

# Psychological Science in the Era of Infectious Disease

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Over the last several months, we have witnessed an unprecedented spread of the novel [coronavirus disease \(COVID-19\)](#). Some fear that its magnitude could eventually be comparable to that of the 1918 flu pandemic, which killed more than 50 million people worldwide. As the virus's onslaught unfolded, I began to feel that psychological scientists must join forces in the fight against the pandemic. In particular, I wondered whether massive variation in countries' vulnerability to the virus might shed light on the core mechanisms underlying its transmission. This thought may not be too far-fetched. Even though this infectious disease is caused by a virus (a bit of genetic material in a spiky lipid shell), [its behavior is nearly entirely contingent on human behavior](#) (Quammen, 2012). Thus, as a field, psychological science may have a lot to offer. Relevant regulatory agencies, including the Centers for Disease Control and Prevention in the United States, must heed psychological science insights when formulating their policies and regulations.

*Panelists Robert Roy Britt (LiveScience and Space.com), Wendy Wood (University of Southern California), and APS President Shinobu Kitayama (University of Michigan), interviewed by APS staff member Charles Blue, discuss the psychological dimensions of COVID-19.*

In this column, I want to address three issues that strike me as particularly important as we face the challenge of managing the current and future pandemics. I argue that the collective-level dynamics of (a)

risk assessment, (b) selfish versus prosocial motivations, and (c) interpersonal relationships powerfully influence the spread of infectious diseases, including COVID-19. I draw heavily on my first-hand experiences in the United States, where I live. However, I hope my discussion carries relevance for readers elsewhere. I conclude with a plea for basic research anchored in the urgent practical issues of society.



Shinobu Kitayama

### **Pluralistic Ignorance: Why Are We Often Complacent?**

Any cursory observation would suggest that people's behavior during the pandemic depends very much on their ability and willingness to recognize COVID-19 as a threat. Once people perceive this threat as urgent, they will be alarmed. They may try to cope with the threat. For example, they may sacrifice some conveniences and wear face masks or socially isolate themselves. The problem, however, is that there is nothing concrete about the threat of infectious disease. The threat is often invisible until it is too late, when many people have already been infected and hospitalized. If people do not perceive the virus as a threat, they may perceive warnings as hearsay. If you take it seriously, you may be accused of being an alarmist. Indeed, whenever there is alarm, there also exists a strong motivation to discount or dismiss

it. When this dismissal occurs, it leads to complacency. One important lesson from the current pandemic is that people are very prone to such complacency.

[See all columns by Shinobu Kitayama](#)

The apparent calm of others in one's community may reinforce this complacency. By February, many New York City residents already knew about the spread of COVID-19 in Asia and Europe. They had been informed of earlier infections in the area. The first death in the city occurred in the first week of March. Nevertheless, most residents failed to act, seemingly feeling safe and protected. With the benefit of hindsight, this calmness seems like complacency, which indeed eventually haunted many of them. How can such complacency come about?

*A collective failure to calibrate each other's anxiety (pluralistic ignorance) leads to a collective failure to act properly.*

One plausible answer is provided by social psychologists Dale Miller and Deborah Prentice, who analyzed a collective dynamic called pluralistic ignorance (Miller & Prentice, 1994). Sometimes, we end up believing that everyone else feels safe not because they actually feel that way but because they don't show any signs of discomfort or anxiety. In the context of the current pandemic, everyone may well have suspected a real threat. However, a vast majority refrained from acting proactively to prevent the threat precisely because they witnessed others' inaction and judged that the situation was fully manageable, if not completely safe. The irony is, that error in judgment (i.e., the perceived safety of the situation) was based precisely on the inaction of other people, who were guided by the same judgment. Thus, a collective failure to calibrate each other's anxiety (pluralistic ignorance) leads to a collective failure to act properly.

In all likelihood, the people who gathered at Florida bars or Southern California beaches in recent months, or the riders who blasted their Harley-Davidsons all the way to Sturgis, South Dakota, during the second week of August, were complacent. Their complacency, however, was not simply due to a failure to understand the reality of the pandemic. To the contrary, their perception of that reality may have been systematically distorted by a little bit of innocuous pretension or even civility—a desire not to be seen as alarmist or as weak or feeble. The resulting distortion of reality may have made it seem completely rational not to worry much about COVID-19, which unfortunately led to the virus's spread in various communities.

### **The Tragedy of the Commons: Self-Protection Versus the Protection of a Community**

No matter how prone individuals might be to complacency, they will eventually recognize a real threat if people around them start to fall prey to the disease and begin to die. When the threat is duly recognized, however, another collective dynamic enters and makes it hard to organize preventive actions. We are all social animals, meaning that we all live in a community. Each of us is an individual animal that must survive and, better yet, flourish. At the same time, we must also protect our community. Without doing so, we may eventually fail to survive and flourish as individuals. Nevertheless, personal interest is often far more immediate, direct, and concrete than the collective good. Thus, there arises a potential conflict

between the two. This conflict may be elucidated no more clearly than in the decisions we must make in times of collective difficulty, including the current pandemic.

For example, consider the practice of wearing a mask in public. At the individual level, it can be an annoyance. This adverse reaction to mask-wearing can be rather strong in contemporary mainstream American culture. According to Masaki Yuki and colleagues, the mouth is a “window to the soul” for Americans (Yuki et al., 2007). The mouth is instrumental for communication, including emotional expression, in American society. A “big smile” signifies a superb soul behind it. In this society, then, a request to cover up the mouth could threaten the core of one’s identity. In line with this reasoning, in the United States over the last few months, the simple, practical decision to wear a face mask during the pandemic has been moralized and portrayed as a matter of individual freedom. Moreover, many Americans have persistently refused to cover up their mouths in public, to the detriment of the public welfare. This has occurred even though the use of face masks is demonstrably effective in containing the spread of COVID-19 (Lyu & Wehby, 2020).

