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**The Behavioral Immune System: A Public Health Perspective**

*How our partisan perceptions of sickness influenced population health during the pandemic*

By

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## **Abstract**

Researchers propose that people have a disease-avoidance mechanism called the behavioral immune system, which is intended to identify and prevent possible interactions with harmful infections. This thesis is intended to explain this phenomenon, one well researched in the fields of behavioral and evolutionary psychology, to public health professionals, who can use its hypothesized components to understand better how to support population health and wellbeing. In addition, the COVID-19 pandemic will serve as a case study to understand the limitations of the BIS as it relates to socio-cultural events and personal political identification.

The behavioral immune system keeps individuals healthy by monitoring and evaluating disease risks and eliciting an avoidance reaction to these dangers instead of relying on the more biologically expensive physiological immune system. However, the behavioral immune system is not flawless. The avoidance reaction, which is meant to shield humans from disease dangers, is oversensitive and can be triggered by signals that are merely believed to be linked with illnesses but are not indicative of a contagious disease. According to research, this oversensitivity can lead to increased prejudice towards out-groups who exhibit these cues and prefer persons with symmetrical features, who are thought to be healthy, and in their in-group. One approach to assessing the level of activation of the behavioral immune system is examining the emotion of disgust. The central aim of this thesis is to explore how the behavioral immune system manifested during COVID and how our impaired collective behavioral immune response influenced population health during the pandemic, and the implications of this on public health policy and the public health system.

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## **Introduction**

Infection from communicable diseases is one of the most severe risks to population health. Throughout history, there are numerous examples of plagues and epidemics that have wiped away large segments of the world's population. Governments' dedication to learning more about diseases at the local, state, and national levels across different countries has emerged as a result of the desire to limit the spread of illnesses. These efforts to better understand and prevent disease have reduced disease-related mortality, yet, transferrable sickness remains a challenge to human survival.

It is typical to be exposed to possible sources of illness. Fortunately, exposure is seldom lethal, thanks in part to specialized biological mechanisms that aim to eliminate dangers to the body's health. To prevent sickness, the physiological immune system (PIS) has developed over time to respond against microorganisms that invade the body (Schaller & Park, 2011). While the immune system is frequently successful, it also comes at a cost. Individuals may, for example, in the case of an upper respiratory infection or the common cold, increase mucus production and sneeze, cough, and develop a runny nose in reaction to the infection in order to rid the respiratory system of foreign particles.

Furthermore, people frequently develop a fever to elevate their body temperature and make the surroundings uninhabitable for infectious germs. This we know is an example of the function of our physiological immune system. Symptoms in these circumstances are unpleasant and demand much effort to administer, and we can often also experience fatigue, headaches, and muscle pain as our body fights off pathogens.

When it comes to infection, disease, and pathogen-based danger, the behavioral immune system (BIS) is the first line of defense. The emotion of disgust is one of the system's essential

functions. It forces people to adopt socially conservative views in order to avoid persons and stimuli that may infect them with an illness they do not want. When a healthy person witnesses another in a social situation where the other person is sneezing, coughing and sniffing profusely, or exhibiting any signs of illness, they can safely assume that they are dealing with a likely-contagious infection that can be transferred through close contact. If this sick person coughs or sneezes without covering their mouth, the healthy person watching them may experience disgust. Even if they know and love the sick person, their better judgment tells them to stay away so as to prevent acquiring the sickness, and the healthy person additionally likely understands that this sick person should have exercised sickness behavior (quarantining, protective gear, resting, seeking medication) which would have prevented them from spreading the infection. They may cover their nose and mouth, keep their distance, wash their hands, or use hand sanitizer, doing everything they can to reduce the risk of transmission. This disease avoidance is the behavioral immune system at work, preventing the reception of communicable diseases so that the physiological immune system does not have to get involved.

The COVID-19 pandemic provides an excellent opportunity to examine how the BIS relates to societal attitudes as people try to survive in a genuinely disease-ridden society. COVID-19 was declared a pandemic by the World Health Organization on March 11th, 2020. (WHO, 2020b). On this same day, the United States began closing its borders and preventing travelers from entering the nation; other countries followed suit. The flu-like symptoms of COVID-19 usually occur 2-14 days after exposure, including fever, cough, exhaustion, body pains, congestion or runny nose, vomiting, diarrhea, and a loss of taste or smell (CDC, 2020b). There have been over half a billion confirmed cases, 6.19 million deaths worldwide and over 80 million confirmed infections, and 985,000 deaths in the United States as of April 11th, 2022 (Our

World in Data, 2022). On average, each individual infected with the coronavirus infects 2.5 other persons (CDC, 2020). However, the actual degree of transmission of COVID-19, like many infectious illnesses, is commonly underestimated since a significant number of persons infected are undiscovered either because they are asymptomatic or have only minor symptoms and hence do not appear in health systems. In addition, there are also neglected and underserved portions of the population who face many obstacles to seeking medical attention or access to testing (World Health Organization [WHO], 2020).

