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Voices unheard: Meaning, implications, and challenges for historically marginalized communities at the forefront of climate change

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ABSTRACT

While climate change is predicted to have devastating impacts globally, historically marginalized communities are likely to experience its worst effects. As an illustration, Utah continues to experience detrimental impacts of climate change, with disproportionate consequences for historically marginalized groups. However, their experiences and needs remain unheard, thereby imposing disparities in initiating social justice into challenges around climate change in a post-carbon society. To address this gap, we conducted small group discussions to capture environmental stressors and barriers experienced first-hand by marginalized communities who live around the Great Salt Lake and are directly impacted by climate change challenges. Their apprehensions and barriers to engaging in sustainable actions are discussed. This work highlights the need to build educational outreach efforts to highlight the urgency of climate change and develop coping protocols to support historically marginalized Utahns at the forefront of climate change. Knowledge, affective, and sociocultural factors shape perspectives toward climate issues and should be considered to achieve inclusion, justice, and social engagement in addressing climate change and sustainability challenges among historically marginalized Utahns. Furthermore, historically marginalized Utahns need empowerment so that they can voice their concerns and challenges, so that feasible solutions can be developed to promote and maintain sustainability efforts. It is essential to bring together and empower historically marginalized communities who otherwise would have negligible resources to engage in climate-related dialogue and action.

Keywords: educational outreach, inequities, public communication and engagement, transdisciplinary sustainability, health and wellbeing

INTRODUCTION

While climate change is predicted to have devastating impacts globally, historically marginalized communities are likely to experience its worst effects (e.g., Baird, 2008; Green & Healy, 2022; Longstreth, 1999; Odeku, 2022; Versey, 2021). This is because of inequities identified in environmental regulations, land use and metropolitan planning, political action, social activism, and lack of representation that have led to a disproportionate and systemic impact of climate change on underrepresented populations. Thus, climate change will impact all, but especially historically marginalized communities are at the frontline, who experience the most severe and immediate impacts of climate change by living and working in disadvantaged areas. Consequently, significant efforts must be dedicated to capturing environmental stressors and barriers experienced first-hand by marginalized populations as an important step to overcoming climate change-related health disparities. This informed the purpose of the current work.

Climate Change Impacts Who and How?

Climate change is one of the most critical global issues, driving significant human health impacts, environmental degradation, and irreversible damage to natural systems (United Nations, 2021). The impacts of climate change vary widely across communities around the world. Developing countries are particularly vulnerable to the changing climate (Law, 2019). In the United States, climate change has intensified western droughts and wildfires and strengthened hurricanes that devastate coastal communities like New Orleans. Major cities with dense populations of people, like New York and San Francisco, face severe pressure from rising

sea levels and excessive heat (Newburger, 2023). While climate change affects entire communities, subpopulations, within these communities often experience disproportionate and more severe consequences, such as, the elderly, people who suffer from chronic disease, and outdoor laborers (e.g., Füssel, 2012; Hallegatte et al., 2018). For example, people who suffer from respiratory diseases are directly and negatively impacted by rising temperatures, climate-related diseases, and poor air conditions (Longstreth, 1999).

Scholarship shows that social, economic, and spatial inequalities are barriers to the climate mitigation agenda (e.g., Biesbroek et al., 2013; Green & Healy, 2022; Rickards et al., 2014; Steg et al., 2022). Research suggests that individuals from low socioeconomic and minority backgrounds are more at risk of experiencing disproportionate impacts of climate change (e.g., Biesbroek et al., 2013; Green & Healy, 2022; Frosch et al., 2018; Longstreth, 1999; Mullen et al., 2020, 2024). Specifically, low-income people of color, older adults, women, and children are disproportionately affected by the changing climate (Frosch et al., 2018; Longstreth, 1999; Smith et al., 2022). Those with financial instability do not have the necessary safeguards for themselves, their families, and their communities are significantly more vulnerable to climate change (Cevik & Jalles, 2022). Adverse health effects (such as heat-related disorders, diseases, and resource challenges) significantly impact the lives of lower socioeconomic communities (Levy & Patz, 2015). A literature review by Smith et al. (2022) reports that consequences of a changing climate, such as increased hurricanes, drought, wildfires, extreme temperatures, and flooding, have significant health impacts on vulnerable communities who do not have the means to protect themselves.

Indeed, the Intergovernmental Panel on Climate Change (IPCC) emphasizes that societies must prioritize vulnerable populations when designing and implementing local and global climate solutions (Intergovernmental Panel on Climate Change (IPCC), 2022). The disparity between people and climate impacts, known as the "Climate Gap," highlights the need for diverse communities, including indigenous and historically marginalized groups, to voice their concerns about climate change's impacts on their lives (Frosch et al., 2018; Mihlar, 2008). However, a platform is needed to for this vision to become a reality.

