion⁶ than this paper allows. Various factors such as consistent guidance from health officials on masking,⁸² and less stigma associated with anonymity have also contributed to different mask practices in Asia compared to North America. These

reasons do not stem from collectivist meaning making alone.⁶ Conversely, there were instances, as we have argued, where protection of the public has reinforced public mask wearing in North America. A study by Courtney et al.⁸³ at the United States showed that collectivist mindset, versus individualistic, would facilitate health behaviours during COVID pandemic when the awareness of mortality is activated in the general population. However, as we have described above, both wearing and not wearing a mask has been associated with generalized fear and anxiety. In addition, we have not distinguished a particular directionality of the discourses related to mask wearing, perhaps because of how quickly the spread of COVID-19 was designated a pandemic. During the writing of this paper, we observed the role of the mask in supporting pandemic responses continuously evolving. As a daily object, the face mask plays a role in "maintaining an overall feeling of being reassured in Japanese society," stated Yukiko Iida, an expert on masks at the Environmental Control Center in Tokyo.⁸¹ Jean-François Mattéi, a former health minister and the current president of France's National Academy of Medicine, believes that mask is likely to "become the norm in Western countries after the end of the pandemic."⁸¹ It is important to appreciate how different societies might respond differently to global instructions during a pandemic. We observed this divergence and fluidity with the discourse of face mask wearing, which might help guide future public health crisis response.

Despite the prevalence of discourse that related mask-wearing to debates of rights and freedoms, very few people would equate wearing a surgical mask inside the operating room as an infringement on the physician's freedom. The discourse of rights and freedoms related to mask-wearing has not extended to the HCPs. On the contrary, the media has been reporting on chronic shortage of face masks for HCPs as a dire, non-resolving problem from the beginning of the pandemic,^{34,33,35} to months after the initial wave.^{84,85} To the public, these discourses seem to suggest that the risk to individual rights and freedom is subordinate to the risk to life. Initiatives to raise PPE for HCPs have been started by medical students across Canada.^{86,87,88}

This universal value of life over freedom has permeated into medical education. During the donning and doffing sessions for medical students,⁸⁹ the emphasis is exclusively on personal safety. From the medical educators' point of view, it seems that the risk to the students' health and wellbeing, like that of the HCP, is seen as the priority rather than protecting their right to choose and freedom to refuse

to wear a mask. This is a curious value elucidated by the contrasting discourse surrounding face masks in the public where mask wearing in North America was initially met with resistance.⁴⁸ Its exploration should be a standing topic in health professions education as it holds longlisting implications for health behaviours and practices.

The face mask has appeared in several texts as a form of personal expression, as social deviance or a source of stigma in the public and in the medical education arena. The Royal College of Physicians and Surgeons of Canada states “respect for diversity” as a key value in section 1.1 of their CanMed framework for professionals.⁹⁰ Yet there are reported stories of medical students barred from the operating room because of wearing head and face coverings.⁹¹ Mask wearing opens a window for closer examination of the existing stigma in medical education and their impact on the broader healthcare field. The discussion of stigma permeates the discourse of face mask, from the differing risk evaluation causing power struggles, to the diverging political views and cultural norms. Other research^{92,93} has also affirmed that the face mask took on political significance during COVID pandemic as witnessed by interactions on different social media platforms such as Twitter⁹³ and YouTube.⁹⁴ While our current archive did not permit us to go into further depth, the topic of stigma deserves deep discussions and future research. Our research identified both protective discourses associated with masking wearing (i.e., masking decreases health risks) and non-protective discourses (i.e. masking displays deviance). We also identified ways in which popular culture interfered or reinforced mask wearing during the pandemic, an area that also deserves additional attention. Given the shifts association with mask wearing in the public, the implications of wearing masks in the therapeutic relationships warrants further exploration and research. Facial communication has been regarded as helpful in the patient-doctor relationship.⁹⁵ Many medical schools have posted information on how to wear a face mask correctly, and there has been research on the effectiveness of PPE teaching,⁹⁶ however, we were not able to identify any discussion on the implications of wearing a face mask in clinical environments. Greater efforts in medical education are necessary to improve perception and interpretation of patients’ nonverbal communication.

