

Attitudes and Perceptions of Environmental Change among Youth Living in Public Housing

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Abstract

This study examined the attitudes and perceptions of global environmental change among high school youth living in public housing developments in Denver, Colorado, a city that has experienced one of the largest increases in average temperature over the last decade compared to other U.S. cities. Thirty-four youth completed a structured survey that assessed their attitudes and perceptions of environmental change; 14 youth also participated in focus groups to provide a deeper understanding. Survey results and focus group findings suggest the presence of three themes pertaining to respondents' attitudes and perceptions of global environmental change: 1) feeling like no one cares; 2) perception of a numb and complacent culture; and 3) care and concern for future generations. Key implications for addressing youths' affective responses to global environmental change include demonstrating care through meaningful dialogue that promotes self- and collective efficacy and creating spaces for youth to exercise agency.

Keywords: climate change, youth, environmental change, environmental attitudes, low-income community

Global environmental change is a threat facing all current and future generations of young people. Currently, approximately 1,000 children die each day worldwide from climate change-induced starvation and illness (Bexell, Decker Sparks, Tejada, & Rechkemmer, 2018; DARA, 2012; Salamon, 2016). As these child deaths disproportionately occur in developing nations, it is a horrific irony that those who contribute least to climate change often bear the greatest threat (DARA, 2012). Experiences of environmental change like extreme weather events place children in danger of physical and psychological harm as such events have been linked to increases in depression, feelings of powerlessness, exhaustion, anxiety, and post-traumatic stress (Burke, Sanson, & Van Hoorn, 2018; Clayton, Manning, & Hodge, 2014; Peek, Abramson, Cox, Fothergill, & Tobin, 2018). Researchers have also found that young people who experience disasters like drought report higher levels of distress and worry about the future than other youth (Carnie, Berry, Blinkhorn, & Hart, 2011). Even in regions without extreme weather events, there is evidence that gradual increases in temperature are correlated with a larger demand for emergency mental health services (Clayton et al., 2014). In many cases, climate-related disasters strain family and community relationships (Pfefferbaum, Jacobs, Van Hoorn, & Houston, 2016). For example, many families have to relocate following a disaster, causing children to change schools or miss school altogether (Clayton et al., 2014). The economic value of this education loss can be one of the most severe and unexpected consequences of climate-related disasters (UNICEF, 2015).

Young people who live in economically disadvantaged circumstances often bear the brunt of climate change (Raworth, 2012). For many years, a predominant theory suggested that poverty actually contributed to environmental degradation (Duraiappah, 1998). The climate science community now knows, however, that the largest contributors to human-made environmental change is attributed to “the wealthiest 10 percent of the world’s population,” with the greatest *effects* of climate change felt among those living in poverty (Raworth, 2012, p.5). Environmental change affects the entire global population. However, people who are living in conditions of poverty often have inadequate resources to prepare for or recover from the adverse effects of rapid environmental change (Raworth, 2012).

It is important that young people have a strong understanding of global warming, climate change, and greenhouse gases, as well as the causes, consequences, and potential solutions to the problems they pose. As such, a key component of the United Nations Sustainable Development Goal 13—to take “urgent action to combat climate change”—is to increase awareness and education of the issue (United Nations, n.d.). Although a scientifically backed understanding of climate change is one essential element for motivating behavior change to address the issue, learning about such large-scale threats can elicit a range of adverse emotions that include worry, fear, and sadness, as well as shock and powerlessness (UNICEF UK, 2013).

Some recent literature has recognized that learning about global issues is much more than a cognitive process. Rather, it is mediated by our affective responses—those responses that are related to mood and feelings—to the extent that emotions can either paralyze or strengthen individual efforts for change (Ojala, 2012; 2013).

Some people may feel a sense of doom and resignation due to their inability to stop global environmental change, which not only hinders change efforts, but can also be a great source of stress (Clayton et al., 2014). Studies have suggested that youth may be more receptive to learning about global warming and climate change than adults and that an increase in knowledge of climate change facts may combat youth skepticism and increase their risk perception (Stevenson, Peterson, Bondell, Moore, & Carrier, 2014). However, few studies have examined the relationship between adolescents' cognitive understanding of global environmental change and their affective responses (Sanson, Van Hoorn, & Burke, 2019). This is particularly true among low-income youth who may face a greater long-term risk of the negative physical, social, and psychological effects of climate change.