How Can This Difference Manifest in Climate Policies and Engagement?

Political action and social activism addressing climate change often fail to reach marginalized populations (Avelino et al., 2016; Routledge et al., 2018; Smith et al., 2022; Sovacool, 2021). Policies and initiatives designed to mitigate climate change are typically not tailored to the specific needs of marginalized communities (Versey, 2021). For example, environmental regulations are often disproportionately enforced in minority and indigenous communities, leading to greater exposure to pollution and other hazards (Green & Healy, 2022). Additional challenges, such as lack of political representation and inadequate funding, inhibit affected communities from developing climate-resilience support and infrastructure (Bell & Bevan, 2021). Participation in local environmental movements is often limited and does not include all communities (Romsdahl, 2020). Policies and regulations can be implemented without considering the challenges and concerns of underrepresented communities (Smith et al., 2022; Sovacool, 2021).

Several scholars (Baird, 2008, Köhler et al., 2019; Newell et al. 2021; Pearson et al. 2018) draw attention to the critical need for research across Non-Governmental Organizations (NGOs), academia, and governmental institutions to examine the direct impacts of climate change on minority and indigenous communities to ensure their voices are heard in the highest levels of discussion. Unfortunately, significant challenges remain in translating these calls for representation into concrete climate action (Levy & Patz, 2015; Pearson et al., 2018). Thus, for real and sustainable progress to happen, policies and initiatives must recognize these barriers and develop inclusive approaches that draw on the voices of all people and communities (Masson & Fritsche, 2021; Porter et al., 2020); also referred to as "just" transition (Swilling, 2020).

Concerns about Inequity and Exclusion in Climate Conversations

In recent work, academics and practitioners have cautioned the inequity and exclusion challenges that climate change challenges bring. Researchers have argued to integrate social justice into challenges around climate change mitigation and adaptation (Harris, 2019; Odeku, 2022; Smith & Patterson, 2019; Wang & Lo, 2021). Scholars have cautioned (Kaljonen et al., 2021; Swilling & Annecke, 2012) that it is important to move toward a more sustainable post-carbon trajectory that is equitable and distributed fairly across populations by being fair and inclusive of everyone participating and being mindful of those communities that have been historically marginalized. This is vital to prevent further injustices from happening to those who are already experiencing disparities because they are from a minority group. Informed by these suggestions, in the current work, we were particularly interested in the importance of inclusion, justice, and social engagement in addressing climate change and sustainability challenges (e.g., Harris, 2019; Klinsky et al., 2017; Meyera & Roserb, 2017; Smith & Patterson, 2019; Williams & Doyon, 2019). Specifically, the current work is particularly focused on engaging people directly (and disproportionately) impacted by climate change and utilizing social aspects of learning together with them to inform future sustainability solutions (Heffron & McCauley, 2018). This engages the stakeholders impacted by climate change (in our work, it is historically marginalized Utahns) and jointly creates knowledge that can maintain climate action (Szetey, 2023). This informed our objective to engage historically marginalized members who are disproportionately impacted by climate change and include their needs and challenges to inform progress toward a fair transition to a post-carbon society.

Climate Change Crisis in the State of Utah (US)

Utah is a good case study to draw attention to because it is facing significant impacts from the changing climate. Like global trends, the state's average temperature has risen to over 2.5 degrees Fahrenheit, with recent years being the warmest on record (Natural History Museum of Utah [NHMU], n.d.).

This warming trend exacerbates the effects of Utah's natural hazards, including avalanches, dam failures, droughts, flooding, landslides, and wildfires (Utah Hazard Mitigation Division, 2024), reducing water and air quality. This warming has led to drastic changes in Utah's natural environment, economy, agriculture, and recreation. The Great Salt Lake is experiencing unprecedented water level declines, threatening the state's economy and native ecosystems. The Greater Salt Lake area in Utah is experiencing detrimental impacts of climate change. Utah continues to experience drastically detrimental impacts of climate change, such as higher average temperatures resulting in more intense wildfires, flash floods, and poor air and water quality (Attah et al., 2024, 2025; Grineski et al., 2023; Mendoza, 2020; NHMU, n.d.). Furthermore, lower water levels in the Great Salt Lake produce toxic dust from the dried lake beds, which blow into nearby communities. This dust is carcinogenic and is especially dangerous for vulnerable communities (e.g., women and children), as warned by researchers (Mendoza, 2020; Sovacool, 2021). The lower water levels also increase the toxic dust that blows off the dried lake beds and into nearby communities (Siegler, 2023).