Conclusions

COVID-19 has ignited public discussion of illness, health, and has drawn renewed attention to face masks.⁹⁷ Its various roles and symbolism in healthcare settings and the public domain shape our personal and professional lives. While the face mask as a discourse appears as an object of PPE at the outset of the COVID 19 pandemic, it quickly became a symbol for personal expression of political views, and a symbol of stigma. As the COVID-19 pandemic progressed and official recommendations on masks have become more consistent, wearing a mask evolved into a social habit. Discursively, as the threat of lingering virus and an exacerbated second wave set in, routine mask wearing in a reopening society was presented as a way to ease anxiety.⁹⁸

This paper has overviewed several discourses related to face masks that arose during the COVID-19 pandemic. As we have argued, none of these discourses independently provides an overarching narrative with which to bridge the divisions and gaps we see in society related to mask wearing. Contrasting the differences and similarities across the three dominant discourses provides an entry point to the political values, cultural norms, economic gains, and moral dilemmas at play during the pandemic. Medical education will be well served to incorporate an appreciation of how mask wearing discourses are contributing to positive or negative health behaviours. In addition, medical education plays can play a crucial role in reinforcing the importance of an equity seeking approach to pandemic responses. The mask wearing behaviors of vulnerable populations illustrates the intersection between social determinants of health, stigma, and health consequences for individuals and communities. For the visible minority, CNN has reported that people of color may be reluctant to wear masks because they “have expressed fears that homemade masks could exacerbate racial profiling.”⁹⁹ The discourse surrounding the practice of wearing face masks can serve as an excellent starting point in medical education on the effect of social determinants of health on healthcare access and health outcomes.

Conflicts of Interest: None.

Funding: None.

Acknowledgements: The author acknowledges Asia Van Buuren, Michal Coret, Sofia Martimianakis, and Vincent Tang for discussions and comments on the paper.