Youth living in public housing in the U.S. are uniquely situated in the discussion of environmental change. Youth in these neighborhoods often face adversities including "poverty, lack of economic opportunity, neighborhood disorganization, weak neighborhood attachment, norms favorable to antisocial behavior, availability of drugs, and presence of adult criminality" (Forrest-Bank, Nicotera, Anthony, Gonzales, & Jenson, 2014, p. 296) that may be exacerbated by environmental change. Yet, as inhabitants of a wealthy developed nation, youth living in these neighborhoods also have opportunities for education and prosocial change that may promote resilience against these negative effects.

Many studies have explored youth attitudes toward climate change in an international context (Boyes, Skamp, & Stanisstreet, 2009; Chhokar, Dua, Taylor, Boyes, & Stanisstreet, 2011; Chiw, & Ling, 2019). To further address this issue, this study examines the beliefs, attitudes, and perceptions of global environmental change among a group of high school youth living in two urban public housing neighborhoods in Denver, Colorado, a city that has experienced one of the largest increases in average temperature over the last decade compared to other U.S. cities as well as worsening problems of drought and water scarcity (University of Colorado Boulder, n.d.). The investigation aims to gain a deeper and more nuanced understanding of the beliefs and types of affective attitudes and perceptions youth have towards global environmental change. Affective attitudes and perceptions are explored in contrast to purely cognitive perceptions that do not account for mood and feelings related to the subject matter. Research questions guiding the current study are:

1. What do youth in public housing believe about climate change facts and falsehoods?
2. How do low-income youth describe their current and anticipated experience of climate change?
3. How do youth living in public housing perceive adults' response to dealing with the problem of climate change?
4. What are low-income youths' attitudes towards the threat of climate change and its potential solutions?

Methods

Participants

This study used a convenience sample to recruit participants who attend an afterschool program that serves students residing in four public housing developments in Denver, Colorado, where 60 percent of residents depend on government assistance for basic needs and up to 90 percent of adults are without adequate employment (Jenson et al., 2013). The afterschool program and the researchers' institution have had a long-standing partnership since the early 1990s. Participants included 34 high school students at the afterschool program (9th-12th grade, ages 14-18). Sixty-two percent (n=21) of participants identified as female. Students identified predominantly as Black (59 percent, n=20), followed by Hispanic/Latino (23 percent, n=8), Asian (12 percent, n=4), White (3 percent, n=1), and Multiracial (3 percent, n=1). Twenty-six percent (n=9) of the participants were in 9th grade, 35 percent (n=12) in 10th grade, 26 percent (n=9) 11th grade, and 12 percent (n=4) in 12th grade.

From the larger sample, a nested sub-sample of 14 youth were purposively selected to participate in two focus groups that were conducted at the two largest public housing developments (Walker and Lafayette) out of four total sites. This sub-sample included 42.8 percent (n=6) males and 57.2 percent (n=8) females. Focus group participants identified as African American 78.6 percent (n=11), Hispanic/Latino 14.3 percent (n=2), and Asian 7.1 percent (n=1). Among the focus group participants, 21.4 percent (n=3) were in 9th grade, 42.9 percent (n=6) in 10th grade, 28.6 percent (n=4) in 11th grade, and 7.1 percent (n=1) in 12th grade.

Procedures and Measures

The researchers adopted selected quantitative survey questions from the Yale Project on Climate Change Communication (Leiserowitz, Smith, & Marlon, 2011). Survey questions were adapted to a five-point Likert scale of responses that ranged from strongly disagree to strongly agree. Participants were told there were no right or wrong answers and that researchers were only interested in their opinions and beliefs. Sample items included, "Global warming is caused mostly by human activities," "Most scientists think global warming is happening," "The decade from 2000 to 2009 was warmer than any other decade since 1850," and "I am worried about global warming."

To supplement the quantitative data, the researchers designed semi-structured focus group questions that aligned with the themes from the quantitative survey to examine young people's cognitive attitudes and perceptions of climate change. Focus groups ranged from 30-60 minutes in length, and each group included six to eight youth. Focus group questions included:

1. Do you believe global warming is happening? Why do you believe that and how did you learn about it?
2. How do you see global warming happening in the world? How do you see global warming in your community?