Unfortunately, communities that live near the lake are often of low socioeconomic status and are largely refugee or immigrant families, which makes climate change crises not only an environmental issue but a matter of eco-justice (Baird, 2008; Bell & Bevan, 2021; Green & Healy, 2022; Grineski et al., 2022a, 2022b, 2024; Larsen, 2022; Levy & Patz, 2015; Odeku, 2022; Smith et al., 2020; Upham et al., 2022; Versey, 2021; Winslow, 2024). This is in line with existing research that indicates that the health consequences of climate change will be unequally distributed depending on geographic, cultural, and socioeconomic factors (Baird, 2008; Bell & Bevan, 2021; Green & Healy, 2022; Levy & Patz, 2015; Longstreth, 1999). Thus, historically marginalized communities in Utah are at the frontlines of climate change. Policies and initiatives designed to mitigate climate change are typically not tailored to the specific needs of marginalized communities (Versey, 2021). Due to discriminatory housing prices, they are priced out of other areas that are less impacted by climate change, not leaving them a choice to move away from the Great Salt Lake neighborhood. Despite the existing inequities, details are sparse when it comes to the psychological experiences of historically marginalized Utahns.

The Current Study: Detrimental Impacts of Climate Change on Marginalized Utahns

Even though historically marginalized Utahns at the forefront of climate change bear its most severe impacts, little is understood about their experiences, which would help facilitate climate engagement efforts and support their health and well-being. To address this knowledge gap, we conducted small group discussions with the following goals:

First, to gain an understanding of what climate change means to historically marginalized communities and the implications community members perceived it has for their community.

Second, the impact climate change has had on them—the apprehensions, barriers, and challenges historically marginalized communities face in engaging with climate change.

Third, how can progress towards more equitable habitats be made by addressing climate change challenges, and how can they potentially cope with climate change to mitigate underlying health and well-being implications?

Given that there wasn't existing literature specific to our sample, we adopted an open-ended approach during the conversations and tried to qualitatively analyze gathered data to develop a rich understanding of community members' experiences to answer the above research questions.

METHODOLOGY

Participants

Three separate focus groups were invited to round-table conversations with a bilingual Spanish and English moderator as part of a larger community event. A total of 38 community members with diverse ages, genders, and backgrounds participated in the round-table conversations. All participants were from the neighborhood that is a hub for recent immigrants and refugees, primarily from Central and South America. Diverse ethnic backgrounds were represented, with many first- or second-generation immigrants, primarily from Central and South America or the Pacific islands. The majority primarily spoke Spanish, with English as a second language. It is notable that due to discriminatory housing prices, they are living around the Great Salt Lake, due to which they are adjacent to environmental hazards and much more impacted by climate change.

All participants were recruited through a non-profit organization that works with immigrants and refugees primarily from Central and South America living in underserved neighborhoods around the Great Salt Lake and had relatively low socioeconomic status. We did not expect differences across the three focus groups as they all were recruited from the same neighborhood and through the same organization. However, the authors did not intentionally ask for participants' SES or other demographic information. This was a nascent attempt to gain an understanding of this community's perspective; therefore, the authors intentionally did not want to collect data that would identify individuals to avoid limiting participation and open conversations. In our analysis, we did not intend to compare the three groups. This is because no differences in treatment were implemented, and all participants were from the same community through the same non-profit organization. Data from additional groups was collected to have a larger representation. We did not account for which group responses were from throughout the data analysis.

Thematic Data Analysis

For this study, we employed a semi-grounded approach where the selection of questions was pre-determined to elicit the perspectives and conversations of our target audience, but our analysis was open-ended to allow for themes to emerge (Creswell, 2014). Focus groups were semi-structured and guided by a protocol (**Appendix A**). Guiding questions were

stated in both languages to initiate discussions with community members. Conversations lasted approximately 30-45 minutes for each focus group and were audio recorded. Recordings were transcribed in Spanish and then translated into English by a bilingual team member. A thematic analysis using a semi-grounded approach was used to analyze participants' conversations and identify several prominent themes (Naeem et al., 2023). Braun & Clarke's (2012) six-step thematic analysis process guided our analysis. This process includes familiarization with the data, initial code generation, and an iterative review of all codes to produce a final set of themes that thoroughly reflects the data.

Thematic data analysis is a common approach to recognizing, analyzing, and documenting patterns present in data, i.e., themes (Braun & Clarke, 2006). To gain meaningful interpretations of our conversations, we utilized all six steps of the reflexive thematic analysis approach (Braun & Clarke, 2012, 2006). The first two authors of this manuscript conducted the thematic data analysis, first individually and then together, to generate the themes that came out of the focus groups. The following six steps were adopted.