References

- Postrel V. *Pandemics come and go but medical masks are eternal*. Bloomberg. 2020;1-10.
- Feng S, Shen C, Xia N, Song W, Fan M, Cowling BJ. Rational use of face masks in the COVID-19 pandemic. *Lancet Respir Med*. 2020 May;8(5):434-6. [https://doi.org/10.1016/S2213-2600\(20\)30134-X](https://doi.org/10.1016/S2213-2600(20)30134-X)
- World Health Organization. *Shortage of personal protective equipment endangering health workers worldwide*. 2020. Available from: <https://www.who.int/news/item/03-03-2020-shortage-of-personal-protective-equipment-endangering-health-workers-worldwide>. [Accessed on May 1, 2022].
- Sand J. *Essay: a short cultural history of mask-wearing*. The TLS. 2020. Available from: <https://www.the-tls.co.uk/articles/a-short-cultural-history-of-mask-wearing-essay-jordan-sand/> [Accessed on Aug 13, 2022].
- Lynteris C. *Why do people really wear face masks during an epidemic?* The New York Times. 2020. Available from: <https://www.nytimes.com/2020/02/13/opinion/coronavirus-face-mask-effective.html> [Accessed on Aug 13, 2022].
- Zhang M. View of writing against "mask culture": orientalism and covid-19 responses in the west. *Anthropologica*. 2021 Apr;63(1). <https://doi.org/10.18357/anthropologica6312021327>
- Timpka T, Nyce JM. Face mask use during the COVID-19 pandemic-the significance of culture and the symbolic meaning of behavior. *Ann Epidemiol*. 2021 Jul 1;59:1-4. <https://doi.org/10.1016/j.annepidem.2021.03.012>
- Hauser C. *The 1918 flu, masks and lessons for the coronavirus pandemic*. The New York Times. 2020. Available from: <https://www.nytimes.com/2020/08/03/us/mask-protests-1918.html> [Accessed on 2022 Aug 12]
- Tso R v., Cowling BJ. Importance of Face Masks for COVID-19: A Call for Effective Public Education. *Clinical Infectious Diseases*. 2020 Nov 19;71(16):2195-8. <https://doi.org/10.1093/cid/ciaa593>
- Marsh C. *The face mask has become COVID-19 's most unlikely controversy*. National Post. 2020. Available from: <https://nationalpost.com/life/covid-19-face-masks> [Accessed on 2022 Aug 12]
- Canada.ca. *About COVID-19 non-medical masks*. 2021. Available from: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/prevention-risks/about-non-medical-masks-face-coverings.html> [Accessed on 2021 May 3].
- MacIntyre CR, Chughtai AA. A rapid systematic review of the efficacy of face masks and respirators against coronaviruses and other respiratory transmissible viruses for the community, healthcare workers and sick patients. *Int J Nurs Stud*. 2020 Apr 30;103:629. <https://doi.org/10.1016/j.ijnurstu.2020.103629>
- Tateo L. Face masks as layers of meaning in times of COVID-19. *Culture & Psychology*. 2020 Sep 9;27(1):131-51. <https://doi.org/10.1177/1354067X20957549>
- Zhang YSD, Noels KA, Young-Leslie H, Lou NM. "responsible" or "strange?" differences in face mask attitudes and use between Chinese and non-east Asian Canadians during covid-19's first wave. *Front Psychol*. 2022 Mar 17;13:1061. <https://doi.org/10.3389/fpsyg.2022.853830>
- Stergiopoulos E, Fernando O, Martimianakis MA. "Being on Both Sides": Canadian medical students' experiences with disability, the hidden curriculum, and professional identity construction. *Acad Med*. 2018;93(10):1550-9. <https://doi.org/10.1097/ACM.0000000000002300>
- Association of American Medical Colleges. *Important guidance for medical students on clinical rotations during the coronavirus (covid-19) outbreak*. Available from: <https://www.aamc.org/news-insights/press-releases/important-guidance-medical-students-clinical-rotations-during-coronavirus-covid-19-outbreak> [Accessed on 2020 Aug 24].
- Murphy B. *How medical students, doctors are hustling to get PPE*. American Medical Association. 2020. Available from: <https://www.ama-assn.org/residents-students/medical-school-life/how-medical-students-doctors-are-hustling-get-ppe> [Accessed on 2020 Aug 22].
- Martimianakis M, Naughton N. Discourse, governmentality, biopower, and the hidden curriculum. 2015. p. 96-105.
- Fraser N. The uses and abuses of French discourse theories for feminist politics. *Theory Cult Soc*. 1992 Feb 1;9(1):51-71. <https://doi.org/10.1177/026327692009001004>
- Foucault M. *The Archaeology of Knowledge*. London: Routledge; 2002.
- Tamboukou M. Writing Genealogies: an exploration of Foucault's strategies for doing research. *Discourse: studies in the cultural politics of education*. 1999 Apr 1;20:201-17. <https://doi.org/10.1080/015963099020020202>
- Kuper A, Whitehead C, Hodges BD. Looking back to move forward: using history, discourse and text in medical education research: AMEE Guide No. 73. *Med Teach*. 2013;35:85-96. <https://doi.org/10.3109/0142159X.2012.748887>
- Fairclough N. *Critical discourse analysis: The critical study of language*. London: Routledge; 2018.
- McNaughton N. Discourse(s) of emotion within medical education: the ever-present absence. *Med Educ*. 2013 Jan;47(1):71-9. <https://doi.org/10.1111/j.1365-2923.2012.04329.x>
- Swanson A. *White house airlifts medical supplies from China in coronavirus fight*. The New York Times. 2020. Available from: <https://www.nytimes.com/2020/03/29/business/economy/coronavirus-china-supplies.html?action=click&module=RelatedLinks&pgtype=Article> [Accessed on 2020 Aug 23].
- Bradley J. *In scramble for coronavirus supplies, rich countries push poor aside* - The New York Times. 2020. Available from: <https://www.nytimes.com/2020/04/09/world/coronavirus-equipment-rich-poor.html?action=click&module=Well&pgtype=Homepage§ion=World%20News> [Accessed on 2020 Aug 23].
- Embassy of the People's Republic of China in Canada. *Behind masks: the world's best production line*. 2020. Available from: <http://ca.china-embassy.org/chn/zt/zccfkyq200129/t1756589.html> [Accessed on 2020 Sep 13].

