

**COMMENTARY**

Stigma, pandemics, and human biology: Looking back, looking forward

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Humans and infectious disease agents share a long, intimate coevolutionary history, and this biocultural dynamic includes stigma. By stigma, we mean the process by which some people become morally discredited, socially devalued, and disempowered on the basis of disease diagnosis or other trait. The most powerful stigmas in the past and now are around diseases considered contagious, potentially deadly, and without a known cure—which describes COVID-19 currently. Evolutionary interpretations of these responses suggest perhaps this deep fear reaction was once adaptive, with stigma acting as an additional, useful “behavioral immune system” in human societies prior to the emergence of public health systems. That is, a learned disgust that would become directed at people and not just objects could be advantageous if it reasonably indexed who might be infectious and contagious and made us avoid them (Curtis, Aunger, & Rabie, 2004; Kurzban & Leary, 2001).

But in the contexts of complex, unequal contemporary life, public stigma toward infectious diseases only accelerates their spread (Brewis & Wutich, 2019; Link & Phelan, 2006; Major, Dovidio, Link, & Calabrese, 2018). When disease is stigmatized, people do what they can to avoid the social label that comes from being identified with it. This can include avoiding testing, hiding their illness from others, failing to maintain necessary treatments, or simply denying it. Stigma thus also undermines public health capacities to track and treat infections within communities. In addition, there can be multiple intersecting forms of stigma, creating what Turan et al. (2019) refer to as “intersectional stigma.” Intersectional stigma refers to the convergence of

multiple stigmatized identities and behaviors within an individual or group. In our world today, many people experience multiple levels of intersectional stigma based on marginalized and often racialized identities that intersect with other forms of stigma.

In this commentary, we reflect on some potential dimensions of stigma relevant to human biologists, considering stigma as a wide, infiltrative, and often subtle biocultural process. On the basis of histories of other disease stigmas, we make some predictions the trajectory of stigma in relation to COVID-19. And in doing so, we highlight what we consider some especially timely and important research directions for human biologists in the year(s) ahead.

1 | PREDICTION 1: STIGMA AROUND COVID-19 WILL PERSIST LONG AFTER THE DISEASE WANES

It is well established that infectious disease triggers stigma, and stigma worsens disease. But the enduring power of the fear reaction means that the moral taints that stigma that attaches to people who contract infectious disease—and those who are connected to them—can persist well after recovery. For example, medical staff in Saudi Arabia who were hospitalized with (often deadly) MERS reported years later that people treated them differently, and for many their whole sense of meaning and belonging in their work life never returned (Almutairi, Adlan, Balkhy, Abbas, & Clark, 2018). Similar findings were reported in the wake of SARS in Hong Kong, with those recovered after hospitalization finding

it hard to reenter society because of persistent stigma (Siu, 2008).

Accordingly, the long-term effects of COVID-19 stigma on the physical and mental health of people who were infected can thus be predicted to endure, even after vaccines and other solutions become available. Media reports of those recovered from the first waves of recovery are indicating stigma-related social ostracism (Nir, 2020; Takahashi, 2020; The Hindu, 2020). Testing comparative hypotheses would be a useful direction for human biological research. We could expect, for example, that such recovery-related stigma to be potentially worst in zones with *lower* overall infection rates or less experience with the disease, exactly because it is less normalized as a diagnosis.