Almost every nation has taken steps to reduce the virus's devastating consequences on its citizens. The virus is said to be very contagious and lethal, much more so than the yearly flu. The example above is how most people should have reacted to COVID-19 through masking over the nose and mouth, consistent hand-washing, social distancing, and inoculation. The BIS should be activated in some way as a result of the coronavirus pandemic. However, these safety standards were met with resistance almost anywhere that they were implemented for longer than a couple of weeks.

The BIS is commonly associated with conservatism (Inbar & Bloom, 2009; Terrizzi et al., 2010; Terrizzi et al., 2013). More conservative attitudes and stigmatizing beliefs about immigration (prevents foreigners from spreading harm or disease) and increased sensitivity to disgust (potentially infectious stimuli are more likely to be rejected, reducing the risk of illness) are two examples of socially conservative behaviors and attitudes that help to prevent disease spread. The COVID-19 epidemic, on the other hand, has revealed an amusing political difference in how people behave. Again, the COVID-19 pandemic has provided a rare chance to investigate these connections further. In the framework of the COVID-19 pandemic, this thesis aims to explore how social conservatism interacts with the behavioral immune system and, in turn,



impairs our ability to launch effective public health responses that could have prevented mass infection or the byproducts of mass infection which destroyed many communities.

## **Review of the Literature**

Given the lengthy history of sickness and humans, it is plausible to assume that disease has influenced human psychology. In order to avoid implementing the PIS, Schaller (2006) argued that humans have developed a behavioral immune system (BIS) that works as a line of protection against perceived pathogen dangers. The BIS is a combination of emotions, thoughts, and behaviors that work together to identify and prevent illness. As a result, the BIS saves resources by limiting the involvement of the PIS.

Aside from depleting resources, utilizing the PIS might make a person more susceptible to sickness for a short period. Our bodies experience both pro-and anti-inflammatory cytokines used in reaction to the invasion of dangerous infections, making people more vulnerable to sickness. Overstimulating cytokine production in a healthy immune system can result in a potentially deadly "cytokine storm," which can inflict tissue and organ damage even in nonfatal situations (Zhang, 2007). Aside from the PIS's high cost, infections are continually changing, evolving, and adapting, putting it at a disadvantage that the BIS must account for (van Vugt & Park, 2009). Given the PIS's flaws, a separate evolved system that works to prevent infections in the first place appears to be a good idea.

Parasitic infectious microorganisms such as bacteria and viruses have long-lived and developed in close contact with animals, including humans (Schaller, 2011). The presence of these parasites (hence referred to as pathogens and infectious illnesses) has imposed significant selection pressures throughout evolution. This has caused a continuing coevolutionary fight

between the pathogen and the host, in which parasitic organisms evolve adaptive mechanisms and strategies to increase their chances of survival and transmission. In contrast, hosts evolve counter-adaptive mechanisms and strategies to help them survive and reproduce (Thornhill & Fincher, 2014). This interplay has resulted in the selection of two primary adaptive lines of defense in humans and other species (Oaten, Stevenson, & Case, 2009): the physiological immune system and the behavioral immune system. After infectious agents enter the body, the physiological immune system fights infection physiologically at the biochemical, cellular, and tissue level; however, the BIS behaves as the first line of protection against pathogenic infection by arranging behavior and attitude to help prevent potential infections from trying to come into contact with a person (Schaller & Park, 2011).

There is much behavioral evidence for the link between illness signals and avoidance within the animal kingdom. For example, female mice detect and discriminate against diseased male mice when seeking a mate (Kavaliers & Colwell, 1995), while sheep avoid eating patches of grass where they have recently discharged excrement (Cooper, Gordon & Pike, 2000). Furthermore, there is growing evidence that many species will isolate a member of their group if it shows indications of illness (Neuberg, Kenrick, & Schaller, 2011). If this sort of behavior is found in many other creatures, particularly in animals that are evolutionarily proximal to humans, it is logical to speculate that humans may also have a system dedicated to identifying and avoiding disease threats.