50. MacFarquhar N. *Who's enforcing mask rules? Often retail workers, and they're getting hurt*. The New York Times. 2020. Available from: <https://www.nytimes.com/2020/05/15/us/coronavirus-masks-violence.html> [Accessed on 2020 Aug 23].
51. Ontario Newsroom. *Ontario takes further action to stop the spread of covid-19*. 2020. Available from: <https://news.ontario.ca/en/release/56642/ontario-takes-further-action-to-stop-the-spread-of-covid-19> [Accessed on 2020 Sep 13]
52. Jeffrey A. *Alberta recommending face masks, but not enforcing their use as economy relaunches*. CBC News. 2020. Available from: <https://www.cbc.ca/news/canada/edmonton/alberta-recommending-face-masks-but-not-enforcing-their-use-as-economy-relaunches-1.5582892> [Accessed on 2020 Aug 23].
53. *What face masks mean and why they matter* | Prince George Citizen. Available from: <https://www.princegeorgecitizen.com/opinion/editorial/what-face-masks-mean-and-why-they-matter-1.24142249> [Accessed on 2021 May 2].
54. Godbout N. *Face masks now define a divided America and its politics*. The Globe and Mail. 2020. Available from: <https://www.theglobeandmail.com/world/us-politics/article-face-masks-now-define-a-divided-america-and-its-politics/> [Accessed on 2020 Aug 22].
55. Jabr F. *It's time to face facts, America: masks work*. WIRED. 2020. Available from: <https://www.wired.com/story/its-time-to-face-facts-america-masks-work/> [Accessed on 2020 Aug 23].
56. Yang J. *A quick history of why Asians wear surgical masks in public*. Quartz. 2014. Available from: <https://qz.com/299003/a-quick-history-of-why-asians-wear-surgical-masks-in-public/> [Accessed on 2020 Aug 20].
57. Wilson M. *The N95 mask: The untold origin story*. Fast Company. 2020. Available from: <https://www.fastcompany.com/90479846/the-untold-origin-story-of-the-n95-mask>. [Accessed on 2020 Aug 24].
58. Davidson H. *First Covid-19 case happened in November, China government records show*. The Guardian. 2020. Available from: <https://www.theguardian.com/world/2020/mar/13/first-covid-19-case-happened-in-november-china-government-records-show-report> [Accessed on 2020 Sep 13].
59. Xu X. *Cultures clash over wearing masks amid virus*. The Globe and Mail. 2020. Available from: <https://www.theglobeandmail.com/canada/british-columbia/article-cultures-clash-over-wearing-masks-amid-virus/> [Accessed on 2021 May 2].
60. Taylor D. *For black men, fear that masks to protect from covid-19 will invite racial profiling*. The New York Times. 2020. Available from: <https://www.nytimes.com/2020/04/14/us/coronavirus-masks-racism-african-americans.html> [Accessed on 2020 Aug 20].
61. Deese K. *Black Americans raising concerns about being profiled for wearing masks amid coronavirus*. The Hill. 2020. Available from: <https://thehill.com/homenews/news/491986-black-americans-raise-concerns-about-being-profiled-for-wearing-masks-amid> [Accessed on 2020 Aug 20].
62. Aviles G. *Black men fear homemade coronavirus masks could exacerbate racial profiling*. NBC News. 2020. Available from: <https://www.nbcnews.com/news/nbcblk/black-men-fear-homemade-masks-could-exacerbate-racial-profiling-n1179236> [Accessed on 2020 Aug 20].
63. Armstrong J. *Black men can't wear face masks and not expect negative reactions*. The Inquirer. 2020. Available from: <https://www.inquirer.com/opinion/coronavirus-homemade-mask-black-man-philly-jenice-armstrong-20200414.html> [Accessed on 2020 Aug 20].
64. Prince George Citizen Staff. *Behind the mask*. Prince George Citizen. 2002. Available from: https://www.princegeorgecitizen.com/opinion/columnists/behind-the-mask-1.24118829?utm_campaign=magnet&utm_source=article_page&utm_medium=related_articles [Accessed on 2020 Aug 23].
65. Merali F. *"Invisible disability": Masks making it harder to communicate, deaf and hard of hearing say*. CBC News. 2020. Available from: <https://www.cbc.ca/news/canada/toronto/masks-and-barriers-communicating-deaf-and-hard-of-hearing-1.5579166> [Accessed on 2020 Aug 23].
66. McAndrew F. *Why face masks give us the creeps*. Psychology Today Canada. 2020. Available from: <https://www.psychologytoday.com/ca/blog/out-the-ooze/202006/why-face-masks-give-us-the-creeps> [Accessed on 2020 Aug 23].
67. Baseel C. *Why do Japanese people wear surgical masks? It's not always for health reasons*. Japan Today. 2014. Available from: <https://japantoday.com/category/features/lifestyle/why-do-japanese-people-wear-surgical-masks-its-not-always-for-health-reasons> [Accessed on 2020 Aug 20].
68. Jack RE, Garrod OGB, Yu H, Caldara R, Schyns PG. *Facial expressions of emotion are not culturally universal*. *Proceedings of the National Academy of Sciences*. 2012 May 8;109(19):7241 LP - 7244. <https://doi.org/10.1073/pnas.1200155109>
69. The Japan Times. *South Korean fashion evolves in the time of coronavirus and face masks*. 2020. Available from: <https://www.japantimes.co.jp/news/2020/03/21/asia-pacific/south-korean-fashion-face-masks/> [Accessed on 2020 Sep 13].
70. Joung M. *Face mask culture common in east, new to west*. Voice of America. 2020. Available from: <https://www.voanews.com/science-health/coronavirus-outbreak/face-mask-culture-common-east-new-west> [Accessed on 2020 Sep 13].
71. Bufano M. *Facemasks through the ages, from medical aid to fashion statement*. CBS News. 2020. Available from: <https://www.cbsnews.com/news/facemasks-through-the-ages-from-medical-aid-to-fashion-statement/> [Accessed on 2020 Aug 23].
72. Gollom M. *Why attitudes toward mask wearing are quickly changing in Canada and the U.S*. CBC News. 2020. Available from: <https://www.cbc.ca/news/canada/mask-wearing-attitudes-coronavirus-1.5569515> [Accessed on 2020 Aug 23].
73. Keenan E. *Dangerous to be Black in Trump's US*. Toronto Star. 2020. Available from: <https://www.thestar.com/news/world/2020/05/29/from->