2 | PREDICTION 2: STIGMA EXPERIENCES WILL IMPEDE INDIVIDUAL CAPACITIES TO RECOVER

Rooted in powerful emotions and feelings of social rejection, experiencing stigma can elicit powerful physiological stress responses. These are not well studied in regard to embodiments of infectious disease stigma, but they have been detailed for other forms of disease-related and identity and intersectional stigma. Felt stigma related to large bodies, for example, can inhibit immune response, heighten blood pressure, increase inflammation, elevate cortisol, and activate or worsen chronic disease (e.g., Brewis & Wutich, 2019; Himmelstein, Incollingo Belsky, & Tomiyama, 2015). Marginalized individuals, including people in racialized communities of color, also experience elevated stress levels due to the multiple levels of stigma that they face. As Jackson-Best and Edwards (2018) note, “stigma across HIV/AIDS, mental illness, and physical disability can be co-occurring with interact with other forms of stigma related to social identities such as race, gender, and sexuality...stigma is especially problematic for people living with these conditions as it can create barriers to accessing necessary social supports which can intensify their experiences.” Such stress effects are one reason that stigma has been described as a major, but barely recognized, driver of health disparities (Hatzenbuehler, Phelan, & Link, 2013). This basic stigma-stress model predicts that when people are exposed to and internalize stigma related to COVID-19, it could make them more prone to infection, likely to experience complications, or slower to recover. This is a wide-open area for human biological research.

3 | PREDICTION 3: AS COVID-19 RISK BECOMES ASSOCIATED WITH MARGINALIZED OR OTHERWISE HISTORICALLY DISEMPOWERED GROUPS, STIGMA TOWARD THE DISEASE WILL ESCALATE

Importantly, who gets sick—or, at least, who is *reported* to get sick—matters to how stigma builds around a disease. Stigma often elevates when diseases become associated with marginalized, disempowered, or socially devalued groups. Briggs' (2003) account of how cholera traveled from rural, underserved indigenous communities and into the cities of Venezuela highlights how the stigmatized idea that it was a disease of “dirty” rural communities lead to slow and inadequate reactions in public health institutions that accelerated wider transmission. More recently, the association of cholera in the Dominican Republic with Haitians meant that Dominicans with less urgent concerns were treated first at the hospital (Keys et al., 2019). Many Haitians reported severe psychological distress from even thinking about going to the hospital. As more Haitians became sick and died from untreated cholera, it perpetuated their risks from the illness. It also reinforced a common Dominican belief that Haitians were morally inferior (disgusting, dirty, and ignorant). That is, infectious disease stigma can be self-reinforcing, if the reported disease patterning confirms stereotypes.

This was also the case with HIV/AIDS as it was first understood to be a disease mostly affecting Africans and, later, gay men. The stigma attached to Black gay men in particular (Bailey, 2017) demonstrated the adverse effects of intersectional stigma that made men in this category particularly vulnerable. Currently, there are elevated rates of COVID-19 in such groups as the elderly in care, marginalized racial/ethnic groups, and people living with diabetes/obesity. We expect rates to continue to accelerate in such places as prisons and immigrant detention centers. This is likely to increase concurrently the stigma, and intersectional stigma, related to the disease.

An important area where human biological research can contribute is in identifying ways to track stigma and its impacts in space and through time in epidemiological terms. There are now preliminary scales available, such as the “fear of COVID-19 scale” (Ahorsu et al., 2020), but these do not currently consider how notions of fear around the virus tie to stigmatized (including racialized) ideas about who might transmit it or other fears that target groups of people (rather than the disease itself). We need to develop scales that capture these important social dimensions of the spread of COVID-19.

But what of directly challenging public stigma itself? Stories that connect suffering to disease pattern are an important factor in building the forms of public empathy that can diminish stigma's harmful power. The approach of biocultural studies, integrating ethnographic and political-economic context into explaining how and why suffering is compounded for some groups (e.g., Mendenhall, 2019), is particularly well-placed to advance this agenda.

4 | PREDICTION 4: COVID-19 STIGMA WILL REINFORCE AND WIDEN EXISTING HEALTH BUT ALSO OTHER SOCIETAL INEQUALITIES

As Didier Fassin (2003:58) said of the HIV/AIDS epidemic, infectious diseases “speak to us of the order and memory of our societies.” Stigma focuses pandemic infections like COVID-19 along lines of low power, both reflecting and worsening inequalities. But importantly, stigmatizing institutional reactions that deploy such tropes typically advance or consolidate power. It has “stigma power,” and so much so that Link and Phelan (2014) define stigma as only being able to exist in the context of unequal power relations.

