



Sexual and gender minority health vulnerabilities during the COVID-19 health crisis

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1 | INTRODUCTION

Coronavirus 19 (COVID-19), the infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is both transforming and ending lives. In only 7 months (December 2019–July 2020), at least 11 million people have contracted the virus and over 500 000 have died (WHO, 2020). Though its impact is wide, COVID-19's illness and death tolls are felt most acutely by communities experiencing multiple and intersecting (Crenshaw, 1989, 1990; see also Cho, Crenshaw, & McCall, 2013; Collins, 2015) vulnerabilities—including, but not only, those that are socioeconomic, health, and structural (Brennan, Card, Collicot, Jollimore, & Lachowsky, 2020; Perez-Brumer & Silva-Santisteban, 2020; Poteat, Millett, Nelson, & Beyrer, 2020). Among those experiencing a compounding of vulnerabilities are sexual and gender minority (SGM) people, which collectively includes Lesbian, Gay, Bisexual, Transgender, Two-Spirit, Queer, Intersex, and Asexual (LGBT2SQIA+) people.

Until effective vaccination and treatments for COVID-19 are available, public health efforts and messages will focus on behavioral responses to reduce transmission, particularly in vulnerable populations. The

effectiveness of these measures is contingent on the individual- and community-level compliance with public health recommendations. Many of these measures are predicated on assumptions of privilege and heteronormative sociality and kinship (Fraser et al., 2019; Gibb, McKerracher, & Fields, 2020; Logie & Turan, 2020). As such, some people and communities who do not hold these assumed privileges have proven more susceptible to the virus, and many face barriers to compliance with public health measures. While COVID-19 was initially framed as an illness that does not discriminate (Hankivsky & Kapilashrami, 2020), COVID-19, like other biocultural health crises, does in fact discriminate, and it does so in ways that mirror the discriminations that are fundamental to contemporary society.

The following commentary rests on the “critical insight” of the intersectional theory that “race, class, gender, sexuality, ethnicity, nation, ability, and age operate not as unitary, mutually exclusive entities, but as reciprocally constructing phenomena that in turn shape complex social inequalities” (Collins, 2015, p. 2). In doing so, we bring biocultural anthropology into conversation with the insights of a theoretical perspective grounded in the work of Black feminist scholars and in a commitment to understanding Black women's lives. In extending

intersectional theory beyond this original concern and conversation, we join others who explore the theory's capacity to move across and toward other contexts and experiences (Carbado, 2013; Carbado, Crenshaw, Mays, & Tomlinson, 2013). We aim, first, to highlight our intellectual debt to Black feminist scholars and the presence of Black women in the category of LGBT2SQIA+ people and, second, to emphasize the ways race, gender, class, ethnicity, nation, ability, and age inflect the experience of being an SGM.

SGM people comprise a diverse group of equity-seeking communities whose needs are often left out of research, policy, and infrastructure. Here, we highlight unique challenges and vulnerabilities among SGM people, which may contribute to increased risks of infection, complications, and death from COVID-19. Drawing on the affordances of theories of intersectionality and biocultural anthropology, we make recommendations for how human biologists can prioritize SGM people and their concerns in COVID-19 research, intervention development, and in subsequent biocultural health crises.

2 | BIOCULTURAL VULNERABILITIES DURING COVID-19

COVID-19 and public health measures aimed at controlling its transmission may disproportionately impact the health of SGM people in part due to inequitable social, economic, and political conditions. The biocultural theory holds that culture (socially-transmitted beliefs, attitudes, institutions, and structures) has measurable impacts on our physiology and behavior and that biology has a mutually constitutive impact on culture (Dufour, 2006; Hernandez & Gibb, 2020; Ulijaszek, 2013; Wiley, 2020). From its inception, biocultural anthropology has been concerned with issues of power, inequity, and marginalization (Goodman & Leatherman, 1998; Leatherman & Goodman, 1997, 2019; Worthman & Kohrt, 2005; Brewis & Wutich, 2019) and their role in shaping local context and vulnerability to adverse health outcomes (Leatherman, 2005; Tallman, 2016). Thus, centering how heteronormative forms of power, inequity, and marginalization shape lived experience is crucial for understanding how social, economic, and political inequities facilitate elevated vulnerability to poor health among SGM people. Stigma, systemic discrimination, and other forms of structural violence reduce SGM people's access to vital resources, including educational and employment opportunities, wealth, housing, healthcare, social support, and political power relative to heterosexual cisgender people (Hatzenbuehler 2009; Albuquerque

et al., 2016; Charlton et al., 2018; Conron, Goldberg, & Halpern, 2018; Hatzenbuehler, Phelan, & Link, 2013; Jackson, Agénor, Johnson, Austin, & Kawachi, 2016; Puckett, Cleary, Rossman, Mustanski, & Newcomb, 2018; Ross et al., 2016). The binary categorization of bodies is produced and maintained in part through a process of constructing "biological normalcy", which also, therefore, constructs "abnormalcy" (Wiley & Cullin, 2020). These constructions of "normalcy" of heteronormative sexed and gendered body and behavioral norms are socially enforced and constitute the bedrock producing much of the stigma and discrimination with which SGM people contend (Johnson, Greaves, & Repta, 2007; Juster, de Torre, et al., 2019; Juster, Doyle, et al., 2019).