First, the data were transcribed, and both authors *familiarized* themselves with the data by reading the transcript multiple times and individually noting their initial reactions. Second, the *initial codes* were generated where the data were noted according to overlapping ideas. The two authors had an open discussion focusing on gaining a rich description of the conversations (Braun & Clarke, 2006) because that better aligned with our goal of this research to learn about the views of historically marginalized individuals of Utah, which were unknown. Third, based on our data, the *initial themes* representing the central concepts were developed to identify which conversations were thematically related. Fourth, the themes were reviewed to ensure a coherent interpretation was developed and informed the research question. For example, considerations were made to ensure that sufficient information to develop and support each theme was made. Fifth, the themes were labeled with a description of each theme that was collected. Sixth, the findings were drafted, where all the finalized themes were introduced and explained, and representative quotes were provided. These themes were further discussed with the rest of the authors to ensure clarity and coherence.

FINDINGS

The authors have adopted thematic data analysis to capture the main themes derived from the focus groups. Most discussions were in Spanish, and some were in English. When relevant, we have reported translated responses in English.

"Climate Change" Is a Jargon that Is Hard to Discern

An immediately noticeable theme was that "climate change" was a jargon that was not part of everyday vocabulary, suggesting that most of the community members were either unsure or unfamiliar with the term. In general, very few who knew the term climate change said they had heard about it from their science teacher or from the media (e.g., "*Bill Nye*"). These discussions suggested that climate change was not necessarily perceived by community members as a massive everyday stressor, and they did not know about the disadvantages their community was disproportionately facing. It was perceived more as the norm and an issue that did not directly affect them.

Climate Change "Does not Affect Me Personally" and Is a Far-Off Issue

Given that understanding the perceptions around climate change was a primary goal, the moderator illustrated the concept of climate change by stating that it refers to, for example, long-term and continuous changes in normal temperatures, rainfall, and snow patterns, then explaining how this phenomenon over time is driving changes in the length of seasons and the overall quantity and distribution of water resources. This led to sub-themes.

Many participants said that the current conditions and weather patterns were the norm for them, and they didn't know if they should have been different. They said that they don't know whether the climate is changing. Another sub-theme was it does not affect them personally. Many suggested that it was a problem experienced by others who lived far off. For example, an individual mentioned their relatives who stayed in a Latin-American country are experiencing seasons with no rain at all, diminishing plantation production and affecting reservoirs. Another talked about water restrictions being implemented elsewhere to preserve water (but not by them). A young woman who captured the general sentiment said:

> I usually don't think about how it affects me here in Utah. I usually think about it more outside.

Reflecting this sentiment, another said:

> Islands are sinking.

(which is again in other places than Utah). They also said that they don't have to confront climate change where they live in Utah, but their parents live in Mexico, and they have already had this (climate change) problem there. A middle-aged man talked about themselves as having a relatively good lifestyle in Utah but noticed that news reports show extreme weather events are more frequent globally than in the past.

Mixed Perceptions of Climate Change's Impact on the Community

As a research question, the authors were also particularly interested in the perceived impact of climate change, as noticed by the community members themselves. There was a lot of variability in perceptions around the impact climate change does not or does have on the responders. One sub-theme was that climate change does not have an impact (at least not a noticeable one). Another sub-theme was a particular type of impact on access to clean water and air. One responder speculated on the impact it would have on water and other resources if the local area kept growing like it is. A young man commented that snowmelt is the main source of water in the area, and if the city keeps growing, then the proportion between water and people will be off and become unsustainable. He suspected, however, that the area would

keep growing because of political greed. Another chimed in about the need for more snow as it is important for water needs in Utah. Along the same lines, a middle-aged woman said:

> How Utah used to have longer winters. We used to have crazy blizzards. Now you don't see nothing. We get huge snowfalls maybe once every 10 years.

Another responder pointed out that air contamination (obviously by high air pollution levels) is very bad for human health, and that can have a significant impact on community members' occupations and earnings. Similarly, others pointed out that poor access to clean water, poor air quality, and high daily temperatures are issues.

Another sub-theme was that others had concerns about rising service costs and related uncertainty. For instance, one participant, a young father holding his toddler, said that poor air quality makes them think about climate change and associate it with the oil industry. Thus, at first, climate change came up as a far-off concept, but through discussion, community members came to speculate on how climate impacts could affect their health and wellbeing. Still, climate change was not perceived to affect the groups' everyday lives. In fact, participants anticipated that in the coming years, climate change problems are going to worsen poor air quality and cause health issues such as respiratory illnesses. Similarly, others suggested that pollution is going to affect the soil quality, thereby affecting agriculture and food sources. Another concern tied to this was increases in the cost of living and services in general, especially food and water costs. They worried that the next generation would have to deal with these challenges (not themselves in their time). Nevertheless, climate change was described as a far-off problem rather than an urgent concern.

