



Human Biologists confront the COVID-19 pandemic

The COVID-19 pandemic stands as the defining global health crisis of our age, transforming human societies and exacerbating long-standing social and health inequalities. As a field that integrates across the biological and social sciences, human biology is uniquely positioned to offer important insights on nature and differential impact of the pandemic. In this special issue of the *American Journal of Human Biology*, I have invited a diverse group of scholars to provide Commentaries on the COVID-19 pandemic from the perspective their research. These 14 Commentaries highlight the impressive scope of work being undertaken in our field to address this pandemic. All of these contributions are freely-accessible and are also posted on Wiley's Covid-19 Resource Center (<https://novel-coronavirus.onlinelibrary.wiley.com/>).

The Commentaries by McDade & Sancilio (2020), Jones, Hazel, & Almquist (2020) and Moya et al. (2020) showcase the methodological and analytical innovations that human biologists are making in advancing testing, diagnostics, and modelling the spread of the virus. Thom McDade & Amelia Sancilio (2020) discuss how the field-based research approaches developed and used by human biologists can play a critical role in advancing community-based COVID-19 research. In particular, McDade et al.' (2020) recently-developed technique for measuring SARS coronavirus-2 (SARS-CoV-2) IgG antibodies in dried blood spot samples offers an important tool for assessing variation in the impact of the pandemic in diverse populations around the globe.

James Jones et al. (2020) provide an overview of the application of transmission-dynamic models for understanding the impact of the COVID-19 pandemic. Such models were critically important in helping epidemiologists estimate the size and scope of the early stages of the epidemic in China (Li et al., 2020). More recent studies have used transmission-dynamic models to explore postpandemic conditions such as the potential for seasonality in SARS-CoV-2 outbreaks and the need for prolonged or intermittent social distancing (Kissler et al., 2020).

Cristina Moya et al. (2020) explore the challenges associated with promoting behavioral change that will reduce the impact of the pandemic. They suggest that models and insights from evolutionary biology may be help to improve public health strategies for effecting such change.

Theodore Schurr (2020) examines the potential genetic risk factors for SARS-CoV-2 infection. He notes that most of the genes currently identified likely have a relatively limited impact on infection risk. These findings suggest that social factors and other health risks and comorbidities are having a much stronger hand in shaping the disparities in the impact of the virus across communities and populations.

Commentaries by Gildner & Thayer (2020), Palmquist, Asiodu, & Quinn (2020), and Bogin & Varea (2020) examine the potential transgenerational effects of the pandemic through its impacts on maternal-child health. Theresa Gildner & Zane Thayer (2020) nicely summarize several ongoing studies by human biologists that are exploring the consequences of the pandemic for different dimensions of mother-infant well-being (eg, immune function, psychosocial stress, infant feeding). Aunchalee Palmquist et al. (2020), in turn, provide a critical evaluation of the wave of recent studies designed to understand whether SARS-CoV-2 can be transmitted to an infant through breastmilk. They discuss both the difficulties in conducting such research under pandemic conditions as well as the challenges in translating these findings into relevant clinical and public health recommendations. Palmquist and colleagues underscore the importance of the comparative, anthropological/evolutionary perspective in providing the necessary context for understanding the how the COVID-19 pandemic is shaping maternal-child health.

Barry Bogin and Carlos Varea (2020) explore how the pandemic may be contributing to maternal stress, low birth weights, and later-life health outcomes. Drawing on previous analyses of changes in birth weight in Spain in response to the 2008 financial crisis (see Terán et al., 2020), Bogin & Varea offer predictions on how COVID-19 will impact birth weight and infant health in the next generation. They suggest that it may take two or more generations to fully evaluate the consequences of the pandemic on human health across the life cycle.

Peter Katzmarzyk, J. Michael Salbaum, & Steven Heymsfield (2020) consider the role of obesity and other chronic health problems in increasing the risk of severe COVID-19 complications. Recent work from the UK indicates that even modest levels of excess weight are associated with greater risk of hospitalization due to

COVID-19 (Hamer et al., 2020). While the mechanisms responsible for these interactions have not yet been determined, it is clear that this dynamic between chronic health problems and SARS-CoV-2 infection is further exacerbating long-standing social and ethnic health disparities.

Contributions by Brewis, Wutich & Mahdavi (2020), Bentley (2020), Gibb et al. (2020) and Gravlee (2020) evaluate dimensions of social and ethnic disparities in the impact of COVID-19. Alexandra Brewis and colleagues draw on insights from their previous research (eg, Brewis & Wutich, 2019) to offer predictions on the role of stigma in promoting disparities in the effects of COVID-19. They highlight the powerful and long-lasting effect that the stigma associated with SARS-CoV-2 infection is likely to have, along with the outlining the mechanisms through which stigma leverages inequalities in both mental and physical health.

Gillian Bentley (2020) considers the influence of structural inequalities on producing ethnic disparities in the impact of the pandemic. The model presented by Bentley nicely complements the Commentary by Katzmarzyk and colleagues in showing how larger structural inequalities over the life course contribute to cardiometabolic health problems that increase susceptibility to COVID-19.

James Gibb et al. (2020) address the differential impact of COVID-19 on sexual and gender minority (SGM) health. They note that the pandemic has further exacerbated the structural and interpersonal stigma and discrimination that SGM people have long experienced. Gibb and colleagues underscore the important role that human biologists can play in shaping policies and recommendations to promote more equitable responses to this health crisis.

Lance Gravlee (2020) broadens the lens on health disparities by using a syndemics framework to explore the interaction of COVID-19 with systemic racism and chronic health problems. The syndemics concept, developed and advanced by Merrill Singer and colleagues (eg, Singer, 2009; Mendenhall & Singer, 2020), highlights the roles of social and political-economic forces in promoting and sustaining *synergistic interactions* among co-occurring disease epidemics. Gravlee offers a detailed syndemic model, articulating the pathways through which conditions of systemic racism and social distress contribute to the rising and interacting disparities in the impact of cardiometabolic diseases and COVID-19.

Andrew Kim (2020) provides his insights on strategies for addressing the mental health consequences of the COVID-19 pandemic from his ongoing research in Soweto, South Africa. His commentary offers ethnographic accounts of COVID-19 from his fieldwork on trauma and

mental health. In addition, Kim discusses the measures that he and his colleagues have implemented to the safeguard the mental health of research staff, study participants, and their communities.

Cara Ocobock and Christopher Lynn (2020) conclude this special issue by discussing the critical importance of effective science communication on the pandemic. They offer a range of recommendations for increasing the impact and exposure (eg, blogs, podcasts, local events, multimedia formats) of our work. As the Social Media Editors for the *AJHB*, Ocobock and Lynn will also be doing a *Sausage of Science* podcast (<https://www.humbio.org/podcasts/>) with the contributing authors to this special issue to further highlight the distinctive approaches and perspectives that human biologists are using to understand and address the pandemic.

I sincerely thank all the authors for their thoughtful and timely contributions to this special COVID-19 issue of the journal. I hope and expect that these Commentaries will help stimulate further research and collaboration to better understand and address the biosocial dimensions of this pandemic. The *AJHB* will continue to be an important venue for publishing original research, reviews, and commentary on COVID-19.

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