3. How does global warming affect you now, if at all? How do you see global warming affecting you in the future?
4. What are some ways we can prevent global warming from continuing?
5. Do people care about the issue of climate change and if so, who? What would it take for the average person to care?

Focus groups were audiotaped and transcribed by members of the research team after obtaining assent from youth participants.

Analysis

The researchers conducted an initial analysis of participant demographic variables using quantitative and qualitative data. Three quantitative items were used in the analysis: "How much do you agree with the statement, global warming is happening," "Before today, I never thought about global warming," and "I am worried about global warming." Due to the small sample size, the researchers used descriptive statistics (i.e. frequencies, measures of central tendency) and chi-square analyses to examine differences between groups (i.e. gender, race, grade, and site) on the three quantitative items. Correlations were also used to examine relationships between these items.

Qualitative data were transcribed by members of the research team and analyzed using inductive coding and thematic analysis (Creswell & Poth, 2018; Saldaña & Omasta, 2016). The research team completed three rounds of coding (open, first cycle, and second cycle). Each team member initially examined the transcripts from both focus groups on their own. They then brought identified codes to team meetings to look for commonalities across transcripts. We assembled similar codes to assess for commonality and to create a pattern code (Saldana, 2016). Once final codes had emerged, researchers then switched transcripts and used negative case analysis to check for codes that failed to support or contradicted the codes. Rules and definitions were then created by the research team and we developed a final list of themes. Throughout the process the research team wrote memos to examine whether codes were accurately measuring the quotes and to reflect researcher positionality.

Mixed-methods analysis was completed using a parallel mixed design (Tashakkori & Teddlie, 1998). This type of analysis does not allow for qualitative and quantitative research to build upon one another, but rather compares data after both qualitative and quantitative data are analyzed. The researchers chose this method due to the nature of the study; the study is a pilot test in which the researchers hoped the qualitative findings would supplement the quantitative measures. The researchers also explored points of overlap and divergence between narratives and quantitative measures. This was completed by qualitatizing the survey items and quantifying the focus group themes. Research has shown that this triangulation of the data allows for more richness and complexity in the findings (Creswell et al., 2003). Finally, the team drew meta-inferences, or overall conclusions from both qualitative and quantitative data, to assess the beliefs and types of affective attitudes and perceptions youth have towards global environmental change (Teddlie & Tashakkori, 2009).

Results

Survey Findings

As mentioned above, the researchers were interested in points of overlap and divergence between narratives and quantitative items. The researchers found differences in beliefs regarding the existence of global warming, the resulting worry, and whether the participants had thought about global warming before the survey. These differences were present between responses from the survey and the focus groups, as well as between sites, gender, and grade level.

Existence of Global Warming

One individual in the focus group (7.14 percent) indicated that they did not believe global warming was happening, versus four (11.8 percent) youth in the quantitative survey. Gender differences between males and females were present in the data, with females less likely to indicate that they did not believe global warming was happening (9.5 percent) as compared to males (15.4 percent). Differences between grade levels were also present. All 10th graders believed that global warming was happening (100 percent), as compared to 77.7 percent of 9th graders, 88.8 percent of 11th graders, and 75 percent of 12th graders. Chi-square tests indicated that there were no statistically significant differences in demographic variables between the groups who did and did not believe that global warming was happening. Overall, youth in the focus groups appeared to have similar beliefs about the existence of global warming when compared to youth in the total sample.

Worry about Global Warming

All youth in the focus groups (100 percent) indicated that they felt worried about the effects of global warming, however 20.6 percent of youth in the surveys indicated that they were not worried. Males (84.6 percent) indicated greater feelings of worry about global warming than females (76.2 percent). Interestingly, while only three-quarters of 12th graders believed global warming was happening, all of them indicated that they were worried about global warming. This can be compared to 77.8 percent of 9th graders, 83.3 percent of 10th graders, and 66.6 percent of 11th graders who also indicated worry. There were no statistically significant differences in demographic variables between the groups who were and were not worried. Furthermore, there was a medium, positive, statistically significant relationship between how worried the youth are and if they believe global warming is happening ($r=.380$, $p=.027$). Youth in the focus groups appeared to be more worried about the effects of global warming than youth in the total sample.