There Were No Targeted Goals to Cope with Climate Change

It was a striking theme that many participants did not view climate change stressors as being active concerns. Psychologically, dealing with climate change was not an active concern. As a result, there wasn't much recognition of climate change-related distress. Historically marginalized individuals did not see a need to cope with such stressors. In terms of social sharing, participants suggested that there were not many conversations about climate change. They recognized that none of them openly talked about climate change. Thus, climate change was not something the community was processing individually or discussing among themselves directly, which could have consequences for short-term and long-term impacts on health and wellbeing.

Inequity Is a Barrier to Sustainability Efforts

Another developed theme was the barriers to engagement with climate change solutions experienced by marginalized community members. The focus group brought up the issue of limited resources and financial inequity (referring to the unequal financial resources among historically marginalized communities compared to others), which can make it difficult for some to support the climate action cause (e.g., buying eco-friendly products that are more expensive). For instance, some respondents expressed that it is everyone's responsibility to address climate change, especially for the government, big companies, and the oil industry, who are major contributors to pollution. Along the same lines, a younger community member said:

> If we can't afford solar and electric vehicles… then you guys are all doomed.

This speaks to eco-justice issues at the root of climate change mitigation and adaptation.

Education, Conversations, and Personal Actions Make a Difference

At the same time, community members expressed that having an open conversation with them, such as the one the authors facilitated, is encouraging and motivating.

> It shows that climate change challenges matter a lot.
>
> (translated from Spanish)

Importantly, a few young women also pointed out that it will be good to get educated because they never hear about concerns around climate change. Another person said that they felt really discouraged because the air pollution was bad. They shared that they feel hopeless because,

> A lot would need to change to stop contamination, and very few are interested in talking to us (the community) about climate change.
>
> (translated from Spanish)

They also suggested that they would like to know what they can do, but they don't know how they can contribute, so someone educating them will be very helpful.

> We would like to hear what we have to do to contribute to improving the situation about climate change. We don't know anything, but we are open to being educated.
>
> (translated from Spanish)

A sub-theme some considered was the need to have (ecological) consciousness, such as considerations of limited water resources because they wondered how much water could just be wasted if everyone took an hour-long shower - "that would be unfair" (translated from Spanish). Some community members pointed out that less driving and carpooling would help. Some specifically acknowledged that climate change would have a deleterious impact, and they suggested that their community members need more information about climate change so that they are prepared and know what they can do. This way, they don't have to worry about the future impacts of climate change. A statement that captured the sentiment to capture interest in climate change mitigation and sustainability efforts was,

> This is our world, and it matters a lot to us.
>
> (translated from Spanish)

Some also suggested that there should be more information available at the school level so people can be more informed and act. They elaborate that when one knows about the harmful impacts of an issue, then they can contribute and prevent it. A middle-aged woman described living in Utah for the past 18 years and hearing relatives comment that it used to be much snowier (more than 10-12 feet of snow), but in the last 10 years, it has been disappearing fast. They speculated further that change is hard to notice unless there is proper documentation of changes in weather patterns that would help keep track of the changes. Overall, community members showed a keen interest in learning more about climate change and the role they can play in making a difference.

DISCUSSION

Climate change impacts many communities across the globe, with historically marginalized and underserved communities bearing the brunt of this impact (IPCC, 2022; Odeku, 2022). However, often, the focus of climate engagement, activism, and policymaking lies with more privileged groups. This work aimed to gain an understanding of the everyday experiences of a historically marginalized urban community in Utah that is disproportionately impacted by gathering information about their interpretation, apprehensions, and barriers to engagement with climate change. The current work is one of the first attempts to document the psychological experiences and cognitions around climate change of historically marginalized Utahns who are currently experiencing disproportionately worse impacts of the climate crisis. Through this work, we highlight that an essential barrier to making a sustainable transition (in Utah and comparable communities) is the lack of inclusion of historically marginalized communities, which limits their experiences being represented and integrated. This can create new or aggravate existing systemic problems. Thus, in addition to interdisciplinary research, communities joining forces to engage and represent their perspectives will be essential to implementing environmental justice and wellbeing.

Highlights and Reflections from Focus groups with Historically Marginalized Utahns

Combining information from these discussions, the following notable themes came up:

First, climate change was not a current or conscious concern for most of the focus group members for various reasons, such as pressing economic uncertainties and lack of environmental issues as common public knowledge, to name a few. At the same time, as predicted by climate scientists (Grineski et al., 2024; Mendoza et al., 2024; Rozenberg & Hallegatte, 2015; Wilson et al., 2010), the most disproportionate impact of climate change will continue to compound disparities among historically marginalized community members. This highlights the dire need for educational programs to raise awareness among marginalized Utahns, as further discussed in section, *Environmental justice for historically marginalized Utahns*.

