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Climate change-related disasters & the health of LGBTQ+ populations

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ABSTRACT

Climate change may widen pre-existing health disparities in the lesbian, gay, bisexual, transgender, and queer (LGBTQ+) populations. We argue that LGBTQ+ communities will have more exposure to climate change related disasters, be more susceptible to the adverse impacts of climate change and will have fewer resources to recover from climate disasters. Scholars, practitioners, policymakers, and climatologists need to carefully consider the potential for disparate effects of climate change disasters on the health of LGBTQ+ people. Legislative action protecting LGBTQ+ populations from discrimination, more LGBTQ+ inclusive data collection efforts, and LGBTQ+ sensitivity trainings for disaster relief providers are needed now to ameliorate climate change-related LGBTQ+ health disparities.

Introduction

Climate change poses a significant threat to all humanity. However, climate-related harms will differentially impact the most socially and economically vulnerable [1–4]. Like other marginalized groups, lesbian, gay, bisexual, transgender, and queer (LGBTQ+) people will, on average, have more *exposure* to climate change-related disasters, be more *susceptible* to the adverse impacts of climate change-related disasters, and have fewer resources to *recover* from climate harms. Although recent work has begun to identify the increased vulnerability of LGBTQ+ populations in the context of a warming planet [5], contemporary research and public policy efforts fall short by failing to enact nondiscrimination policies, strengthen LGBTQ-inclusive data practices, and train an emergency relief workforce on the unique health needs of LGBTQ+ populations during climate-related disasters. It is imperative that the differential impacts of climate-related disasters on LGBTQ+ populations are considered within broader climate change adaptation actions to prevent the widening of LGBTQ+ health disparities [6].

LGBTQ+ people will experience greater exposure to the effects of climate change

The greater likelihood of exposure to climate-related disasters for LGBTQ+ people is driven by two primary factors: (1) the geographic distribution of the LGBTQ+ populations both nationally and locally, which skews toward more highly affected areas, and (2) structural inequalities that may exacerbate the effects of climate change.

LGBTQ+ people and community enclaves are disproportionately located in high-risk areas prone to flooding, poor air quality, mosquito-borne diseases, and extreme heat. For instance, in coastal cities, historic LGBTQ+ enclaves (so-called “gayborhoods”) like Christopher Street in New York City are at high risk of severe flooding during storm surges according to the National Oceanic and Atmospheric Association (NOAA) [7]. Likewise, Boston’s South End neighborhood, home to a large LGBTQ+ population, is at high risk of flooding. Although many queer people live outside LGBTQ+ enclaves, these neighborhoods and LGBTQ-owned businesses are important community focal points. Other groups, including lesbians and transgender people, often live in areas that are less likely to be recognized as gay neighborhoods but are still at high risk of loss. For instance, following Hurricane Katrina, MidCity New Orleans, an area with an historically high proportion of lesbians and queer people of color, experienced more devastating losses compared to other neighborhoods [8].

LGBTQ+ people in the U.S. have also disproportionately settled in western states and large LGBTQ+ friendly cities (e.g., San Francisco, Seattle, Portland, and Los Angeles) with an elevated risk of wildfires, an increasingly large source of outdoor air pollution in the United States. Wildfire smoke is consistently associated with increased risk of respiratory disease and may increase risk of cardiovascular disease and mortality [9]. In the San Francisco Bay Area, where around 250,000 LGBTQ+ adults live [10], the average number of smoky days in 2016–2020 was over 44 per year in most areas, an increase of more than 200 % since 2009–2013 [11].

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Like other marginalized groups in the U.S., LGBTQ+ people are more likely to live and work in risk-prone areas due to social, economic, and structural factors that limit their economic opportunities [12]. National data from the U.S. Census Household Pulse Survey recently found that gay, lesbian, and transgender people had much higher rates of being displaced from their home in the previous 12 months due to a natural disaster than their heterosexual or cisgender peers. Approximately 4 percent of gay or lesbian people reported being forced to evacuate their home due to a natural disaster compared with 1.2 percent of heterosexual people [13]. Moreover, LGBTQ + young adults aged 18–25 are also more than twice as likely to be unhoused compared to non-LGBTQ+ young adults [14], leaving them at even greater risk from climate related disasters, storms, and extreme heat. Acknowledging these additional challenges to adapting to disasters, the U.S. Federal Emergency Management Agency (FEMA) listed for the first time LGBTQ+ people among those "more likely than others to be severely impacted by disasters and may require additional or distinct support after a disaster occurs" [15].