Thought about Global Warming Previously

All youth in the focus groups (100 percent) stated that they had thought about global warming before this survey or learned about it in school, however 29.4 percent of youth in the survey reported that they had never before thought about global warming. The number of participants who indicated on the survey that they had thought about global warming before that day varied by site: Charlotte: 66.7 percent (total $n=6$), Lafayette: 45.5 percent (total $n=11$), Kanon: 80 percent (total $n=5$), Walker: 75 percent (total $n=12$). All six youth from our focus group at

Lafayette agreed that they had thought about global warming before the focus group meeting; however, their overall scores indicated that only half of them had. One interpretation for this discrepancy could be that the focus groups were completed several weeks after the survey. Additionally, the researchers found differences by gender. Among the male participants, 76.9 percent indicated that they had never thought about global warming before the survey, as compared to 66.7 percent of females. However, there were no statistically significant differences in demographic variables between the groups who were and were not worried. Again, youth in the focus groups appeared to be more worried about the effects of global warming than youth in the total sample.

Focus Group Findings

Three themes emerged regarding young people's affective attitudes and perceptions of environmental change: 1) feeling like no one cares, 2) the perception of a numb and complacent culture, and 3) care and concern for future generations. These themes are described below. In some cases, brackets are added for clarification and pseudonyms are used to protect confidentiality of participants.

Feeling Like No One Cares

Respondents in this study indicate feeling an overwhelming sense that no one in their lives cared about the issues surrounding climate change or was interested in doing anything to stop it. For example, Raul, a 10th-grade Latino boy put it simply, saying, "And that's the problem. No one cares." Later when elaborating, Raul continued,

And I mean it is our fault why it's so bad. And at the same time it's also our fault because none of us—really not a lot of us—are motivated enough to fix it.

In this quote Raul briefly corrects himself to say, "not a lot of us are motivated" from "none of us." Several youth acknowledged that there are some people who care about these issues, often referring to them as "hippies" and "scientists," but they expressed the belief that the average person does not care enough to make any changes in their lives. Faheema, an 11th-grade African American girl, opined on why it is difficult to create change in the general population, noting,

[people] don't care kind of because they just think "oh I'm just one person"... you know. But if everyone is saying that then there's just not enough people.

Even when youth did feel inspired to act against climate change, they relayed a sense that their change efforts would not be noticed or that others would not follow suit. Raul specifically felt that adults in his community would say they were supportive but then not follow through. He commented,

Well there are people who do it [make change efforts]—a lot of adults tell us to—we can do something about it but when we try nobody's there to listen. They tell us they will listen but they don't cause it's happened before.

Mahad, a 10th-grade African American boy shared a similar sentiment,

I believe that starting community gardens and recycling—I do think we should do it but I don't think people actually care enough.

Rana, a 9th-grade student explained why she thought adults might show awareness of the problem but stop short of taking action.

...it's not like people are unaware of it, like people are, but they've been so used to it that they're...scared of change. And they're this has been going on for a long time...it's not also going to be easy to stop.

Overwhelmingly, the participants in this study expressed feeling that their peers and the adults in their lives were not concerned about climate change and had no vested interest in making any changes in their lives to combat the issue.

Perception of Numb and Complacent Culture

In addition to feeling that no one in their lives cares about the issues surrounding climate change, the participants in this study also articulated the perception that our broader culture is numb to these issues and complacent against making any changes. Omar, a 12th-grade African American boy commented,

I think... a lot of them probably know but they're too used to their norms, like what they do every day. Kind of just don't care anymore. Like I have some friends that already know about the problem but they still like drive their diesel trucks.

Rana, a 9th-grade African American girl shared her perception that when people do demonstrate concern for these issues, it is often fleeting. She noted,

... there's sometimes where they [teachers] show videos and everything and people would be like touched by it for that moment and then after that it just kind of going in one ear and going out the other.

Raul shared a similar perception, mentioning,

Like you always see these things on Facebook like talking about serious things and you think 'oh that sucks' and then you just forget it because you see something funny later.