Studies of non-SGM populations disadvantaged by resource inequity demonstrate how these exclusions become embodied (Krieger, 2014); this embodiment is measurable through biomarkers pertinent to the COVID-19 crisis (Dantzer, Heuser, & Lupien, 2020). These include mediators of stress (eg, cortisol), metabolism (eg, insulin production and glucose uptake), inflammation and immune response (eg, c-reactive protein, Immunoglobulin A levels), and even cellular aging (eg, telomere attrition). Recently, pioneering biomarker work with some SGM populations suggests that inflammation levels (DuBois, 2012), day-to-day cortisol variation (DuBois, Powers, Everett, & Juster, 2017; Juster, Smith, Ouellet, Sindi, & Lupien, 2013), cortisol reactivity (Juster et al., 2015), cardiovascular functioning (DuBois, 2012; Juster, de Torre, et al., 2019; Juster, Doyle, et al., 2019), and allostatic load (Juster et al., 2013; Juster, Ouellet, et al., 2016; Juster, Seeman, et al., 2016; Mays, Juster, Williamson, Seeman, & Cochran, 2018) differ relative to heterosexual cisgender people as well as among LGBT2SQIA+ sub-groups. Such findings illustrate the precarity inherent in the biocultural interplay between resource exclusion and physiological processes.

Biocultural processes facilitate not only health precarity but also *resilient pathways* that buffer against the negative effects of stigma on health. For example, protective factors like social support strengthen health, well-being, and quality of life among older LGBTQ+ people (Erosheva, Kim, Emler, & Fredriksen-Goldsen, 2016; Fredriksen-Goldsen, Kim, Bryan, Shiu, & Emler, 2017; Fredriksen-Goldsen, Kim, Shiu, Goldsen, & Emler, 2015; Fredriksen-Goldsen, Shiu, Bryan, Goldsen, & Kim, 2017; Kim & Fredriksen-Goldsen, 2016). Relatedly, marginalized groups are sometimes able to develop *crisis competence*, or adaptive coping strategies in spite of crisis (eg, HIV/AIDS pandemic) (Friend, 1980). Stress biomarkers can be used to identify, which combinations of modifiable factors contribute most to resilience among SGM people (Burke & Bribiescas, 2018; DuBois, Juster, Gibb,

Walker, & Powers, 2019; Juster, Ouellet, et al., 2016; Juster, Seeman, et al., 2016; Wood & Cook, 2019) and perhaps even pathways toward crisis competence among SGM people during the COVID-19 pandemic.

As is the case with other marginalized communities, exclusion and health precarity among SGM people translate to “underlying conditions” that can increase the risk for COVID-19 infection, complications, sequelae, and death. SGM people also face increased risk from behavioral and environmental inequities linked to social and economic marginalization. For instance, elevated smoking rates (Johnson et al., 2016; Lee, Griffin, & Melvin, 2009), asthma prevalence (Curry et al., 2020), and exposure to (urban) air pollution (Collins, Grineski, & Morales, 2017) can increase risks associated with COVID-19.

Economic inequity and poverty present increased risks for SGM people as well. Even before COVID-19, many SGM people worked in sectors characterized by precarity and consistently faced heightened economic insecurity (Conron et al., 2018; HRC, 2020). Early reports indicate that SGM people are more likely to be concerned about financial security and to have experienced the loss of income or reduced employment in the COVID-19 crisis (EGALE, 2020). Current studies examining the impacts of COVID-19 on our communities include an on-going multi-site study of resilience and health among a diverse sample of trans-identified people in the US and Montreal Canada and a collaborative study including the authors of this commentary to assess impacts on SGM people in the US, Toronto, and Montreal Canada.

In addition to the direct impacts of COVID-19, public health measures put in place to protect vulnerable populations from COVID-19 may also have unintended and indirect consequences for SGM people's health. In the context of social inequality and stigma, we know that SGM people face increased health disparities. Transgender people in particular have high burdens of psychiatric diagnoses and extraordinarily high (41%) lifetime rates of attempted suicide (Beckwith et al., 2019; Grant et al., 2011). Conditions of social distancing and self-isolation may exacerbate existing vulnerabilities (eg, reduced social support) to exclusion and social isolation (Gonzales and Henning-Smith, 2017; Meyer, 2003). SGM people may also be forced to take shelter in dangerous or unsupportive families and other social contexts, thus increasing the risk of experiencing abuse and violence. Such conditions pose challenges to health among SGM people, again amplifying experiences of anxiety, depression, and suicidal ideation and increasing risks of suicide, self-harm, and controlled substance dependence (Bockting et al., 2013; Bränström & Pachankis, 2018;

Garcia et al., 2019; Herek & Garnets, 2007; Nystedt, Rosvall, & Lindström, 2019; Puckett et al., 2017; Ross et al., 2016). Pandemic-related social and public health policy may impede SGM access to supportive, inclusive care—further undermining health.

3 | STIGMA AND GLOBAL IMPACTS

The COVID-19 pandemic also escalates SGM people's vulnerabilities to criminalization, state-sanctioned violence, and inequitable access to healthcare. On the International Day against Homophobia, Transphobia, and Biphobia, the United Nations Office of High Commissioner for Human Rights released a statement drawing attention to the global increase in anti-LGBTQ+ rhetoric during the COVID-19 pandemic. The Office of High Commissioner for Human Rights warned member states to refrain from using the COVID-19 crisis as an avenue to undermine the human rights of SGM people (OHCHR, 2020).