Second, despite first characterizing climate change as not being an immediate and current concern, community members' concerns grew over the course of the group discussions. They expressed clear apprehensions about being constantly impacted by climate change soon and how it may adversely impact other aspects of their lives (such as higher cost of living, pollution, and related health consequences on their wellbeing). They shared concerns about future generations having to deal with adverse climate challenges. Note that even though responders first stated that they did not know anything about climate change, they had a lot of direct experience in their everyday life, and much of it may not necessarily be referred to as climate change, but it was obvious that it was directly or indirectly connected to climate change issues. These discussions also brought up the real limitation of scientific knowledge and resources that community members could not access. In future work, policies need to be designed to recognize the fundamental limitations that are barriers to engaging with climate change actions. This highlights the essential need for working with community members to find practical solutions and support systems needed to empower communities to prepare and cope with climate change.

Third, the community members expressed the need to learn more about climate change challenges so that they are prepared to deal with them. They highlighted that they don't know what they should be doing but expressed a strong willingness to learn more to engage further in climate change conversations and efforts. The current work highlights the immediate need for educational programs to help develop a supportive, proactive plan to initiate climate change dialogue and sustainability efforts (Janney et al., 2024; Lohani et al., 2025a, 2025b). The authors elaborate on some potential plans in the next section.

Considerations for Social Justice Regarding Climate Change and Future Directions

An important follow-up question from discussions with community members was to consider what will shape community engagement in science-based information. While literature specific to marginalized Utahns is extremely limited, below we highlight some existing concepts on shaping community perspective, followed by relevance for new knowledge to further sustainable transition to a post-carbon society with historically marginalized Utahns.

Shaping perspectives and engagement with climate change

The decision to accept and engage in climate action is influenced by several factors (Gifford, 2011; Hornsey et al., 2016, 2018; Hornsey & Fielding, 2020). First, knowledge factors (e.g., awareness of the causes and consequences) are strongly linked to both acceptance and engagement in mitigation and adaptation behaviors (Arnold et al., 2015; Guy et al., 2014; Zummo et al., 2020). Familiarity with climate change science helps people recognize the risks, recognize reliable sources of information, and identify effective resolutions (Janney et al., 2024; Malka et al., 2009; Milfont, 2012).

Second, affective factors, such as worry, hope, and fear, also play a strong role in climate acceptance and engagement (Brosch & Steg, 2021). When confronted with challenging issues like climate change, people engage in various coping strategies (Li & Monroe, 2017; Ojala, 2013, 2022). For example,

someone who is concerned yet hopeful about climate change may use coping strategies that reduce stress, such as seeking out more information and adopting pro-climate habits (Zaremba et al., 2022). On the other hand, someone who is feeling hopeless may use coping strategies that defocus their attention to ignore climate-related messaging and action (Davidson & Kecinski, 2021). Assisting people in appropriately managing their climate change emotions is critical for facilitating positive engagement (Geiger et al., 2023; Lohani et al., 2025a, 2025b).

Third, sociocultural factors (e.g., worldviews, identities, and group memberships) strongly influence one's perspective on climate change (Cook, 2017; Hornsey et al., 2020; Kahan, 2015). Conservative worldviews and being part of social groups with similar views are associated with anti-climate change attitudes (Hamilton et al., 2015; Hess & Maki, 2019; Hornsey et al., 2018; Kerr & Wilson, 2021). Other sociocultural factors contributing to climate change resistance include conspiratorial beliefs about science and government (Bolsen & Druckman, 2015; Lewandowsky et al., 2012; Marques et al., 2021) and perceived difficulty in making lifestyle changes (Gifford, 2011; Lorenzoni et al., 2007).

In sum, understanding the knowledge, affective, and sociocultural factors (Bolsen et al., 2019; Geiger et al., 2017; Maibach & Hornig Priest, 2009) playing a critical role among historically marginalized Utahns is essential for developing effective climate change communication and promoting pro-climate action. This is particularly important for engaging diverse and underrepresented communities (such as the Utahn participants we interacted with) whose sociocultural identities and outlooks are highly integrated (Hine et al., 2016). Tailoring climate messages (Pearson et al., 2018) to address these unique perspectives can enhance engagement and support for climate initiatives across diverse and marginalized communities of Utah. This is also supported by previous literature that emphasizes working with the stakeholders (e.g., marginalized Utahns) in the joint creation of practical knowledge informed by the experiences of the impacted community and creating integrated solutions to promote sustainable action (Heffron & McCauley, 2018).