Care and Concern for Future Generations

Although the respondents in this study overwhelmingly expressed feeling like no one cares about these issues and perceived our culture be complacent against making change, participants also expressed concerns for future generations that will continue to confront the problems that global environmental change poses. When discussing potential problems they or others will confront in the future, many youth described dim prospects. Omar, a 12th-grade African American boy, suggested,

I think it will affect future generations because like the more pollution there is the harder it's going to be.

Iba, an 11th-grade African American girl continued,

And people are going to start having more breathing problems.

Madah, a 10th-grade African American boy shared similar expectations, noting

Probably parts of the world where there's going to be less water—I guess with the drier climate [there will be] more natural disasters, like I know [in] California there's like a ton of wildfires nowadays.

A large portion of youth in these focus groups expressed the belief that environmental change will lead to the negative health and living conditions they described above. Seemingly because of these concerns and beliefs, youth expressed feeling care and concern for future generations. In discussing solutions to climate change, youth brought up the importance of delayed gratification and of finding a sense of pride for caring for future generations. Rana, a 9th-grade African American girl, explained,

It's [recycling or caring for the environment] not like an immediate reward like Fatima said, but... think of it in the long run. Like your family and... your generations down and how that would help them.

Later she continued,

But it's still sort of like affecting you though... if it was something I did like that I would feel... proud because I did something that's... big enough to... save generations down.

In sum, the responses from focus group participants reveal that most youth believe that global environmental change will lead to negative health and living conditions for many people in the future; respondents also feel concern for future generations who will confront these problems. Additionally, these responses display the complex process these youth experienced of trying to reconcile these dim expectations alongside their desire for change and concern for future generations, as in the example of Rana's belief that caring for future generations is also personally impactful.

Discussion

This study examined the beliefs, attitudes, and perceptions of climate change among a sample of high school youth living in public housing neighborhoods in Denver, Colorado. Participants' responses revealed three themes that illustrate their complex and nuanced beliefs, feelings, and perceptions regarding global environmental change. The current study adds to the literature by including the voices of economically disadvantaged youth to better understand the attitudes and

perceptions of climate change among a group that may face a greater long-term risk of the negative effects associated with climate change (Ashraf & Faruk, 2018; Bartlett, 2008). The vast majority of participants in this study believe that climate change is a real threat facing our planet and expressed concern for the problems that environmental change poses in their lives currently and that they anticipated occurring in the future. However, despite these expressed beliefs, a majority of focus group respondents said that no one in their lives and not enough people in society at large are motivated enough to address the issue.

It is not a contested issue within the social sciences that young people benefit from the presence of emotionally supportive adults and peers in their development. Theories of positive youth development clearly point to attachment to parents, social support, and overall caring relationships as protective factors that promote resilience (Jenson, Alter, Nicotera, Anthony, & Forrest-Bank, 2013). In addition to promoting positive youth development and resilience, supportive relationships and inspiring leadership are also integral organizational elements for creating empowering community settings (Maton & Salem, 1995). These are the same elements that are necessary for inciting civic engagement (Zeldin, Christens, & Powers, 2013). For all of these reasons, it can be inferred that it is important that in learning about global environmental change risks and potential solutions, youth need to feel supported by the peers and adults in their lives, not only to promote their mental resilience, but also to inspire civic engagement to address the issue long-term.

Some youth in the present study expressed feeling discouraged that even if they did attempt to exercise agency, their efforts would fail. This is evident in Raul's comment, mentioned previously:

Well there are people who do it [make change efforts], a lot of adults tell us to—we can do something about it but when we try nobody's there to listen. They tell us they will listen but they don't...

Raul's language serves as a reminder that the failure of adults to provide appropriate environments for children and youth to participate in decision-making processes that affect their lives is an issue of climate justice, "an approach to climate action that links human rights with development in order to safeguard the rights of the most vulnerable" (Vaghri, 2018, p. 105; Sanson & Burke, 2019). Despite contributing least to the cause of climate change, youth are likely to be most severely affected by its consequences; yet, they continue to be excluded from any global discussions for resolution (Vaghri, 2018).