Nevertheless, examples of this aggression abound. The Hungarian government is currently attempting to employ emergency COVID-19 powers to strip legal recognition and protections from transgender citizens (Gall, 2020). In Poland, lawmakers are exploiting public health restrictions to criminalize sexuality education and to frame SGM people as moral deviants and pedophiles (Padgett, 2020). In Uganda, authorities arrested and charged SGM youth living in shelters with offenses against COVID-19 lockdown laws (Ghoshal, 2020). Having been accused of spreading COVID-19 through gay nightclubs and social scenes, SGM people in South Korea increasingly meet online threats, harassment, and discrimination (Thoreson, 2020a). Gender-based quarantine measures are increasing transgender people's risk of harassment in Panama (González Cabrera, 2020), while in the Philippines, SGM people have been harassed by public health volunteers granted unrestricted legal powers (Thoreson, 2020b). Some conservative religious groups in the United States blame the COVID-19 pandemic on marriage equality and legalized abortion (Ring, 2020). In mid-June, the US Department of Health and Human Services finalized a rule that reversing protections against medical discrimination of transgender patients, further solidifying the Trump administration's commitment to advancing conservative religious political priorities. This decision rolls back the 2010 Affordable Care Act's sex discrimination provision, including gender identity, which had required that transgender patients be provided medically appropriate treatment (Sanger-Katz & Weiland, 2020).

4 | POLITICS OF PUBLIC HEALTH VISIBILITY AND INTERVENTION

While tracking gendered and racialized disparities has not always been a data collection priority (Bauer, Braimoh, Scheim, & Dharma, 2017; Bauer & Scheim, 2019; Krieger, 2019), making visible these inequitable burdens of disease—and the social and economic disparities underpinning them—represents a critical first step toward an effective COVID-19 public health response. Human biologists have long recognized that adverse health outcomes concentrate along lines of social marginalization (see Gravlee, 2009), exacerbating already deleterious effects of structural oppression and inequality. It is not surprising, then, that medical and epidemiological studies of COVID-19 quickly identified sex differences in severity of COVID-19 illness and mortality rates (Jin et al., 2020; Lippi & Plebani, 2020), or that social science and public health researchers immediately warned of women's greater exposure to COVID-19 infection due to social inequalities (Hall et al., 2020). Within weeks of Canada and the U.S. first recognizing and responding to COVID-19, emergent case data indicated that the highest infection and mortality rates were concentrated among Black and Latino populations—groups least likely to have the privileges of working from home or of enjoying ready access to high-quality healthcare (Khunti, Singh, Pareek, & Hanif, 2020; Reyes et al., 2020; Yancy, 2020; Thebault, Ba Tran, & Williams, 2020).

Data inclusive of cisgender men and women and data that capture race and ethnicity must be included in COVID-19 statistics and data; so too must data on COVID-19 represent the experiences of SGM people and our identities. Despite potential public health as well as political benefits of attending to likely SGM vulnerabilities in the context of COVID-19, the prospect of increasing health system surveillance of SGM people is fraught. In many countries, SGM visibility, particularly in the context of infectious disease, can increase stigma and even risk of violence among SGM people and communities. The history of the AIDS epidemic stands as a stark reminder of how the association of the deadly infectious disease with SGM people can foment discrimination, violence, and the abandonment of care. However, the resistance and activism of SGM groups such as the AIDS Coalition To Unleash Power (ACT UP) during the AIDS epidemic testify to the importance of data collection and clinical research that includes and centers SGM people. Calls for the collection of health care patients' sexual orientation and gender identity (SOGI) (Cahill & Makadon, 2017; Gates, 2017; Streed, Grasso, Reisner, & Mayer, 2020) may address concerns about patient safety

and comfort with sharing their SOGI, but such calls do not reliably consider the dangers that such data collection, even in the aggregate, can pose for SGM populations. The immediate scapegoating of SGM people by right-wing governments in the first months of the pandemic exemplifies of one such risk—that research demonstrating biocultural and structural vulnerabilities of SGM people to COVID-19 may be manipulated or misrepresented to further stigmatize SGM people as “superspreaders” who represent a danger to broader SGM communities. However, the aggressive moves by the Trump administration in the U.S. to walk back the inclusion of SOGI in National Institutes of Health (NIH) surveys (Cahill & Makadon, 2017; Gates, 2017) indicate a reluctance to permit health data about SGM people to be collected and published, in part to preclude any justification for increased funding and attention to SGM health.

Although governmental recognition of SGM people's presence and health needs remain dangerous in some regions (Davis, 2017), excluding SGM people from efforts to assess and promote public health is no less risky. Research and health surveillance systems that fail to include questions about sexual orientation or gender identity threaten to erase SGM people, obscure health issues within the population and inhibit vital allocation of resources (Gibb et al., 2020; Reisner et al., 2015). Researchers studying the effects of COVID-19 on SGM people must develop an ethical approach to framing their findings in order to lessen the risk of bad-faith misrepresentations and further stigmatization of SGM people. Accounting for SGM lives and responses to the COVID-19 pandemic not only makes visible the intersecting forms of social marginalization that enable disease transmission but also has the potential to reveal patterns of resilience and community strength that can inform public health policy.