- [police-or-pandemic-its-dangerous-to-be-black-in-donald-trumps-america.html](#) [Accessed on 2020 May 31].
74. The Denver Channel. *As cities increase mask regulations, what drives people not to wear them?* 2020. Available from: <https://www.thedenverchannel.com/news/360/as-cities-increase-mask-regulations-what-drives-people-not-to-wear-them> [Accessed on 2020 Aug 23].
 75. Tian L, Li X, Qi F, Tang Q, Tang V, Liu J, Li Z, Cheng X, Li X, Shi Y, Liu H, Tang L. Calibrated intervention and containment of the covid-19 pandemic. *ArXiv*. 2020 Nov; <https://doi.org/10.48550/arXiv.2003.07353>
 76. Greenhalgh T, Schmid M, Czypionka T, Bassler D, Gruer L. Face masks for the public during the covid-19 crisis. *The BMJ*. 2020 Apr 9;369. <https://doi.org/10.1136/bmj.m1435>
 77. Kwok KO, Li K-K, Hin Chan HH, Yi YY, Tang A, Wei WI, et al. Community responses during the early phase of the covid-19 epidemic in Hong Kong: Risk perception, information exposure and preventive measures. *medRxiv*. 2020 Jan; <https://doi.org/10.1101/2020.02.26.20028217>
 78. Cowling B, Ali S, Ng T, et al. Impact assessment of non-pharmaceutical interventions against COVID-19 and influenza in Hong Kong: an observational study. *medRxiv*. 2020 Jan 1;2020.03.12.20034660. <https://doi.org/10.1101/2020.03.12.20034660>
 79. DeClerq K. *Ontario long-term care nurses make shocking allegations about access to PPE during pandemic*. CTV News. 2020. Available from: <https://toronto.ctvnews.ca/ontario-long-term-care-nurses-make-shocking-allegations-about-access-to-ppe-during-pandemic-1.4907563> [Accessed on 2020 Aug 20].
 80. Said E. *Orientalism*. London: Penguin Modern Classics; 2003.
 81. Onishi N, Méheut C. *Mask-wearing is a very new fashion in paris (and a lot of other places)*. The New York Times. 2020. Available from: <https://www.nytimes.com/2020/04/09/world/europe/virus-mask-wearing.html?action=click&module=RelatedLinks&pgtype=Article> [Accessed on 2020 Aug 23].
 82. Henry ES. Reconstituting China in a Time of Pandemic. *Anthropology Now*. 2020 Jan 2; 12(1):50-4. <https://doi.org/10.1080/19428200.2020.1761210>
 83. Courtney EP, Felig RN, Goldenberg JL. Together we can slow the spread of COVID-19: The interactive effects of priming collectivism and mortality salience on virus-related health behaviour intentions. *British Journal of Social Psychology*. 2022;61(1):410-31. <https://doi.org/10.1111/bjso.12487>
 84. Food and Drug Administration. *FAQs on shortages of surgical masks and gowns during the covid-19 pandemic*. 2021. Available from: <https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/faqs-shortages-surgical-masks-and-gowns-during-covid-19-pandemic> [Accessed on 2021 May 2].
 85. Parshley L. *Remember the N95 mask shortage? It's still a problem*. Vox. 2020. Available from: <https://www.vox.com/2020/6/17/21293021/coronavirus-n95-masks-prevent-covid-19-gloves-face-shields> [Accessed on 2021 May 2].