Many of the findings in this study are consistent with previous research. For example, although the current investigation did not assess how youth assign responsibility for change-making, previous research from Wray-Lake, Flanagan, and Osgood (2010) showed a similar trend among youth of assigning responsibility for addressing climate change to others and society at large, rather than discussing personal responsibility. Only one student in our focus groups used personal

language to discuss their responsibility for creating and addressing environmental change. As reported in the results, this example came from Raul:

And I mean it is our fault why it's so bad. And at the same time it's also our fault because none of us—really, not a lot of us—are motivated enough to fix it.

Yet, even in this case, Raul used a plural form of a personal pronoun. No students in the study specifically referenced their own inadequate response to addressing environmental change with a singular personal pronoun, but one student got close by inferring that she would not personally take the time to learn about this issue if it came up on her social media feed. This prediction came from Rana, a 9th-grade African American female who primarily discussed the importance of considering future generations in the focus group. She said,

Yeah I feel like I probably would just be scrolling and I'd see it [information about climate change] and then I'd just keep scrolling.

Furthermore, only one respondent took the initiative to suggest something she would like to do personally to induce change. This suggestion came from Tatiana, a 10th-grade African American female, who advocated,

We can start doing that [recycling and composting], too. And maybe we can start this by making like a program to train I mean like...get like six people to experiment on them to recycle, try to recycle, and use less. I don't know like use less things just to see how they like it. And maybe like they can start recycling more because they like it. It would be cool.

Taken together, the results from this study highlight an overarching theme of avoiding personal responsibility with minimal exceptions among the study participants.

Notably, the current study diverged from prior research with regard to how youth responded to discussing the threats associated with climate change. Specifically, a report by Ojala (2012) found that in a study of 348 youth in Sweden, commonly used coping skills included but were not limited to personal problem solving, de-emphasizing seriousness of climate change, and placing trust in societal actors like politicians and environmental groups when learning about the threat. Youth in the present study did not display these types of responses in focus group discussions. Rather, they mostly discussed societal solutions to the problems of climate change, did not demonstrate de-emphasizing the seriousness of the issue, and did not indicate trust in societal actors as a source of hope. It is of importance that the present study had considerably fewer participants (n=34) than the Swedish study (n=348). As such, it is possible that the present study's sample did not capture youth who do employ the coping skills identified in the Ojala (2012) study. However, another possible interpretation for the difference is that the Ojala (2012) study included youth in Sweden and there might be a substantial qualitative difference in the experience of minority youth in the United States to feel

comfortable putting trust in societal actors. In addition, results from the focus groups in the present study indicated that respondents believed climate change already does or is going to affect them personally in the future. This finding is supported by the Comparison to Hamilton College National Youth Polls (2007) which reported that African American youth are 12 percent more likely than youth from other racial and ethnic groups to believe climate change will personally affect them in the future. This may be another reason that respondents in the current study did not engage in de-emphasizing of the seriousness of climate change.

Many of us take our cues about what is important from our culture. Media, authority figures, and institutions all send powerful messages about cultural beliefs, values, and norms that can influence what we perceive to be an urgent problem. In this way, culture has the power to mediate our society's response to climate change (Adger, Barnett, Brown, Marshall & O'Brien, 2013). The responses of the young people in this study suggest they are perceiving a heavy effect of culture on our society's response to environmental change. From the perspective of these youth, society is generally aware of the issues surrounding global environmental change but is too complacent and unmotivated to respond with lasting change efforts. Understanding the complex messages youth are perceiving from multiple culturally influential sources like teachers, social media, and peers is essential for addressing youths' affective responses when learning about and addressing global environmental change both in and outside the classroom.

The three major themes of this study indicate that respondents' affective experience of climate change is a feeling that no one—especially adults—around them cares about creating change, a perception that our culture is too focused on immediate gratification to be able to address such a long-term and future-oriented issue, and concern for future generations. It should be noted that the focus groups in this study took place in the immediate aftermath of the Marjory Stoneman Douglas High School shooting in Parkland, Florida. At this time, media attention was heavily focused on youth voice and power to make change. The youth in these focus groups referenced this shooting as an example of their perception that the media focuses on immediate tragedies rather than future-oriented issues. Fatima, a 9th-grade African American girl, noted that she was more likely to see school shootings on the news than climate change reports.