The behavioral immune system is made up of a group of psychological mechanisms that detect cues indicating the presence of infectious pathogens in the immediate environment, trigger disease-relevant emotional and cognitive responses, and help people avoid pathogen infection through behavioral avoidance. However, the system can be hypersensitive and respond to an

inappropriately broad collection of surface signals, which can lead to unpleasant reactions to objects (including people) that do not constitute a real threat of pathogen infection. Furthermore, the system is adaptable, allowing for stronger unpleasant reactions in situations where perceivers are (or perceive themselves to be) more sensitive to pathogen infection (Schaller & Park, 2011).

The BIS is an evolutionarily evolved behavioral strategy for avoiding infectious illnesses that is both proactive and reactive, creating a behavior reaction (such as disgust) to noxious stimuli by establishing features and attitudes that are more disposed to err on the side of caution. People are more inclined to adopt socially conservative views that promote avoidance of outgroup individuals as a result of the fear of sickness (Terrizzi & Shook, 2016). According to theory, those with a behavioral propensity to avoid contact with parasites and diseases should have had an advantage in terms of survival and reproduction (Curtis & Biran, 2001).

The disgust reaction is one of the most notable elements of the BIS. The disgust reaction is triggered by cues in the environment that activate the BIS – the sense of revulsion and the distancing of the self from the revolting stimuli (Oaten et al., 2009). Disgust is marked by physiological changes and a change in facial expression. Disgust is thought to develop during the ontogenetic development of children's ability to understand and detect threats of illness, pathogens, and contagion, reason about their causes, and recognize the characteristic facial expression of disgust in early childhood, around the age of 4-7 (Boyer & Bergstrom, 2011). What children grow to find 'disgusting' is a mixture of nature and nurture; the cultural environment in which they have been raised controls a lot of what people deem 'disgusting.' Objects, situations, and people may all cause disgust. However, individual differences exist in how people perceive and respond to possible infection sources. Disgust sensitivity and perceived illness vulnerability are two ways to assess BIS strength (Duncan, Schaller, & Park, 2009).

Disgust serves to separate the self from sources that may risk infection. Having a BIS that is innately more receptive lowers the threshold for inputs that cause disgust. Disgust sensitivity should be associated with other measures of BIS reactivity, such as fear of catching illnesses, because it may be seen as a measure of general BIS reactivity. Disgust can alter what we pay attention to and, as a result, what we learn and how we apply negative attributes. Disgust will focus the individual's attention on the repulsive component of the danger while distracting them from information that is not related to the disgust response. In a study, inducing disgust led participants to retain information linked to disgust but also interrupted their learning of information not connected to the emotional response when they read an excerpt from a recent public health concern. People who felt disgusted were less likely to learn about the hazard and seek further information (Clifford & Jerit, 2018).

Furthermore, fear of developing COVID-19 is predicted by anxiety sensitivity, disgust inclination, and disgust sensitivity (Mckay et al., 2020). In the framework of COVID-19, we may utilize research on disgust sensitivity. Given these findings, one may anticipate disgusted people to pay attention to and acquire information about their emotional response to disgust during the COVID-19 epidemic, but not more general knowledge about the risk.

Another study examining if BIS indicators (germ aversion and pathogen disgust sensitivity) were linked to COVID-19 concern and participation in suggested preventative health actions hypothesized that persons with higher germ aversion and pathogen disgust sensitivity would be more worried about COVID-19 and would participate in disease-avoidance behaviors more frequently. An online survey was completed by a nationwide sample of U.S. residents (N = 1019) from March 20th to March 23rd, 2020. While accounting for demographic, physiological,

and psychosocial confounders, the two variables most consistently linked with COVID-19 concern and preventative health actions were germ aversion and pathogen disgust sensitivity.

The researchers found no indication in this study that political ideology was connected with more involvement in preventative health practices, such as increased avoidance of touching one's face, even though individuals who were more liberal expressed more significant worry about COVID-19 (Shook et al., 2020).