Insights from the HIV/AIDS crisis and AIDS activism to achieve such framings and foster such strength (Robins, 2020). Steven Epstein (1996) has described the work of “lay experts” who launched “citizen science” campaigns in response to the AIDS pandemic. Activists and people living with HIV agitated against and worked with scientists and policymakers to promote necessary behavioral change, confront fear and stigma, and develop clear, accessible, and effective public health education campaigns. At their most effective, these efforts were marked by not only a practiced guardedness in relationship to public health surveillance and intervention but also a commitment to resisting oppressive practices and saving lives (ACT UP/New York Women & AIDS Book Group, 1990; Gould, 2009; Schulman, 2013).

5 | RECOMMENDATIONS

As experts in biocultural analyses, human biologists have a unique capacity and opportunity to guide policy and provide recommendations that promote equitable responses to this health crisis and reduce the burden on more vulnerable populations, including SGM people. Like others facing intersectional stigma and marginalization, SGM people shoulder unique burdens through the COVID-19 crisis. Capturing data inclusive of SOGI - regardless of research focus - will enhance our understanding of the lives and experiences of SGM people. With such gaps in public health data addressed, public health agencies will be equipped to respond more effectively to the intersecting social processes of discrimination and identification that shape the needs of SGM people and other vulnerable communities during this and future health crises. Biocultural anthropologists and human biologists are especially well poised to take on this data collection challenge, given that anthropologists generally engage in deep, longitudinal, community-based approaches to research and human biologists generate data and perspectives on human biocultural experience *holistically*, interweaving social, cultural, psychological, biomarker, demographic, health, and multilevel environmental data. Studies that rely on this holistic framing to understand SGM experiences and behaviors during health crises will help ensure that all members of our society receive culturally appropriate and inclusive modes of care.

6 | CONCLUSION

SGM people faced significant structural (eg, access to employment, housing, health care) and interpersonal (eg, violent transphobic attacks) discrimination prior to COVID-19. Pandemic conditions magnify these inequities, exposing and worsening health disparities and producing new ones. As this global health crisis grinds on, we must leverage our expertise and positions of privilege to ensure that the global and local impacts of and responses to COVID-19 among SGM people are made visible. Moving forward, our active inclusion and engagement with SGM people and their experiences can enable us to identify new pathways for understanding biological normalcy. This engagement will strengthen our capacity to understand and appreciate the human variation in ways that affirm rather than pathologize the lives and biologies of SGM people.

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REFERENCES

- ACT UP/NY Women and AIDS Book Group. (1990). *Women, AIDS & activism*. New York, NY: South End Press.
- Albuquerque, G. A., de Lima Garcia, C., da Silva Quirino, G., Alves, M. J. H., Belém, J. M., dos Santos Figueiredo, F. W., & de Abreu, L. C. (2016). Access to health services by lesbian, gay, bisexual, and transgender persons: Systematic literature review. *BMC International Health and Human Rights*, 16(1), 2.
- Bauer, G. R., Braimoh, J., Scheim, A. I., & Dharma, C. (2017). Transgender-inclusive measures of sex/gender for population surveys: Mixed-methods evaluation and recommendations. *PLoS One*, 12(5), e0178043.
- Bauer, G. R., & Scheim, A. I. (2019). Advancing quantitative intersectionality research methods: Intracategorical and intercategory approaches to shared and differential constructs. *Social Science & Medicine*, 226, 260–262.