It appears as though many Americans have maximized their psychological welfare by not covering their mouths. This behavior, however, has come at a grave cost for the collective. Each individual is protected as long as many others in the community wear masks. If a majority choose not to wear a mask, then you may not be protected even if you wear a mask. Unfortunately, again and again, many Americans prioritized their personal convenience or preference while ignoring the collective consequences of doing so.

*What can we do to promote the collective good when there are competing individual-level goals, desires, and needs? [Candidates] may include building trust in both the government and science, promoting transparency in the dissemination of relevant information, and developing strong social norms for prosocial preventive actions.*

This discussion illustrates a conflict between personal interest and the public good. This conflict has been studied under the rubric of the tragedy of the commons (Hardin, 1968), which refers to a collapse of the public good (e.g., a virus-free environment) when every individual in the community acts by narrowly focusing on their own personal interest (e.g., not wearing a mask or avoiding vaccination). What can we do to promote the collective good when there are competing individual-level goals, desires, and needs? This essay is not the place for an extensive discussion of the matter. However, there are some clear candidates. They may include building trust in both the government and science, promoting transparency in the dissemination of relevant information, and developing strong social norms for prosocial preventive actions (Habersaat et al., 2020; Van Bavel et al., 2020). We must analyze the devastating failure of the United States and discuss the pandemic in these terms, which leads me to my last point.

### **Culture and Social Relations: A Key to Understanding the Vulnerability of Different Nations**

In a penetrating article published in the *New York Times* in August, David Leonhardt attributed the U.S. failure to contain COVID-19 to two major factors. One is the lack of adequate federal leadership, consistent with my analysis above. Notably, as the other culprit, he highlighted American individualism. Leonhardt draws our attention to the seemingly selfish behaviors of many Americans, including the

refusal to wear masks. The ideology of individualism may give an unalloyed endorsement of self-interest (Miller, 1999). Unlike more communal, interdependent worldviews, this ideology may therefore be more likely to promote and legitimize self-interested behavior (Betsch et al., 2017). In fact, it is fully ingrained deep into the mind and the brain of Americans (Kitayama & Park, 2014). Further, the tendency to prioritize self-interest over social norms may be exacerbated because of the looseness with which Americans apply social norms in many mundane social situations (Gelfand et al., 2011). Also, the version of individualism prominent in the United States appears to be undergirded by strong values of toughness and self-sufficiency (San Martin et al., 2018). Those aspects of individualism might have bolstered the collective complacency during the pandemic, but I suspect there is an additional reason individualism could impede efforts to contain COVID-19. Let me explain.

Many infectious diseases, including COVID-19, transmit through social contact. It follows that their spread should depend on the nature of social networks. If [social networks are relatively open, the risk of transmission should increase](#), whereas if they are relatively closed, the risk may be contained. One prominent aspect of individualism lies in the liberation of individuals from socially ascribed relationships, such as social roles and kinship. People in individualistic countries tend to be socially open for reasons that are fundamentally ideological or philosophical. Each person is thought to be independent, even in the domain of social relations. They are therefore encouraged to choose their acquaintances, friends, and spouses freely. This ideology, an interpersonal extension of the Enlightenment idea of the social contract (Rousseau, 1762), has been ingrained into the matrix of social relations in the United States. If socialized in this cultural milieu, people naturally become socially open, seeking new relations beneficial to the self.

I am grateful to many American friends and colleagues who initially welcomed me as a new foreign student some decades ago. I am now so happy to interact with many American students, who constantly challenge me as their intellectual equal for open intellectual discussions. Social networks in the United States are very open. I love this aspect of the culture. Ironically, however, this very positive attribute of individualism could be a liability during the pandemic. Social openness may have contributed to the spread of COVID-19.

Is there any evidence for this analysis? My research team recently adopted a measure of the social openness of a community (the degree to which people freely choose partners of social interaction), called relational mobility (Salvador et al., 2020). This measure is available for 39 countries across the globe (Thomson et al., 2018). We found that this index significantly predicted the speed of the spread of COVID-19 during the first 30 days of country-wise outbreaks. In our estimation, if the United States had been much less open—say, as open as Japan, one of the least open of the 39 countries tested—U.S. deaths at the end of the 30-day period would have been 8.2% (281) of the actual number reported (3,417).

## **Postscript**

The 21st century may be the era of infectious disease (Quammen, 2012). Humans may face increasingly frequent assaults from infectious viruses of nonhuman animal origin. This increase is inevitable, given expanding global human mobility, combined with more frequent contact with nonhuman animals resulting from a population explosion and industrialization.

Challenging and worrisome as this prospect might be, it also presents great opportunities for

psychological scientists to explore ways to preempt human misery and possibly enhance human welfare. By identifying principles of cognitive, emotional, and motivational processes in collectives, whether nations or local communities, in this time of tremendous uncertainty and urgency, we may hope to offer empirically based, practical recommendations for the fight against infectious diseases (Habersaat et al., 2020; Van Bavel et al., 2020). In turn, this work may inform basic theories of our field. As Kurt Lewin noted decades ago, “there is nothing as practical as a good theory” (1943, p. 118). I hope this column can contribute in some small ways to this dialectic of applied and basic research.

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