Many of the youth seemed to hold competing views regarding how change happens. On one hand, youth expressed the belief that someone has to be famous to have influence to make change. Mahad, a 10th-grade African American boy, suggested,

I think it's less how big you are and more how much influence you have. But in order to have more influence you have to be pretty big, popular.

Rana, a 9th-grade African American female, expressed a differing view for how change occurs:

I feel like a lot of the problems that we have... [are] always brought to adults' attention but sometimes they... have that mindset where it's kind of like 'it's

not really going to affect me' like 'I'm already an adult'... a lot of the times it needs to be like a younger person or students that brings attention to... the big problems.

These discussion points shed light on the influence of media in shaping youth's perceptions. Similarly, these quotes suggest some reasons that some youth may feel powerless to make change if they believe that only people with fame can be change agents. Since the conclusion of this study, new media actors like Greta Thunberg have entered the public stage that offer concrete tools for youth to exercise their agency, most notably through school strikes (Salamon, 2019). With these messages of youth agency gaining greater media attention, it is necessary that future research continue to explore how these messages impact youths' perceptions and actions toward environmental change, as well as best practices for expanding their sense of agency.

Implications

The findings in this study offer several implications for addressing the affective responses of low-income youth as they learn about and consider ways to address environmental change. It is important that practitioners and educators who work with youth first consider the affective responses of these youth and engage them in meaningful dialogue about their experiences, interpretations, and expectations of environmental change. Practitioners should focus these discussions on promoting youths' sense of self-efficacy and collective efficacy, which is the sense that they and others can effect change (Sanson et al., 2019). Schools are important settings for this type of safe learning and for implementing behavioral interventions for children affected by disasters (Lai, Esnard, Lowe, & Peek, 2016). Sanson and colleagues (2019, p. 203) suggest reminding youth of "major global problems that have been solved in the past (e.g. women's suffrage, apartheid)" and "pointing out that solutions to climate change exist."

Beyond that, it is imperative that practitioners and educators show youth their care and commitment through continuous actions. One of the ways that practitioners and educators might be able to demonstrate this level of care is to create spaces for youth to be change agents (Peek, Tobin-Gurley, Cox, Scannell, Fletcher, & Heykoop, 2016). Rather than including youth voice for merely tokenistic effect, it is imperative that practitioners invest in youth-centered approaches to educating children about climate change and human rights and to honor the rights of children to participate in decision-making on issues that affect their lives (Cumiskey, Hoang, Suzuki, Pettigrew, & Herrgård, 2015; Vaghri, 2018).

Limitations

Finally, there were several limitations in this study that should be noted. The convenience sample of youth in public housing from an afterschool program limits the generalizability of these findings. Similarly, the sample in this study was based on voluntary participation. As such, the youth who did not participate may have different attitudes, beliefs, and perceptions of global environmental change than those who were willing to take the survey and participate in the focus groups. Furthermore, the survey measure used in this study cannot assess what youth

actually know about environmental change facts and myths since it was opinion-based. Additionally, no follow up focus groups or surveys were administered.

As it relates to the qualitative and mixed methods data analysis, the researchers cannot control for possible researcher bias. The researchers minimized this threat by working in a multidisciplinary team setting, writing memos throughout the analytic process, identifying positionality, and being as rigorous as possible. However, due to the ambiguities in the human language, there may have been themes in the data that the researchers were not able to observe. The researchers chose to use a mixed-methods design to combat some of these potential biases.

There were no significant conflicts of interest between the researchers and the mixed-method study. However, we recognize that we do not share the same demographics as the participants in this study. As White, educationally and economically privileged researchers who have never lived in public housing, we approached this study with a sense of openness to learning about the experiences of the participants. We hope to create knowledge about how to better serve youth as they learn about this multifaceted and chronic problem and to create spaces for them to feel empowered as agents of change.

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Stephanie Nisle, MA is a third-year doctoral student at the University of Denver Graduate School of Social Work. She has been conducting community-engaged research in public housing neighborhoods and is a member of the Youth Engaged in Leadership and Learning Research Team as of September 2017. She joined the research team to pursue her interests in youth empowerment and youth voice in low-resourced communities.

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