- Beckwith, N., McDowell, M.J., Reisner, S.L., Zaslów, S., Weiss, R. D., Mayer, K.H., & Keuroghlian, A.S. (2019). Psychiatric epidemiology of transgender and nonbinary adult patients at an urban health center. *LGBT health*, 6(2), 51–61.
- Bockting, W. O., Miner, M. H., Swinburne Romine, R. E., Hamilton, A., & Coleman, E. (2013). Stigma, mental health, and resilience in an online sample of the US transgender population. *American Journal of Public Health*, 103(5), 943–951. <https://doi.org/10.2105/AJPH.2013.30124>
- Bränström, R., & Pachankis, J. E. (2018). Sexual orientation disparities in the co-occurrence of substance use and psychological distress: A national population-based study (2008–2015). *Social Psychiatry and Psychiatric Epidemiology*, 53(4), 403–412.
- Brennan, D. J., Card, K. G., Collicot, D., Jollimore, J., & Lachowsky, N. J. (2020). How might social distancing impact gay, bisexual, queer, trans and two-spirit men in Canada? *AIDS and Behavior*, 24(9), 2480–2482. <https://doi.org/10.1007/s10461-020-02891-5>.
- Brewis, A., & Wutich, A. (2019). Stigma: A biocultural proposal for integrating evolutionary and political-economic approaches. *American Journal of Human Biology*, e23290.32(4),
- Burke, E. E., & Bribiescas, R. G. (2018). A comparison of testosterone and cortisol levels between gay fathers and non-fathers: A preliminary investigation. *Physiology & Behavior*, 193, 69–81.
- Cahill, S. R., & Makadon, H. J. (2017). If they don't count us, we don't count: Trump administration rolls back sexual orientation and gender identity data collection. *LGBT Health*, 4(3), 171–173.
- Carbado, D. W. (2013). Colorblind intersectionality. *Signs: Journal of Women in Culture and Society*, 38(4), 811–845.
- Carbado, D. W., Crenshaw, K. W., Mays, V. M., & Tomlinson, B. (2013). Intersectionality: Mapping the movements of a theory. *Du Bois Review: Social Science Research on Race*, 10(2), 303–312.
- Charlton, B. M., Gordon, A. R., Reisner, S. L., Sarda, V., Samnaliev, M., & Austin, S. B. (2018). Sexual orientation-related disparities in employment, health insurance, healthcare access and health-related quality of life: A cohort study of US male and female adolescents and young adults. *BMJ Open*, 8(6), e020418.
- Cho, S., Crenshaw, K. W., & McCall, L. (2013). Toward a field of intersectionality studies: Theory, applications, and praxis. *Signs: Journal of Women in Culture and Society*, 38(4), 785–810.
- Collins, P.H. (2015). Intersectionality's definitional dilemmas. *Annual review of sociology*, 41, 1–20.
- Collins, T. W., Grineski, S. E., & Morales, D. X. (2017). Environmental injustice and sexual minority health disparities: A national study of inequitable health risks from air pollution among same-sex partners. *Social Science & Medicine*, 191, 38–47.
- Conron, K. J., Goldberg, S. K., & Halpern, C. T. (2018). Sexual orientation and sex differences in socioeconomic status: A population-based investigation in the National Longitudinal Study of Adolescent to Adult Health. *Journal of Epidemiology and Community Health*, 72(11), 1016–1026.
- Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine. *University of Chicago Legal Forum*, 1989, 139–168.
- Crenshaw, K. (1990). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Review*, 43, 1241.
- Curry, C. W., Felt, D., Beach, L. B., Ruprecht, M. M., Wang, X., & Phillips, G. L. (2020). Lifetime asthma prevalence and correlates among US youths by sexual identity and race/ethnicity, 2009–2017. *American Journal of Public Health*, 110, e1–e8.
- Dantzer, R., Heuser, I., & Lupien, S. (2020). Covid-19: An urgent need for a psychoneuroendocrine perspective. *Psychoneuroendocrinology*, 116, 104703. <https://doi.org/10.1016/j.psyneuen.2020.104703>
- Davis, S.L. (2017). The uncounted: politics of data and visibility in global health. *The International Journal of Human Rights*, 21(8), 1144–1163.
- DuBois, L. Z. (2012). Associations between transition-specific stress experience, nocturnal decline in ambulatory blood pressure, and C-reactive protein levels among transgender men. *American Journal of Human Biology*, 24(1), 52–61.
- DuBois, L. Z., Juster, R. P., Gibb, J., Walker, T., & Powers, S. I. (2019). Key questions and future directions: Integrating biomarkers to understand (trans) gender experience and health disparities. In *American journal of physical anthropology* (Vol. 168, p. 63). Hoboken, NJ: Wiley.
- DuBois, L. Z., Powers, S., Everett, B. G., & Juster, R. P. (2017). Stigma and diurnal cortisol among transitioning transgender men. *Psychoneuroendocrinology*, 82, 59–66.
- Dufour, D. L. (2006). Biocultural approaches in human biology. *American Journal of Human Biology*, 18(1), 1–9.
- EGALE. (2020). Impact of COVID: Canada's LGBTQI2S community in focus. Retrieved from <https://egale.ca/wp-content/uploads/2020/04/Impact-of-COVID-19-Canada's-LGBTQI2S-Community-in-Focus-2020-04-06.pdf>.
- Epstein, S. (1996). *Impure science: AIDS, activism, and the politics of knowledge* (Vol. 7, Berkeley and Los Angeles:). Univ of California Press.
- Erosheva, E. A., Kim, H. J., Emlet, C., & Fredriksen-Goldsen, K. I. (2016). Social networks of lesbian, gay, bisexual, and transgender older adults. *Research on Aging*, 38(1), 98–123. <https://doi.org/10.1177/0164027515581859>
- Fraser, B., Pierse, N., Chisholm, E., & Cook, H. (2019). LGBTIQ+ homelessness: A review of the literature. *International Journal of Environmental Research and Public Health*, 16(15), 2677
- Fredriksen-Goldsen, K. I., Kim, H. J., Bryan, A. E., Shiu, C., & Emlet, C. A. (2017). The cascading effects of marginalization and pathways of resilience in attaining good health among LGBT older adults. *Gerontologist*, 57(suppl 1), S72–S83. <https://doi.org/10.1093/geront/gnw170>
- Fredriksen-Goldsen, K. I., Kim, H. J., Shiu, C., Goldsen, J., & Emlet, C. A. (2015). Successful aging among LGBT older adults: Physical and mental health-related quality of life by age group. *Gerontologist*, 55(1), 154–168. <https://doi.org/10.1093/geront/gnu081>
- Fredriksen-Goldsen, K. I., Shiu, C., Bryan, A. E., Goldsen, J., & Kim, H. J. (2017). Health equity and aging of bisexual older adults: Pathways of risk and resilience. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, 72(3), 468–478. <https://doi.org/10.1093/geronb/gbw120>