LGBTQ+ people are more susceptible to the adverse impacts of climate change

The disproportionate risks of exposure to climate change are compounded by pre-existing health disparities among LGBTQ+ populations. Approximately 21 % of LGBTQ+ adults live with asthma and/or emphysema compared with 14 % of heterosexual adults [16]. LGBTQ+ individuals have higher levels of cardiovascular disease risk, are diagnosed with cardiovascular disease at younger ages, and have a higher incidence of cardiovascular disease, especially among transgender populations [17]. On average, LGBTQ+ Americans also have poorer mental health and significantly higher rates of HIV and other immunocompromised conditions that require consistent access to care and lifesaving medication [18–20]. Furthermore, access to care, utilization of care, and health insurance rates are much lower among LGBTQ+ populations [21–23]. Baseline disparities will likely widen with climate-related wildfires, extreme temperatures, and emerging infectious diseases. The preexisting disparities may result in LGBTQ+ populations being more susceptible to poor air quality, more susceptible to mental health impacts from climate disasters, and more likely to develop comorbidities due to weakened immune systems.

LGBTQ+ Americans also experience higher rates of poverty, lower wealth, and lower incomes than their non-LGBTQ+ counterparts [24]. Existing socioeconomic inequalities will increase susceptibility to climate-related disasters. For example, LGBTQ+ people's ability to seek medical care during and immediately after a severe weather event or disaster may be hindered by existing socioeconomic disparities. Their experiences and expectations of discrimination, harassment, and violence can make them more hesitant to seek medical attention or emergency shelters during climate-related disasters. These vulnerabilities were apparent among the LGBTQ+ victims of Hurricanes Katrina and Maria, many of whom struggled to access HIV medications, were unable to evacuate, were permanently displaced, or died due to interruptions in care resulting from the hurricane [25–27]. Even among LGBTQ+ people that do not have pre-existing health conditions, socioeconomic inequalities can impact their ability to engage in adaptive protective behaviors such as the ability to afford air conditioning to deal with increasing temperature, and the ability to purchase air purifiers to protect against worsening air quality.

Climate change can also create conditions that favor the emergence of novel infectious diseases as it influences ecosystems, human and wildlife behavior, and host-pathogen interactions [28]. Changes in temperature, precipitation, and humidity can influence the prevalence and transmission of respiratory diseases like influenza, including strains with pandemic potential [29]. Although all people are generally biologically susceptible to influenza, LGBTQ+ people may be more susceptible in a novel influenza pandemic. During the COVID-19 pandemic, LGBTQ+ Americans were more likely to work in jobs considered "essential," increasing their risk of exposure to COVID-19 infection [16]. Lower rates of health insurance coverage among LGBTQ+ populations in the U.S. compounded their health and economic risks during the COVID-19 pandemic [30]. Higher rates of HIV infection among LGBTQ+ people also increase the underlying susceptibility to coinfections within the LGBTQ+ community.

LGBTQ+ people have fewer resources to respond and adapt to climate related impacts

Climate change may require LGBTQ+ families and individuals to cope and recover from disasters in new and unexpected ways, including the use of emergency shelters and emergency assistance programs. Yet, emergency shelters are frequently ill-equipped to support LGBTQ+ people and can be experienced as unwelcoming [31]. Many social service and disaster relief programs in the U.S. (e.g., homeless shelters, food pantries, and financial assistance charities) are managed by faith-based organizations [32]. Prior research has documented how some emergency shelters explicitly refuse to house LGBTQ+ populations [33]. For instance, data from the U.S. Transgender Survey found that 70 % of transgender people seeking shelter have been turned away, were physically or sexually assaulted, or faced some other form of mistreatment at an assistance shelter because of their gender identity [34]. A 2015 study also found that only 30 % of homeless shelters in Connecticut, Washington, Tennessee, and Virginia would be willing to accommodate transgender people [5].

LGBTQ+ people may also need additional support in recovering after climate change-related disasters. Socioeconomic disparities will likely increase LGBTQ+ people's reliance on support in the wake of climate related disasters, however such support may not be accessible for LGBTQ+ populations. For example, Hurricane Katrina heavily impacted African American LGBTQ+ people in New Orleans but, according to reports, they experienced discrimination during the distribution of federal and community relief efforts [35]. At the time, the U.S. Defense of Marriage Act had yet to be overturned, and the three states hit hardest by Hurricane Katrina (Texas, Louisiana, and Mississippi) banned the recognition of same-sex marriage. Thus, LGBTQ+ families experienced unique hurdles to certain kinds of family-based support from FEMA which are critical for communities to recover in the wake of disasters [36].