The parasite-stress hypothesis of values and sociality provides a plausible evolutionary explanation for why and how cultures and their underlying value and belief systems vary so widely. Its authors, Fincher & Thornhill, argue that parasite stress in the ecological environment has causal consequences on human behavior by activating the behavioral immune system and driving assortative socialities, such as philopatry ethnocentrism, xenophobia, and religion. Intense assortative sociality is induced by high parasite stress levels, leading to group isolation, from which values and beliefs emerge and evolve independently and differently from outside groups, culminating in separate cultural systems (Culpepper, 2019). *Philopatry* can be defined as an organism's proclivity to remain at or return to its birthplace regularly. It is a robust isolation process resulting in genetic separation, divergence, and, eventually, speciation. The lack of, or limited, dispersal from one's natal locale causes an increase in social interactions among local, similarly immunologically adapted individuals and a decrease in social interactions and contact with distant individuals with dissimilar immunology and novel parasites in human social behavior (Culpepper, 2019).

Assortative mixing (homophily) is a sociological notion in which similar people are more likely to interact than unlike persons (McPherson et al., 2001). Many types of assortative behavior, such as racism, classism, tribalism, and nationalism, have been embedded in the

foundations of communities throughout human history (Culpepper, 2019). "Preferential connection between similar individuals who comprise an in-group vs. an outgroup or dissimilar others" is assortative sociality (Thornhill & Fincher, 2008). More precisely, it may be defined as the desire for, or alliance with, like persons in social interaction; and these social behaviors can be used for mating, reciprocity, religious service, and many types of collaboration, among other things (Fincher & Thornhill, 2008a). People's favorability of their in-groups rises when they are threatened by sickness. In difficult times, groups provide resources and support, as well as herd immunity to diseases that the group is more experienced with. Given this evolutionary habit, disease salience and conformity should be linked.

The common thread running through these examples of assortative social behavior is that they promote assortative interactions by promoting selective contact (or contact bias) with specific individuals or groups, which motivates (whether intentionally or by default) reduced interaction or outright avoidance of others, thus defining a boundary between in-group and outgroup (Fincher & Thornhill, 2008a). These assortative preferences are linked to BIS characteristics. Indeed, the three primary social components of in-group assortative sociality (philopatry, ethnocentrism, and xenophobia) likely developed to assist deal with infectious disease risks, resulting in a 'parasite-driven wedge' between in-groups and outgroups, according to Fincher and Thornhill (Fincher & Thornhill, 2008, 2012).

According to the idea, in-group assortative sociality evolved to bias people toward in-group members with shared immunological adaptedness while discriminating and avoiding outgroup members due to their propensity to transmit new parasites. Furthermore, parasite stress is affected by environmental and geographical factors, both of which can change over time. As a result, they propose that degrees of assortative sociality and related attitudes and beliefs exist on

a scale that is based on and varies with pathogen stress levels. In other words, groups living in high-pathogen-stress settings will have a higher degree of assortative sociality on one end of the spectrum (i.e., conservative, traditional, collectivistic, individualistic) than those living in low-pathogen-stress situations. People who live in high-parasite-stress surroundings are more likely to be conservative, traditionalists, and collectivists, whereas people who live in low-parasite-stress environments are more likely to be liberal, progressive, and individualistic.

This is thought to be because of the trade-off between the benefits and costs associated with them (Culpepper, 2019). However, it is also believed that individual BIS strength variation within a group causes within-group variations, such as polarized politics, in addition to these group differences (Tybur et al., 2016). Individuals with higher BIS activation (or strength) have higher in-group assortative sociality, resulting in a more socially and culturally conservative value system; however, individuals with lower BIS activation (or weakness) have higher outgroup prosociality, resulting in a more socially and culturally liberal belief structure (Culpepper, 2019).

The BIS's primary role is to defend the body against infections; however, like with many evolved processes, the adaptive function has side effects. Historical studies of stereotypes, prejudice, and exclusionary intergroup behavior demonstrate a proclivity to link foreigners to sickness. Epidemics are frequently blamed on ethnic outgroups, and these outbreaks can provoke fiercely xenophobic attitudes toward outsiders. This idea was also supported by two experiments in which the salience of contagious disease was controlled: participants with high disease salience had less positive attitudes toward foreign (but not familiar) immigrants and were more likely to support policies that favored the immigration of familiar rather than foreign peoples. These findings point to a hitherto unknown effect on xenophobic sentiments, as well as

intriguing connections between evolutionary disease-avoidance systems and modern social cognition (Faulkner, Schaller, Park, & Duncan, 2004).