- Friend, R. A. (1980). GAYging: Adjustment and the older gay male. *Alternative Lifestyles*, 3, 231–248.
- Gall, L. (2020). Hungary seeks to ban legal gender recognition for transgender people parliament should reject: EU institutions should act. Retrieved from <https://www.hrw.org/news/2020/04/03/hungary-seeks-ban-legal-gender-recognition-transgender-people>.
- Garcia, J., Vargas, N., Clark, J. L., Magaña Álvarez, M., Nelons, D. A., & Parker, R. G. (2019). Social isolation and connectedness as determinants of well-being: Global evidence mapping focused on LGBTQ youth. *Global Public Health*, 15(4), 1–23.
- Gates, G. J. (2017). LGBT data collection amid social and demographic shifts of the US LGBT community. *American Journal of Public Health*, 102(8), 1220–1222. <https://doi.org/10.2105/AJPH.2017.303927>
- Ghoshal, N. (2020). Uganda LGBT shelter residents arrested on COVID-19 pretext: Release 20 detainees, end arbitrary arrests. Retrieved from <https://www.hrw.org/news/2020/04/03/uganda-lgbt-shelter-residents-arrested-covid-19-pretext>.
- Gibb, J. K., McKerracher, L., & Fields, J. (2020). Queers and pandemics, past, present, and forever: LGBTQ+ health vulnerabilities and public health visibility. McMaster Institute on Globalization and the Human Condition's Working Paper Series.
- Gonzales, G., & Henning-Smith, C. (2017). Health disparities by sexual orientation: Results and implications from the behavioral risk factor surveillance system. *Journal of Community Health*, 42(6), 1163–1172.
- Gonzales, G., & Henning-Smith, C. (2017). Health disparities by sexual orientation: Results and implications from the Behavioral Risk Factor Surveillance System. *Journal of community health*, 42(6), 1163–1172.
- González Cabrera, C. (2020). Panama's gender-based quarantine ensnares trans woman: Trans-sensitive police protocol needed to prevent harassment. Retrieved from <https://www.hrw.org/news/2020/04/02/panamas-gender-based-quarantine-ensnares-trans-woman>.
- Goodman, A. H., & Leatherman, T. L. (1998). Traversing the chasm between biology and culture: An introduction. In *Building a new biocultural synthesis: Political-economic perspectives on human biology* (pp. 3–41). Ann Arbor: University of Michigan Press.
- Gould, D. B. (2009). *Moving politics: Emotion and ACT UP's fight against AIDS*. Chicago: University of Chicago Press.
- Grant, J., Mottet, L., Tanis, J., Herman, J.L., Harrison, J., & Keisling, M. (2010). National transgender discrimination survey report on health and health care.
- Gravlee, C. C. (2009). How race becomes biology: Embodiment of social inequality. *American Journal of Physical Anthropology*, 139(1), 47–57.
- Hall, K. S., Samari, G., Garbers, S., Casey, S. E., Diallo, D. D., Orcutt, M., ... McGovern, T. (2020). Centring sexual and reproductive health and justice in the global COVID-19 response. *The Lancet*, 395(10231), 1175–1177.
- Hankivsky, O., & Kapilashrami, A. (2020). Beyond sex and gender analysis: An intersectional view of the COVID-19 pandemic outbreak and response.
- Hatzenbuehler, M. L. (2009). How does sexual minority stigma “get under the skin”? A psychological mediation framework. *Psychological Bulletin*, 135(5), 707–730.
- Hatzenbuehler, M. L., Phelan, J. C., & Link, B. G. (2013). Stigma as a fundamental cause of population health inequalities. *American Journal of Public Health*, 103(5), 813–821. <https://doi.org/10.2105/AJPH.2012.301069>
- Herek, G. M., & Garnets, L. D. (2007). Sexual orientation and mental health. *Annual Review of Clinical Psychology*, 3, 353–375.
- Hernandez, M., & Gibb, J. K. (2020). Culture, behavior and health. *Evolution, Medicine, and Public Health*, 2020(1), 12–13.
- Human Rights Campaign (HRC). (2020). The economic impact of covid-19 on the LGBTQ community. Retrieved from https://assets2.hrc.org/files/assets/resources/COVID19-EconomicImpact-IssueBrief-042220.pdf?_ga=2.13396682.1081401756.1590724005-1502506688.1589770345.
- Jackson, C. L., Agénor, M., Johnson, D. A., Austin, S. B., & Kawachi, I. (2016). Sexual orientation identity disparities in health behaviors, outcomes, and services use among men and women in the United States: A cross-sectional study. *BMC Public Health*, 16(1), 807.
- Jin, J. M., Bai, P., He, W., Wu, F., Liu, X. F., Han, D. M., ... Yang, J. K. (2020). Gender differences in patients with COVID-19: Focus on severity and mortality. *Frontiers in Public Health*, 8, 152.
- Johnson, J. L., Greaves, L., & Repta, R. (2007). *Better science with sex and gender: A primer for health research*. Vancouver: Women's Health Research Network.
- Johnson, S. E., Holder-Hayes, E., Tessman, G. K., King, B. A., Alexander, T., & Zhao, X. (2016). Tobacco product use among sexual minority adults: Findings from the 2012– 2013 national adult tobacco survey. *American Journal of Preventive Medicine*, 50(4), e91–e100.
- Juster, R. P., de Torre, M. B., Kerr, P., Kheloui, S., Rossi, M., & Bourdon, O. (2019). Sex differences and gender diversity in stress responses and allostatic load among workers and LGBT people. *Current Psychiatry Reports*, 21(11), 110.
- Juster, R. P., Doyle, D. M., Hatzenbuehler, M. L., Everett, B. G., DuBois, L. Z., & McGrath, J. J. (2019). Sexual orientation, disclosure, and cardiovascular stress reactivity. *Stress*, 22(3), 321–331. <https://doi.org/10.1080/10253890.2019.1579793>
- Juster, R. P., Hatzenbuehler, M. L., Mendrek, A., Pfaus, J. G., Smith, N. G., Johnson, P. J., ... Pruessner, J. C. (2015). Sexual orientation modulates endocrine stress reactivity. *Biological Psychiatry*, 77(7), 668–676. <https://doi.org/10.1016/j.biopsych.2014.08.013>
- Juster, R. P., Ouellet, E., Lefebvre-Louis, J. P., Sindi, S., Johnson, P. J., Smith, N. G., & Lupien, S. J. (2016). Retrospective coping strategies during sexual identity formation and current biopsychosocial stress. *Anxiety, Stress, and Coping*, 29, 119–138. <https://doi.org/10.1080/10615806.2015.1004324>
- Juster, R. P., Seeman, T., McEwen, B. S., Picard, M., Mahar, I., Mechawar, N., ... Lupien, S. (2016). Social inequalities and the road to allostatic load: From vulnerability to resilience. *Development and Psychopathology*, 4, 1–54.
- Juster, R. P., Smith, N. G., Ouellet, E., Sindi, S., & Lupien, S. J. (2013). Sexual orientation and disclosure in relation to psychiatric symptoms, diurnal cortisol, and allostatic load.