Environmental justice for historically marginalized Utahns

Unfortunately, many low-carbon transition strategies will not inherently bring about environmental justice. While incentivizing technological solutions to the changing climate is necessary, proposed incentivization and solutions will require deliberate precautions to avoid creating new injustices and perpetuating existing structures of social and environmental injustice (Wang & Lo, 2021). As argued recently by Stevis and Felli (2020), it is critical to consider how certain segments of society have more power, i.e., a "*voice and choice*." Similar calls have also been made by others (e.g., Agarwal et al., 2017; Byskov et al., 2021; Rozenberg & Hallegatte, 2015; Wilson et al., 2010; Zeidler & Newton, 2017) and collectively they suggest that inclusiveness and justice will be key in achieving sustainable actions. Extending this concept to our current discussion, historically marginalized Utahns may not have the support to adopt sustainability solutions and will need to be empowered to have a stronger voice in climate conversations that represent their needs and challenges.

Assimilating knowledge gained from the current study, we highlight three primary takeaways that are critical for implementing environmental justice, including for historically marginalized Utahns. First, the climate change crisis in Utah is a relevant example of how knowledge is power. Providing empirical knowledge about climate change will empower local community members to recognize and cope with what climate change is actively inflicting. Thus, education and outreach programs specifically designed for and in partnership with historically marginalized Utahns living around the Great Salt Lake are needed to highlight the importance and urgency of climate change and how today's efforts will directly impact the future. In addition, historically marginalized communities need to feel included in climate change concerns and mitigation efforts and share their perspectives as stakeholders in the fight against climate change. Without a proper understanding of the trajectory of climate change and the seriousness of the challenges it inflicts (Huckelba & Van Lange, 2020; Kellogg, 2019; Leggewie & Welzer, 2010), it will be impossible to reach climate change-related goals. A suggestion for future work is that considering the cultural nuances will be critical in engaging a diverse community. For instance, climate change was not a familiar term for many Utahns, so working with moderators who know and perhaps are part of their community would be helpful. Furthermore, if climate change is not an active concern and stressor, there is less recognition and need to cope with a stressor, which can worsen the impact on health and well-being (Lohani & Blodgett, 2025). This speaks to the need for accessible resources for community members around Utah to build understanding about how already existing stressors are exacerbated by climate change, as well as to develop strategies to cope with climate-related distress.

Second, just informing historically marginalized Utahns about climate challenges will not be enough, as it may even create more distress. In our study, respondents suggested that they never directly talk about climate change but indirect ways, such as the extreme weather and related challenges. When specifically asked how participants feel when someone talks about climate change, they recognized that none of them openly talked about climate change. Thus, climate change was not something the community was processing individually or discussing among themselves directly, which could have consequences for short-term and long-term impacts on health and wellbeing. Therefore, adopting an applied psychology perspective to integrate effective ways to improve health and wellness considering climate change is needed. For instance, workshops and community outreach efforts should be developed to build social support within the community in dealing with climate change because it is an effective emotion regulation approach that can help deal with emotional distress and grief (e.g., Uchino, 2006; Lohani et al., 2022). On a related note, there is a pressing need for community health workers to receive training and resources so that they are equipped to help community members. This is because community health workers in Utah can identify the challenges community members are experiencing and may be able to improve their health and wellbeing. Accordingly, it is crucial for community health workers to develop the skills they need for community wellness coaching related to climate change crises. Such

educational outreach efforts are pivotal to mitigating the negative impacts of climate change on the health and well-being of community members. Specific physical and online locations around Utah (e.g., hospitals, schools, community centers, and museums) (Janney et al., 2025) will need to be created to provide support to deal with the climate crisis in Utah.

Finally, collective action to mitigate climate change impacts is imperative (e.g., Adger, 2010; Bolderdijk & Jans, 2021; Hoegh-Guldberg et al., 2019; Romsdahl, 2020; Samaddar et al., 2021; Szetey, 2023). While calls have been made for research communities to unite (Heffron & McCauley, 2018) for real public engagement and acceptance to take place, scholarly communities (such as the researchers at the local universities in Utah) cannot work alone. Fortunately, some recent efforts have engaged minority and indigenous communities with pro-environmental systemic and structural changes (Bolderdijk & Jans, 2021; Samaddar et al., 2021). Comparable efforts to initiate and promote community participation in climate change adaptation (Fleming et al., 2023; Obracht-Prondzyńska et al., 2023; Romsdahl, 2020; Samaddar et al., 2021) that have been useful and can be adapted to the needs of Utahns. By engaging the communities themselves, especially the historically marginalized Utahns, we will be better situated to initiate and maintain sustainability efforts. Efforts to make the communities who are at the brunt of climate change be included and heard is an imperative step to make climate action possible in a post-carbon society. The goal of community and scientists' participation would be to identify practical coping strategies to promote health and wellness (Lohani et al., 2025a, 2025b, under review), enabling climate change adaptation, and to implement practical solutions to advance climate sustainability efforts among frontline community members (Brosch & Steg, 2021; Davidson & Kecinsky, 2021). Thus, in conjunction with climate scientists, feasible climate science-informed solutions can be identified and adopted among historically marginalized Utahns.