Prejudice towards people who are thought to be potential carriers of infections or parasites serves an adaptive function in preventing the spread of potentially dangerous pathogens and parasites through contact. In past evolutionary settings, when there were many dangerous infections for human health, Faulkner et al. (2004) hypothesized that an adaptive inclination would have been to avoid individuals who were likely carriers of infectious illnesses. As a result, xenophobic sentiments are observed when there is disease danger.

In evolutionary psychology, a body of work has emerged in the last two decades to link unfavorable attitudes toward outgroups to an evolved behavioral immune system (BIS). It is hypothesized that disgust sensitivity, which developed as a defense against disease risks, also causes reactions to non-viscerally repulsive stimuli, such as persons with unusual or unfamiliar physical features or qualities. Hence, it might explain bias towards people who belong to what one might categorize as an outsider group. This argument appears to restrict the impact of education, government policy, and rhetoric on such sentiments. Existing theories on why the BIS is activated without visceral disgust elicitors imply that general unfamiliarity or atypicality serve as cues for this hypersensitive danger detecting mechanism.

To some extent, this may be accommodated within the concept of the 'behavioral immune system,' with the critical addition that trade-offs must be considered; this means that the BIS's influence must be determined by the cultural and sociological environment in which individuals learn not just what is repulsive but also what is commonplace. As a result, any influence of the BIS on attitudes and behavior toward ethnic and racial outgroups must be addressed in the context of personal engagement with the mainstream ideas within the social consciousness and



mass media representation of and political discourse concerning those populations. The BIS is neither a particular nor complete explanation of bias compared to social science explanations.

Evidence has found that the BIS influences political attitudes and affiliations. For example, Culpepper found that pathogen-salient pictures, which indicated increased parasite stress, activated the participants' BIS and prompted in-group assortative social behaviors, which influenced the expression of their values and views and led them to choose a more socially conservative set of governing regulations when asked to design a moral framework for their society (Culpepper, 2019). These findings, however, show that moral ideals, at least those involved in deciding a society's governing laws, may shift as a result of perceived parasite stress, potentially affecting political leanings and polarization (Aaore et al., 2017).

Individuals with stronger disgust sensitivity were more likely to accept a harmful worldview and socially conservative attitudes, according to Shook et al. (2017). A harmful worldview mediated the link between disgust sensitivity and social conservatism. Additionally, disgust sensitivity has been linked to voting choices. Greater disgust sensitivity was connected with a lower intention to vote for Obama than Romney and a lower chance of voting for Obama in the 2012 U.S. election, according to Shook, Oosterhoff et al. (2017). (Shook, Oosterhoff et al., 2017). Disgust sensitivity was linked to conservative attitudes, a higher probability of being a Republican, and a lower likelihood of being a Democrat (Shook, Oosterhoff, et al., 2017).

What role might the behavioral immune system play in political choice and disease avoidance behavior with all this considered? The BIS appears to be having an inverse relationship with the COVID-19 epidemic. People who are more sensitive to disgust, which should make them less susceptible to illness since it induces a higher rejection rate of potentially contagious stimuli, have been less bothered and less or inaccurately educated about COVID-19.

There is a lot of data to back up the idea that BIS activation is linked to behavior, both individually and in groups. Individuals respond in ways that are consistent with avoiding other people after being exposed to illness signals; many researchers found that when people are exposed to illness signals, they are more likely to avoid them (Duncan & Schaller, 2009; Faulkner et al., 2004)

Republicans were less inclined than Democrats to follow CDC-recommended behavior, such as social distance, and were less concerned about the pandemic, according to a survey conducted in March of 2020. Republicans, on the other hand, were more likely to support restrictions on foreign trade and cross-border travel when framed as probable pandemic mitigation measures, according to the same poll (Gadarian et al., 2020). Partisanship was shown to be the most constant factor in explaining disparities in health behavior and public policy perspectives, according to the authors (Gadarian et al., 2020).

From this review of the collective research, it has been often found that conservatives, in comparison to liberals, have stronger physiological reactions to stimuli that they perceive as negative and dedicate more mental resources to them. Potential reasons for this unusual trend include the in-group preference that the evolutionarily developed technique of illness avoidance fosters, as well as politicians and media personalities' politicization and downplaying of the pandemic's seriousness. The BIS may be increasing partisanship by encouraging individuals who are sensitive to disgust to favor and trust their in-groups and remain loyal to the values of those in groups rather than considering facts.