The lower socioeconomic status of LGBTQ+ populations may also create barriers to relocating to parts of the country that are more climate resilient. Climate disasters may lead to the displacement of LGBTQ+ people and their isolation away from LGBTQ+ enclaves. In turn, LGBTQ+ health disparities may widen as social networks decrease and exposures to structural discrimination increase. Recent research demonstrated the role of community isolation and returning to parental homes in explaining disparate impacts of the COVID-19 pandemic on the mental health of sexual minorities [37], and it is possible that similar processes will exacerbate LGBTQ+ health disparities after climate disasters. Furthermore, the risks of climate change and weather-related events may also lead to the displacement of LGBTQ+ populations from coastal states with legal protections to central parts of the U.S. where they are more likely to experience discrimination, prejudice, and stigma, and encounter anti-LGBTQ+ legislation [38]. For transgender and gender expansive people, several states now pose substantial threats to life, freedom, and well-being [39]. Prior studies have documented the negative effects of discrimination and anti-LGBTQ+ legislation on the health of LGBTQ+ populations [40]. The passage of anti-transgender rights legislation in the U.S. during the 2019–2020 state legislative session was associated with increases in suicide- and depression-related internet searches [41]. Thus, future internal U.S. migration may widen LGBTQ + health disparities, especially in mental health, and hamper LGBTQ+

people's ability to cope or recover from the damages caused by climate change.

Global inequalities in climate change exposure will exacerbate LGBTQ+ health inequities and raise concerns regarding LGBTQ+ safety

Climate change is projected to have the greatest impact in Africa, Southeast Asia, and the Western Pacific . Since 1990, these areas have experienced more than a 10 % increase in extreme heat vulnerability alongside substantial increases in flooding, crop loss, and storm-related disasters [42]. Greater economic insecurity and poverty has limited the extent to which people can recover from climate change related disasters. In 2021 alone, 23.7 million people were displaced due to disasters across 141 countries; more than 94 % of disaster displacements were weather related. By the end of 2021, almost 6 million people were living in displacement in 84 countries and territories due to a disaster, with substantial concentrations in China, India, the Philippines, Indonesia, Ethiopia, South Sudan, and Mozambique [43].

As in the U.S., LGBTQ+ people in other countries are more likely to be disproportionately impacted by climate harms due to stratification on the basis of sexual orientation and gender identity. In many countries, sexual and gender minorities remain the subject of violence, discrimination, and exclusion [44–46]. Further, many countries not only lack LGBTQ+ legal protections but also have openly anti-LGBTQ+ policies. 62 countries criminalize consensual same-sex sexual acts and as many as 11 countries could impose the death penalty if convicted [47]. Among countries likely to experience the worst effects of climate change on food insecurity – South Sudan, Madagascar, Pakistan, Somalia, Sudan, Chad, Niger, Burkina Faso, Honduras, El Salvador, and Guatemala – same-sex activity is criminalized in five. Despite a lack of criminalization, El Salvador, Honduras, and Guatemala are among the top 5 countries of origin for individuals presenting for asylum in the U.S. on the basis of LGBTQ+ status [48]. As a result, LGBTQ+ people living in heavily impacted regions are most vulnerable and subject to scapegoating, worsening health disparities, and increased risk of poverty, housing insecurity, and mortality. Evidence from the global COVID-19 pandemic strongly suggests that LGBTQ+ people will be disproportionately targeted, arrested, detained, and displaced in times of global and national crises [49–51]. Climate change is also likely to have profound economic effects in many countries [52]. Prior research has linked the economic recession following the COVID-19 pandemic to increases in discriminatory attitudes toward LGBTQ+ populations [53], suggesting that, as climate-related impacts on the economy continue to be realized, discriminatory attitudes toward LGBTQ+ and other minority populations will likely increase.

Globally, climate change-related vulnerabilities are expected to lead to increase cross-border asylum and displacement [54]. LGBTQ+ people that flee their countries of origin already experience victimization, unsafe living conditions, statelessness, and violence throughout the asylum process [55–58]. During transit from their country of origin to the destination country, LGBTQ+ people are victims of violence and harassment and face barriers to accessing necessary health care. On arrival, LGBTQ+ migrants are victims of harassment, violence, and discrimination [58]. In a survey of LGBTQ+ refugees in Kenya, 93 % reported that they had been verbally insulted, 83 % had been physically assaulted, and 88 % had been denied police assistance [59]. Transgender and gender-diverse refugees, asylum seekers, migrants, internally displaced, and stateless people are among those facing the highest risk of physical and emotional mistreatment, beatings, rape, torture, and murder, because their visible gender expression is often perceived as a direct challenge to prevailing social norms in countries or regions of origin, transit, and destination [57,60,61]. Navigating the asylum process can be difficult for LGBTQ+ individuals due to fears of persecution or being outed in their country of origin when requirements to prove their sexual orientation or gender identity creates barriers for LGBTQ+ asylum seekers [62]. Such issues have resulted in serious concerns from human rights groups regarding the safety of LGBTQ+ displaced people [63,64].