LIMITATIONS AND FUTURE DIRECTIONS

A few limitations need acknowledgment. First, no demographic information for the respondents was intentionally collected to enable an open conversation. However, this limited us from drawing specific conclusions about the role played by such factors (e.g., age, gender, education, political identity, religion, and legal status in the country). Such information can shed important light on our understanding of engagement in climate change-related conversations.

Second, there are pros and cons of having focus group conversations. The group format can spur good conversations and openness and build an understanding of the community members' sentiments. At the same time, some don't feel comfortable talking in group settings, especially because of the social consequences of sharing in front of one's community. Future work should be conducted by target interviews to gain additional insights.

Third, it would also help to compare responses across different focus groups. It would also help to control similar demographics across different groups intentionally. On a related note, much can also be gained by learning about how the responses and opinions modify over a sequence of focus groups with the same individuals.

Finally, gaining more data from large and diverse marginalized groups in Utah would help establish similarities and differences within and across groups. These efforts would help engage historically marginalized Utahns in climate change conversations and co-produce their knowledge of practical solutions to initiate and maintain sustainability efforts. This work focused on the historically marginalized Utahns living around the Great Salt Lake and illustrated their experiences, cognitions, and challenges, but this work can be extended to other marginalized communities, too.

CONCLUDING REMARKS

Climate change has and will continue to disproportionately affect the poorest, making efforts to tackle climate change an issue of social justice (Taconet et al., 2020). The current work shows that historically marginalized Utahns, who are critical stakeholders, are disproportionately impacted by climate change, need major support. They do not have the resources to adopt necessary safeguards for themselves, their families, and their communities, which are significantly more vulnerable to climate change despite having done little to cause it. Targeted outreach efforts are needed to promote awareness of the direct health and wellbeing impacts climate change will have on these communities living and working around the Great Salt Lake. Furthermore, historically marginalized Utahns need empowerment so that they can voice their concerns and challenges, so that feasible solutions can be developed to promote and maintain sustainability efforts. Overall, the current work is in line with past work which says that a community-engaged solution can provide feasible sustainability solutions that mitigate climate change issues with human rights and social justice in mind (Kaljonen et al., 2021; Swilling & Annecke, 2012). Such an approach avoids creating new or aggravating existing systemic problems and tailoring climate action promotion messaging among frontline communities. It is essential to bring together and empower historically marginalized communities who otherwise would have negligible resources to engage in climate-related dialogue and action.

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APPENDIX A

Questions used in focus group discussions

What is climate change? (relevant for section: "Climate change" is a jargon that is hard to discern)

1. People feel several ways when learning about climate change. Please try to describe how you feel about climate change.

Follow-up facilitation

Have you noticed any changes in the seasons? Or in weather patterns over time? For instance, have you noticed changes in temperature or changes in precipitation? Have you noticed any weather events or patterns that seem different than in the past?

To what extent are climatic changes or changes in seasonality a problem in your life, if at all? Is it something you think about often, or are there other problems that are more important to you?

Perceived impact of climate change (relevant for section **Climate change "does not affect me personally" and is a far-off issue**)

2. How has climate change has impacted you (e.g., weather). Does climate change affect your everyday life, health, and wellbeing?

Apprehension of climate change-related issues (relevant for section: **Mixed perceptions of climate change's impact on the community**)

3. In the coming 5 years, how much do you think climate change will affect your life.

Coping with climate change (relevant to section: **There were no targeted goals to cope with climate change**)

4. Do you think there is something you can do about climate change?

If no, please describe the reasons or barriers.

If yes, are some changes that would be possible for you to make in your day-to-day life regarding climate change? Are there challenges and barriers that you think you would experience in meeting those goals.

Do you talk about climate change with others?

If no, then why (e.g., do you intentionally avoid talking about it or because it is not a concern?)

If yes, please share with whom? Kindly elaborate more on your conversations.

Barriers to sustainability efforts (relevant to section: **Inequity is a barrier to sustainability efforts**)

5. Based on knowledge you have about your community members, if you had to guess, what are the most pressing challenges that may limit the community to tackle climate change issues, such as believing in environmental-friendly policies (e.g., limiting coal use, use of plastic, etc.).

What are the most pressing challenges that may limit the community's ability to address/control climate change?

What can be done to bring about change? (relevant to section: Education, conversations, and personal actions make a difference)

6. What would motivate and engage your community to work together on environmentally friendly policies?

What could be done to encourage participation in environmental-friendly policies?

Who do you think can address climate change problems?