- Psychosomatic Medicine*, 75(2), 103–116. <https://doi.org/10.1097/PSY.0b013e3182826881>
- Khunti, K., Singh, A. K., Pareek, M., & Hanif, W. (2020). Is ethnicity linked to incidence or outcomes of covid-19? *BMJ*, 369, m1548.
- Kim, H. J., & Fredriksen-Goldsen, K. I. (2016). Living arrangement and loneliness among lesbian, gay, and bisexual older adults. *Gerontologist*, 56(3), 548–558. <https://doi.org/10.1093/geront/gnu083>
- Krieger, N. (2014). Discrimination and health inequities. *International Journal of Health Services*, 44(4), 643–710.
- Krieger, N. (2019). Measures of racism, sexism, heterosexism, and gender binarism for health equity research: From structural injustice to embodied harm—An ecosocial analysis. *Annual Review of Public Health*, 41, 37–62.
- Leatherman, T. (2005). A space of vulnerability in poverty and health: Political-ecology and biocultural analysis. *Ethos*, 33(1), 46–70.
- Leatherman, T. L., & Goodman, A. H. (1997). Expanding the biocultural synthesis toward a biology of poverty. *American Journal of Physical Anthropology*, 102(1), 1–3.
- Leatherman, T., & Goodman, A. (2019). Building on the biocultural syntheses: 20years and still expanding. *American Journal of Human Biology*, e23360.32.
- Lee, J. G., Griffin, G. K., & Melvin, C. L. (2009). Tobacco use among sexual minorities in the USA, 1987 to may 2007: A systematic review. *Tobacco Control*, 18(4), 275–282.
- Lippi, G., & Plebani, M. (2020). Laboratory abnormalities in patients with COVID-2019 infection. *Clinical Chemistry and Laboratory Medicine (CCLM)*, 58(7), 1131–1134.
- Logie, C. H., & Turan, J. M. (2020). How do we balance tensions between COVID-19 public health responses and stigma mitigation? Learning from HIV research. *AIDS and Behavior*, 24(7), 1–4. <https://doi.org/10.1007/s10461-020-02856-8>.
- Mays, V. M., Juster, R. P., Williamson, T. J., Seeman, T. E., & Cochran, S. D. (2018). Chronic physiologic effects of stress among lesbian, gay, and bisexual adults: Results from the National Health and Nutrition Examination Survey. *Psychosomatic Medicine*, 80, 551–563.
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, 129(5), 674–697. <https://doi.org/10.1037/0033-2909.129.5.674>
- Nystedt, T., Rosvall, M., & Lindström, M. (2019). Sexual orientation, suicide ideation and suicide attempt: A population-based study. *Psychiatry Research*, 275, 359–365.
- Office of the High Commissioner for Human Rights (OHCHR) (2020). UN high commissioner for human rights Michelle Bachelet on the international day against homophobia, transphobia and biphobia. Retrieved from <https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=25891&LangID=E>.
- Padgett, D. (2020). Poland considers law labeling sex educators, LGBTQ folks as pedophiles. Retrieved from <https://www.advocate.com/news/2020/4/16/poland-considers-law-labeling-sex-educators-lgbtq-folks-pedophiles>.
- Perez-Brumer, A., & Silva-Santisteban, A. (2020). COVID-19 policies can perpetuate violence against transgender communities: Insights from Peru. *AIDS and Behavior*, 24(9), 2477–2479.
- Poteat, T., Millett, G., Nelson, L. E., & Beyrer, C. (2020). Understanding COVID-19 risks and vulnerabilities among black communities in America: The lethal force of syndemics. *Annals of Epidemiology*, 47, 1–3.
- Puckett, J. A., Cleary, P., Rossman, K., Mustanski, B., & Newcomb, M. E. (2018). Barriers to gender-affirming care for transgender and gender nonconforming individuals. *Sexuality Research and Social Policy*, 15(1), 48–59.
- Puckett, J. A., Horne, S. G., Surace, F., Carter, A., Noffsinger-Frazier, N., Shulman, J., ... Mosher, C. (2017). Predictors of sexual minority youth's reported suicide attempts and mental health. *Journal of Homosexuality*, 64(6), 697–715.
- Reisner, S. L., Conron, K.J., Baker, K., Herman, J.L., Lombardi, E., Greytak, E.A., , & GenIUSS, Group (2015). "Counting" transgender and gender-nonconforming adults in health research: recommendations from the Gender Identity in US Surveillance Group. *Transgender Studies Quarterly*, 2(1), 34–57.
- Reisner S. L., Conron K. J., Scout , Baker K., Herman J. L., Lombardi E., Greytak E. A., Gill A. M., Matthews A. K. (2015). "Counting" Transgender and Gender-Nonconforming Adults in Health Research: Recommendations from the Gender Identity in US Surveillance Group. *TSQ: Transgender Studies Quarterly*, 2, (1), 34–57. <http://dx.doi.org/10.1215/23289252-2848877>.
- Reyes, C., Husain, N., Gutowski, C., St Clair, S., & Pratt, G. (2020). Chicago's coronavirus disparity: Black Chicagoans are dying at nearly six times the rate of white residents, data show. Chicago Tribune. Retrieved from <https://www.chicagotribune.com/coronavirus/ct-coronavirus-chicago-coronavirus-deaths-demographics-lightfoot-20200406-77nlylhiavgjb2wa4ckivh7mu-story.html>.
- Ring, T. (2020). Pat Robertson blames health crisis on marriage equality, abortion. Retrieved from <https://www.advocate.com/religion/2020/4/21/pat-robertson-blames-health-crisis-marriage-equality-abortion>.
- Robins, S. (2020). COVID-19: South Africa should build on HIV activism to foster behaviour change. The conversation. Retrieved from <https://theconversation.com/covid-19-south-africa-should-build-on-hiv-activism-to-foster-behaviour-change-142091>.
- Ross, L. E., O'Gorman, L., MacLeod, M. A., Bauer, G. R., MacKay, J., & Robinson, M. (2016). Bisexuality, poverty and mental health: A mixed methods analysis. *Social Science & Medicine*, 156, 64–72.
- Sanger-Katz, M., & Weiland, N. (2020, June 12). Trump administration erases transgender civil rights protections in health care. *The New York Times*. Retrieved from <https://www.nytimes.com/2020/06/12/us/politics/trump-transgender-rights.html>.
- Schulman, S. (2013). *The gentrification of the mind: Witness to a lost imagination*. Berkeley, CA: University of California Press.
- Streed, C. G., Jr., Grasso, C., Reisner, S. L., & Mayer, K. H. (2020). Sexual orientation and gender identity data collection: Clinical and public health importance. *American Journal of Public Health*, 110, 991–993.
- Tallman, P. S. (2016). The index of vulnerability: An anthropological method linking social-ecological systems to mental and physical health outcomes. *Social Science & Medicine*, 162, 68–78.
- Thebault, R., Ba Tran, A., & Williams, V. (April 7, 2020). The coronavirus is infecting and killing black Americans at an