Infectious disease can be used to stoke xenophobia for example, like with the US administrative labeling of COVID-19 as “Chinese” virus in ways that highlighted and concentrate political blame. Aligned with this, attacks (verbal, physical, and media-based) on those presumed to be from coronavirus-struck China have been reported globally (Ren, Gao, & Chen, 2020; Yellow Horse & Leong, 2020). Early commentaries suggest that increasing associations with marginalized and stigmatized groups (Black people in the US, Muslims in India, etc.) may be shaping government reactions to the disease in ways that lay blame and ultimately place such groups at greater risk. Moreover, racial or other stereotypes or identifying risk as link to stigmatized places where marginalized communities live are emerging as a means to justify political decisions that place these groups at greater risk (Chowkwanyun & Reed Jr, 2020). Notably, people in marginalized groups experience intersectional stigma that exacerbates mental illness while also presenting barriers to accessing treatment.

This is a recurring historical theme, such as the damaging stigma created by identification of HIV with Haitians in the 1980s (Farmer, 2006) or typhoid with the Irish in the early 1900s (Othman & Darrow, 2019). As the Venezuelan cholera case shows, stigmas related to infectious disease are a means by which established hierarchies and inequalities become embodied as differential

physical harm and suffering. And this then permits and reinforces institutional disadvantage and systematic mistreatment. In some cases, there are political and economic advantages to leveraging disease stigma, and these can even come from within or at least be advanced through public health institutions. One of the best examples of this was how the newly created Hawaiian Public Health Board (composed of US business and missionary interests) leveraged fear around leprosy to create quarantines in the late 1800s, which then assisted with undermining Hawai'ian efforts to restore the monarchy (Brewis & Wutich, 2019).

Beyond this, stigmas tend to layer with other diseases, other stigmas and adjacent vulnerabilities (like race or class). This concentrates risk, but the association with other stigmas also acts as moral justification for each of them—making them harder to remove. For example, consider the following typical social media post reacting to the risks of gym re-openings during the COVID-19 pandemic: “*Old people and fat people—don't go to the gym. Everyone else proceed with your lives.*” (twitter, @BeavShel, 5/12/20). Such views reinforce existing weight stigma and ageism to intimate some people should be judged by different standards and some lives have lower value.

Leveraging the notion of stigma power, such attempts should be seen as a first step toward deepening existing inequities and constructing post-pandemic socioeconomic and political dynamics that further disadvantage the scapegoated populations. This is an important area in which human biologists can contribute. For example, studies of human biological variation that incorporate the behavioral, psychological and physiological stress effects of stigma and discrimination provide powerful and needed examples to counter claims that pandemic diseases like COVID-19 act as a social leveler “because anyone can get sick.” Similarly, claims of “genetic susceptibility” to disease that are then used to explain these massive nonrandom differences (such as death rates by ethnicity) can either be evaluated by clear epidemiological/genetic data or challenged through showing their association with the reinforcement of historical social and economic disadvantage. Human biology's fundamental challenges of racialized science (e.g., Gravlee, 2009) are timely and important here.

5 | PREDICTION 5: MORAL INJURY WILL DRIVE AN ATTENDANT EPIDEMIC OF MENTAL ILLNESS

Stigma is never victimless. The brunt of harm is suffered by those who are directly stigmatized. However,



as noted, stigma can have powerful spillover effects on nonstigmatized others. The notion of “moral injury” suggests that people who act in ways that violate their own deeply held moral beliefs can suffer significant trauma (Jinkerson, 2016). Such moral injuries can be precipitated by viewing or participating in dehumanizing treatment of others—a phenomenon that clearly describes stigma. People who suffer moral injuries are at elevated risk for mental ill-health, including anxiety, depression, PTSD, and suicidality (Williamson, Stevelink, & Greenberg, 2018)—all signs of the embodiment of psychosocial stress (e.g., Kohrt & Hruschka, 2010; Weaver, Worthman, DeCaro, & Madhu, 2015). Moral injuries have been described as attendant in a range of professions including military, education, and journalism (Williamson et al., 2018). But recent research finds moral injury is a growing problem in medicine and public health (Dean, Talbot, & Dean, 2019; Murray, Krahé, & Goodsmann, 2018), an observation highly relevant to treating COVID-19.