Recommendations to ameliorate climate change-related LGBTQ+ health disparities

Policymakers must act now to ensure that LGBTQ+ populations are protected during climate change disasters. We identify seven key actions that we recommend should be taken to reduce climate change-related harms for LGBTQ+ populations.

First, adoption of legislation to protect LGBTQ+ people from discrimination in employment, housing, education, and public accommodations at the national level is needed. This will ensure that LGBTQ+ people who have to relocate following climate related disasters will remain protected against local anti-LGBTQ+ legislation and will be able to access national emergency programs. In many countries and regions, attitudes toward LGBTQ+ people have improved [65], and more people now support non-discrimination protections, equal marriage and adoption rights, and other supports for LGBTQ+ populations [66].

Second, policymakers and service providers should ensure that LGBTQ+ populations are also welcomed, affirmed, and protected from discrimination in emergency shelters, food banks, emergency management programs, and refugee and asylee resettlement programs. In doing so, national and local data collection efforts should be inclusive and ascertain sexual orientation and gender identity when possible. As the incidence and severity of climate related disasters increases so will the likelihood of LGBTQ+ displacement; countries must be prepared to ensure the safety of LGBTQ+ migrants and asylum seekers.

Third, LGBTQ+ people needing shelter in all contexts must have access to HIV medications and transgender affirming health services (e.g., hormone replacement therapies) when needed. Social workers and medical personnel must be trained and prepared to treat LGBTQ+ patients with dignity and respect.

Fourth, pandemic preparedness plans must specifically assess the disproportionate risks related to new and emerging infectious diseases among LGBTQ+ populations and lay the groundwork for rapid identification, contact tracing, treatment, and vaccine rollout in collaboration with effective community organizations and without stigma. Relatedly, climate change measures, including health adaptation plans, must consider LGBTQ+ populations as a vulnerable population and ensure that such plans consider differential impacts of climate-related disasters on LGBTQ+ populations.

Fifth, countries must streamline the asylum process for LGBTQ+ migrants. Requiring LGBTQ+ migrants to prove their sexual orientation or gender identity is a major obstacle for LGBTQ+ migrants. Many LGBTQ+ migrants are denied asylum based on their inability to "credibly" prove their identity.

Sixth, LGBTQ+ sensitivity training is needed for civil society groups, outreach volunteers, and immigration and border officials to ensure the safety of LGBTQ+ migrants throughout the asylum and refugee process.

Seventh, it is imperative that LGBTQ+ data collection efforts are expanded. Most surveillance systems do not measure LGBTQ+ identities, which limits the ability of practitioners, policymakers, and researchers to identify and prioritize the differential impacts of climate change on LGBTQ+ people worldwide. Data on LGBTQ+ populations are rare in countries that are highly vulnerable to climate related disasters (e.g., Africa, Southeast Asia, and the Western Pacific) and efforts to expand data collection efforts in these areas will be important in identifying the differential effects of climate change related disasters and tracking differential exposure. Surveys and assessments of disaster vulnerability, preparedness, and response

must incorporate explicit measures for LGBTQ+ populations and communities. Local and community-based information may be needed to ensure that LGBTQ+ voices are represented in responses to climate harms.

Conclusion

Public health practitioners, policymakers, researchers, and climatologists need to carefully consider the potential for disparate effects of climate change on the health of LGBTQ+ people. Like other marginalized populations, LGBTQ+ people will likely be more exposed to the hazards of climate change, more susceptible to climate change effects, and less able to adapt to or recover from climate change relative to non-LGBTQ+ populations. As such, climate change may widen pre-existing LGBTQ+ health disparities. Legislative action protecting LGBTQ+ populations from discrimination, more LGBTQ+ inclusive data collection efforts, and international-national-local collaborations with LGBTQ+ communities are needed to ameliorate climate change-related LGBTQ+ health disparities. These measures are key to ensuring that LGBTQ+ populations have every opportunity to recover from climate-related disasters without additional harm.

Author agreement statement

We the undersigned declare that this manuscript is original, has not been published before and is not currently being considered for publication elsewhere.

We confirm that the manuscript has been read and approved by all named authors and that there are no other persons who satisfied the criteria for authorship but are not listed.

We further confirm that the order of authors listed in the manuscript has been approved by all of us.

We understand that the Corresponding Author is the sole contact for the Editorial process. He/she is responsible for communicating with the other authors about progress, submissions of revisions and final approval of proofs.

Signed by all authors as follows:

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRediT authorship contribution statement

Samuel Mann: Conceptualization, Writing – original draft, Writing – review & editing. **Tara McKay:** Conceptualization, Writing – original draft, Writing – review & editing. **Gilbert Gonzales:** Conceptualization, Writing – original draft, Writing – review & editing.

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