 86. Vendeville G. *Medical students collect personal protective gear for front line health-care workers, donate through U of T*. U of T News. 2020. Available from: <https://www.utoronto.ca/news/medical-students-collect-personal-protective-gear-front-line-health-care-workers-donate-through> [Accessed on 2020 Aug 24].
 87. Davis D. *Coronavirus: Queen's medical students make protective equipment for front-line health-care workers*. Globalnews. 2020. Available from: <https://globalnews.ca/news/6727155/coronavirus-queens-medical-students-personal-protective-equipment/> [Accessed on 2020 Aug 24].
 88. Azeperi J, Ke G. *UBC med students organize protective-gear donations for front-line COVID-19 workers*. Globalnews. 2020. Available from: <https://globalnews.ca/news/6768315/coronavirus-ubc-students-ppe-donations/> [Accessed on 2020 Aug 24].
 89. Weiner S. *Excited, scared, ready: Medical students head back to clerkships*. AAMC. 2020. Available from: <https://www.aamc.org/news-insights/excited-scared-ready-medical-students-head-back-clerkships> [Accessed on 2020 Sep 14].
 90. The Royal College of Physicians and Surgeons of Canada. *CanMEDS guide*. 2021. Available from: <http://canmeds.royalcollege.ca/guide> [Accessed on 2021 Aug 1].
 91. Brusie C. *Medical student creates first disposable hijab - hospital now offers them to Muslim staff*. Nurse. 2020. Available from: <https://nurse.org/articles/hospital-to-use-disposable-hijabs-for-muslim-staff/> [Accessed on 2020 Aug 20].
 92. Scoville C, McCumber A, Amironesei R, Jeon J. Mask refusal backlash: the politicization of face masks in the American public sphere during the early stages of the covid-19 pandemic. *Socius*. 2022;8:23780231221093160. <https://doi.org/10.1177/23780231221093158>
 93. Al-Ramahi Mohammad and Elnoshokaty A and EGO and NT and WA. Public discourse against masks in the covid-19 era: infodemiology study of twitter data. *JMIR Public Health Surveill* [Internet]. 2021 Apr;7(4):e26780. <https://doi.org/10.2196/26780>
 94. Karatepe C, Rodney H. Jones (ed.), *Viral discourse*. Cambridge: Cambridge University Press, 2021. Pp. vi, 95. Pb. Language in Society. 2022; 51(4):728-9. <https://doi.org/10.1017/S0047404522000306>
 95. Wong CKM, Yip BHK, Mercer S, Griffiths S, Kung K, Wong MCS, et al. Effect of facemasks on empathy and relational continuity: A randomised controlled trial in primary care. *BMC Fam Pract*. 2013;14. <https://doi.org/10.1186/1471-2296-14-200>
 96. John A, Tomas ME, Hari A, Wilson BM, Donskey CJ. *Do medical students receive training in correct use of personal protective equipment?* Med Educ Online. 2017;22(1):1264125. <https://doi.org/10.1080/10872981.2017.126412>
 97. Fauci AS, Lane HC, Redfield RR. Covid-19 - navigating the uncharted. *New England Journal of Medicine*. 2020;382(13):1268-9. <https://doi.org/10.1056/NEJMe2002387>
 98. Nisen M. *Masks are here to stay, even after COVID-19 goes away*. Gulf News. 2020. Available from: <https://gulfnews.com/opinion/op-eds/masks-are-here-to-stay-even-after-covid-19-goes-away-1.71781074> [Accessed on 2020 Aug 23].