In the COVID-19 pandemic, doctors and healthcare workers are believed to be suffering moral injuries at high rates (DePierro, Lowe, & Katz, 2020; Galbraith, Boyda, McFeeters, & Hassan, 2020; Shalev & Shapiro, 2020; Williamson, Murphy, & Greenberg, 2020) when they feel unable to provide high-quality, affordable, life-saving healthcare due to a lack of time, funding, treatments, and autonomy (Dean et al., 2019). Potentially morally injurious events include: deaths of people in vulnerable categories, events for which healthcare providers are unprepared and unsupported, and lack of responsibility from leadership (Williamson et al., 2020). Moral injuries can be particularly harmful when they co-occur with other traumas (Williamson et al., 2020), such as healthcare providers themselves suffering stigma, being inadequately protected with PPE, falling sick with COVID-19, and putting their own loved ones at risk (WHO, 2020). We expect moral injuries may be elevated when pre-existing stigmas (e.g., members of marginalized groups or stigmatized health conditions) result in denials of care and/or deaths of COVID-19 patients. When healthcare workers adhere generally to a social justice ethos—or even see one specific case of stigmatization as unjust—moral injuries may be especially likely.

One important implication is that many healthcare providers' mental health will likely deteriorate during and after the COVID-19 pandemic (Galbraith et al., 2020; Greenberg, Docherty, Gnanapragasam, & Wessely, 2020), perhaps most especially those who perceive how unjust the pathways of epidemics are and are perhaps also those most likely to empathize with (and least likely to stigmatize) others. However, given the social dynamics around COVID-19, it is possible that nonhealthcare workers may also suffer moral injuries

related to the COVID-19 pandemic. Politicians and business owners, for example, may experience moral injuries if they enforce return-to-work orders that result in workers' deaths and disabilities—and there is abundant evidence that such orders disproportionately affect stigmatized and racialized populations (Millett et al., 2020; Mukherjee, 2020; Raifman & Raifman, 2020). In the US, for example, Black, Brown, and Asian-American communities report higher levels of mental health issues as they feel the weight of intersectional stigma resulting in lower feelings of self-worth (Mahdavi, 2020). This was made all the more acute when leaders like US President Trump made the contested decision to re-open public spaces when the numbers of cases were reported to be higher in Black and Brown communities.

The possibly morally injurious dimensions of such decisions have yet to be explored in the literature. But the upshot of this is that mental healthcare must be central to the societal response to COVID-19, and that human biologists (able to measure stress, and understanding embodied trauma), and are well-placed to lead the needed research.

6 | STIGMA, COVID-19, AND HUMAN BIOLOGISTS: MANY POTENTIAL DIRECTIONS

We have identified a number of directions for human biologists to engage in stigma-relevant research around COVID-19, with a view to better revealing and challenging population, demographic, and geographic differences in risk, and explicating the dynamic bidirectional role of physiological and mental health stress in relation to infectious disease. And, we have also suggested that research on stigma stress and its consequences in the contexts of pandemic disease is immediately needed, including not only those who are infected but all those other families, health professionals, and other caregivers at the front lines of the epidemic. Human biologists have much to do, any many ways to do it.

AUTHOR CONTRIBUTIONS

Alexandra Brewis: Conceptualization; writing-original draft; writing-review and editing. **Amber Wutich:** Conceptualization; writing-original draft; writing-review and editing. **Pardis Mahdavi:** Conceptualization; writing-review and editing.

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