## **Discussion & Analysis**

COVID-19 is a severe worldwide health issue. Changing one's behavior is the most effective way to reduce disease transmission outside of vaccines. Therefore, it is critical to identify psychological elements that may inspire people to engage in preventative health practices. Unfortunately, as we know, broadly, those who exercise conservative political affiliation (in the U.S.) have also expressed less support for the government's public health measures to aid in preventing the spread of the COVID-19 coronavirus.

As discussed earlier, researchers have spent time looking to understand how social conservatism interacts with the behavioral immune system, particularly regarding social attitudes towards COVID-19 and the impact of those attitudes on the course of the pandemic. The early days of the epidemic in the United States further contributed to growing uncertainty about responding, displaying severe mismanagement by the federal government and the Centers for Disease Control and Prevention. Divergences in containment and mitigation plans among state governments further highlighted the highly politicized character of public health interventions in 2020. Attitudes about the coronavirus are linked to social conservatism. Conservatives are less concerned about the virus, encouraging families and businesses to ignore public health safety protocol and return to regular life; they are also less educated about COVID-19 and have more positive attitudes toward the U.S. government's (arguably poor) reaction.

The pandemic should have elicited mass behavioral immune system response and sickness behavior in the form of adhering to public health protocols. Instead, the reaction to the impending pandemic led to an initial surge of fear-based behavior and resource-hoarding (especially in resource-rich communities, often leaving under-resourced communities and vulnerable people with little to no options to keep themselves and others safe) paired with complete overwhelm of our healthcare systems due to rapid transmission and mortality which

was then followed by a flood of apathy and misinformation once people got tired of adhering to public health protocols. Nevertheless, this anxiety may have certain advantages. For example, Harper et al. (2020) found that fear of the coronavirus predicts adherence to government lockdown measures as well as beneficial behavior changes like social separation and greater hand washing.

Partisan politics influence the public's response to public health problems. For example, people typically utilize approximations, or shortcuts, to compensate for lack of information; political parties provide essential information to voters so that they can adjust, allowing them to make better decisions with less information. In addition, because there is not enough time for each person to sit down and learn about every subject, people tend to rely on trusted sources, which, in this case, commonly include public health specialists and politicians.

The epidemic got politicized as a result of the president's clear message influencing the attitude of his supporters; even people who do not carefully follow the news can acquire a strong impression from how the president presented the situation. For example, in the second week of the shutdown, in March 2020, the president questioned whether the government had gone too far in restricting the economy to prevent the spread of infection, and he considered lifting the restrictions, despite health experts' advice that the shutdown should be extended for at least a few more weeks (Tankersly et al., 2020). The news polarized the country, with those concerned with right-wing objectives generally supporting the president's actions and those with more left-wing attitudes opting to adhere to public health protocol.

The impressions received from these sources significantly impact a person's views and subsequent conduct. For example, Donald Trump's messaging regularly minimized the pandemic's importance and severity, equating it to the seasonal flu and saying that testing is

readily available, despite public health authorities' complaints that access to testing is limited (Qiu & Bouchard, 2020). As a result, people relaxed, their fear, which had been protecting them and others, melted away, and the healthcare system remained overwhelmed.

The pathogen danger posed by the COVID-19 pandemic should promote higher political in-group preference, as the BIS produces attitudes that favor the in-group. Right-wing persons will have a good impression of the U.S. government's (now right-wing institution) reaction to the COVID-19 outbreak, while those on the left will have a more negative attitude.

Due to socialization, our moral ideals are intertwined with our inclination for disgust. Disgust is a normal reaction to both contamination and injustice. Because disgust sensitivity is linked to socially conservative attitudes, persons who are more disgust sensitive may be more inclined to listen to and accept right-wing sources who have downplayed the pandemic's severity and the necessary public health practices to stop infection among the U.S. population.

Whether driven by xenophobia or the desire to follow established traditions, persons who refuse to use effective new measures for infection prevention (e.g., vaccinations) increase their chances of becoming sick and, as a result, infecting others. People who have a stronger dispositional sensitivity to disgust are more likely to be anti-vaccine, and additionally, disgust sensitivity and germ aversion had a direct favorable influence on vaccination uptake but an indirect negative effect on vaccine views (Clay, 2017). Disgust for pathogens is linked to a higher conviction that immunizations cause autism (Clifford & Wendell, 2016). Disgust for pathogens is also linked to pessimism about vaccination safety and efficacy (Clifford & Wendell, 2016). Moreover, where one would expect to detect a link between BIS measures and conservative opinions toward COVID-19, the politicization could be producing a divide.