99. Alfonso III F. *Why some people of color say they won't wear homemade masks*. CNN. 2020. Available from: <https://www.cnn.com/2020/04/07/us/face-masks-ethnicity-coronavirus-cdc-trnd/index.html> [Accessed on 2020 Aug 20].
100. Healy M. *Debate: How community members feel about wearing face masks in public*. KSBY. 2020. Available from: <https://www.ksby.com/news/coronavirus/debate-how-community-members-feel-about-wearing-face-masks-in-public> [Accessed on 2020 Aug 20].
101. Halon Y. *Ben Shapiro on debate over wearing masks: "The desire to virtue signal on both sides is truly insane."* Fox News. 2020. Available from: <https://www.foxnews.com/media/shapiro-trump-biden-mask-debate-virtue-signaling> [Accessed on 2020 Aug 23].
102. Weissert W, Lemire J. *Face masks make a political statement in era of coronavirus*. CTV News. 2020. Available from: <https://www.ctvnews.ca/health/coronavirus/face-masks-make-a-political-statement-in-era-of-coronavirus-1.4928586> [Accessed on 2020 Aug 23].
103. Palacios J. *Homemade or designer, face masks are becoming chic*. Reform Austin. 2020. Available from: <https://www.reformaustin.org/coronavirus/homemade-or-designer-face-masks-are-becoming-chic/> [Accessed on 2020 Aug 23].
104. Edsall T. *When the mask you're wearing 'tastes like socialism'*. The New York Times. 2020. Available from: <https://www.nytimes.com/2020/05/20/opinion/coronavirus-trump-partisanship.html> [Accessed on 2020 Aug 23].
105. Thomas A. *Why I don't feel safe wearing a face mask*. Boston Globe. 2020. Available from: <https://www.bostonglobe.com/2020/04/05/opinion/why-i-dont-feel-safe-wearing-face-mask/> [Accessed on 2020 Aug 24].
106. Wong T. *Coronavirus: Why some countries wear face masks and others don't*. BBC News. 2020. Available from: <https://www.bbc.com/news/world-52015486> [Accessed on 2020 Aug 24].
107. Martin C. *Makeup and the mask. It's about the eyes*. The New York Times. 2020. Available from: <https://www.nytimes.com/2020/05/26/style/makeup-and-the-mask-its-about-the-eyes.html> [Accessed on 2020 Aug 23].
108. MacLeod M. *New normal: will face shields replace masks?* CTV News. 2020. Available from: <https://www.ctvnews.ca/health/coronavirus/new-normal-will-face-shields-replace-masks-1.4959028> [Accessed on 2020 Aug 23].
109. DiManno R. *Seems like we've been talking about the need for masks forever. So why are they still in short supply?* The Star. 2020. Available from: <https://www.thestar.com/opinion/star-columnists/2020/05/24/seems-like-weve-been-talking-about-the-need-for-masks-forever-so-why-are-they-still-in-short-supply.html> [Accessed on 2020 Sep 13].
110. Collinson S, Hu C. *America's mask resistance is just the latest example of a perennial struggle*. CNN. 2020. Available from: <https://www.cnn.com/2020/06/23/world/meanwhile-in-america-june-23-intl/index.html> [Accessed on 2021 May 2].
111. Katz L. *Protect yourself from coronavirus with a mask that looks like your face*. CNET. 2020. Available from: <https://www.cnet.com/news/protect-yourself-from-coronavirus-with-a-mask-that-looks-like-your-actual-face/> [Accessed on 2021 May 4].
112. Adder M. *Murder hornets*. The Star. 2020. Available from: https://www.thestar.com/opinion/editorial_cartoon/2020/05/11/michael-de-adder-murder-hornets.html [Accessed on 2021 May 3].