- alarming high rate. *Washington Post*. Retrieved from <https://www.washingtonpost.com/nation/2020/04/07/coronavirus-is-infecting-killing-black-americans-an-alarmingly-high-rate-post-analysis-shows/>.
- Thoreson, R. (2020a). Covid-19 backlash targets LGBT people in South Korea: Government should act to prevent discrimination. Retrieved from <https://www.hrw.org/news/2020/05/13/covid-19-backlash-targets-lgbt-people-south-korea>.
- Thoreson, R. (2020b). Philippines uses humiliation as COVID curfew punishment: LGBT people ordered to dance and kiss on video. Retrieved from <https://www.hrw.org/news/2020/04/08/philippines-uses-humiliation-covid-curfew-punishment>.
- Ulijaszek, S. (2013). Biological and biocultural anthropology. In *When culture impacts health* (pp. 23–31). Amsterdam: Academic Press.
- Wiley, A. S. (2020). Continuity and change in biocultural anthropology. *American Journal of Human Biology*, e23464.32.
- Wiley, A. S., & Cullin, J. M. (2020). Biological normalcy. *Evolution, Medicine, and Public Health*, 2020(1), 1.
- Wood, E. P., & Cook, S. H. (2019). Father support is protective against the negative effects of perceived discrimination on CRP among sexual minorities but not heterosexuals. *Psychoneuroendocrinology*, 110, 104368.
- World Health Organization (WHO). (2020). WHO coronavirus disease (COVID-19) dashboard. Retrieved from <https://covid19.who.int/>.
- Worthman, C. M., & Kohrt, B. (2005). Receding horizons of health: Biocultural approaches to public health paradoxes. *Social Science & Medicine*, 61(4), 861–878. <https://doi.org/10.1016/j.socscimed.2004.08.052>
- Yancy, C. W. (2020). COVID-19 and African Americans. *Journal of the American Medical Association*, 323(19), 1891–1892. <https://doi.org/10.1001/jama.2020.6548>

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