Individual attitudes impact the laws and public policies produced by governments in many modern cultures, resulting in additional population-level health repercussions. The election of more conservative candidates and the creation of administrations with more conservative political programs might result if these opinions are generally shared throughout society. These platforms guide the adoption of policies, budgets, and legislation that have long-term implications for population health. The nature of those long-term health results may be determined by how conservatism presents itself in the local political framework and whatever the circumstances are (Schaller et al., 2015).

Although they seem inevitable, health disparities are determined by the strength of the social safety net and occur in relation to other aspects of social conditions: income, education, occupation, race/ethnicity, gender, sexual orientation, and place of residence. These three sources of evidence: US population's poor health compared to other countries, the existence of disparate health outcomes, and fluctuations in health and health inequalities in response to policy-driven changes in social conditions—emphasize the importance of policies that address social determinants. However, not traditionally thought of as "health policies," such programs have the potential to improve the health and lifespan of all Americans while also reducing health inequalities (Adler et al. 2016).

The pandemic's impact and causes highlighted the severe health disparities generated by structural unfairness and the country's inability to provide financial or structural help to vulnerable populations. Social benefits tend to be linked to work and neighborhoods, and communities with a higher concentration of ethnic minorities have fewer of these benefits. Broader social and economic policies that cause vulnerability among specific populations must be addressed promptly. These imbalances exacerbated COVID's impact on populations obliged to

work in high-risk jobs, live in hazardous and unstable housing, and receive fewer and lower-quality health care. COVID was partly the result of infectious disease and a high prevalence of underlying conditions, which reduced survival rates. However, it also had an economic impact, as measures intended to stop an outbreak instead shut down businesses, put people out of work, and resulted in significant income losses. If there is no safety net in place for socioeconomic policies, the threat to people's lives can become as great as a virus (Yong, 2020).

The potential impact of how political leaders define issues on the opinions of individuals who associate with those parties demonstrates the relevance of how political leaders present issues. Conservative political views may obstruct the approval of new healthcare policies that might otherwise benefit many people in situations when existing programs and policies are inadequate in meeting public health demands. These platforms guide the adoption of policies, budgets, and legislation that have long-term implications for population health. The nature of those long-term health effects may be determined by how conservatism shows itself in the local political environment and any existing health-related cultural traditions (Schaller et al., 2015).

## **Conclusion**

We are now living in a high pathogen stress environment more than ever. COVID should have been able to activate our collective BIS, but political events impacted our social consciousness and interfered in those processes, and we were left with this result. Policy errors and imprudent actions, as well as the exclusion of reputable health professionals and the abandonment of the expertise of the Center for Disease Control (CDC) and World Health Organization (WHO) at the worst possible time, have exacerbated the calamity. Our leaders made a mistake when something as simple as wearing a mask became a symbol of partisanship and

division (Gostin, 2020). This and many other errors happened for a number of reasons; the question now is how to move forward with the lessons learned and in a way that rectifies all of our weaknesses that were highlighted and exacerbated by the pandemic.

Since diseases are mostly caused by health-risk behavior, the ability to comprehend how health behavior, such as the biological immune system, may be improved in the general population, could help to drive progress in public health efforts. Overall, in the context of the current pandemic, the behavioral immune system may have substantial consequences on social behaviors and relationships, assisting in the explanation of social behavior in terms of physiologically based causes. Such knowledge is essential if we are to drive public behavior and appropriate public policy to stop the virus from spreading properly.

COVID-19 put pressure on all levels of government to respond in an environment of considerable political, economic and social tension. This uncertainty and inconsistency caused additional stress in the face of an already existing pathogen threat. A new obstacle emerged with the unfolding of multiple waves of infections in many countries: the restricted ability to sequence policy action. To manage, escape, and recover from the crisis, national, regional, and municipal governments have discovered that they cannot rely on a singular route of policy action and cannot allow health messaging and protocols to become politicized. Governments must instead act in lockstep on all fronts with flexibility, the adoption of tailored strategies for public health education and communication, as well as mobilizing and coordinating numerous policy sectors and all levels of government, in order to be successful and restore trust in governance. It requires strong leadership, as well as good coordination, consultation, and collaboration between government and non-government entities. It also relies on restoring public confidence and maximizing the value of ongoing dialogue with stakeholders and citizens.



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