



Youth Attitudes and Participation in Climate Protest: An International Cities Comparison

Frontiers in Political Science Special Issue: Youth Activism in Environmental Politics

Kate Prendergast^{1,2†}, Bronwyn Hayward^{1,2*†}, Midori Aoyagi^{1,3}, Kate Burningham¹, M Mehedi Hasan^{1,2}, Tim Jackson¹, Vimlendu Jha⁴, Larissa Kuroki⁵, Anastasia Loukianov¹, Helio Mattar^{1,5}, Ingrid Schudel^{1,6}, Sue Venn¹ and Aya Yoshida^{1,3}

OPEN ACCESS

Edited by:

Sarah E Pickard,
Université de la Sorbonne Nouvelle
Paris III, France

Reviewed by:

Jasmine Lorenzini,
Université de Genève, Switzerland
Katrin Uba,
Uppsala University, Sweden

*Correspondence:

Bronwyn Hayward
bronwyn.hayward@
canterbury.ac.nz

[†]These authors have contributed
equally to this work and share first
authorship

Specialty section:

This article was submitted to
Political Participation,
a section of the journal
Frontiers in Political Science

Received: 16 April 2021

Accepted: 25 August 2021

Published: 13 September 2021

Citation:

Prendergast K, Hayward B, Aoyagi M,
Burningham K, Hasan MM, Jackson T,
Jha V, Kuroki L, Loukianov A, Mattar H,
Schudel I, Venn S and Yoshida A
(2021) Youth Attitudes and
Participation in Climate Protest: An
International Cities Comparison
Frontiers in Political Science Special
Issue: Youth Activism in
Environmental Politics.
Front. Polit. Sci. 3:696105.
doi: 10.3389/fpos.2021.696105

¹Centre for the Understanding of Sustainable Prosperity, University of Surrey, Guilford, United Kingdom, ²Department of Political Science and International Relations, University of Canterbury, Christchurch, New Zealand, ³National Institute for Environmental Studies, Tsukuba, Japan, ⁴Swechha, New Delhi, India, ⁵Akatu Institute for Conscious Consumption, São Paulo, Brazil, ⁶Rhodes University, Makhanda, South Africa

This article examines youth participation in the school climate strikes of 2018 and 2019 (also known as #Fridays4Future), through an exploratory study conducted in seven diverse cities. Despite the international nature of the climate strikes, we know little about the factors that influenced youth participation in these protests beyond the global North. This matters because youth of the global South are disproportionately impacted by climate change and there is growing concern that the climate movement is dominated by narratives that marginalize the voices and priorities of Indigenous communities and people of color. In this context, the exploratory research reported here aimed to compare the attitudes of climate protesters ($n = 314$) and their non-protester peers ($n = 1,217$), in diverse city samples drawn from a wider study of children and youth aged 12–24 years, living in Christchurch (New Zealand); Dhaka (Bangladesh); Lambeth, London (United Kingdom); Makhanda (South Africa); New Delhi (India); São Paulo (Brazil); and Yokohama (Japan). Using cross-sectional data ($N = 1,531$) and binary logistic regression models, researchers examined three common explanations for youth participation in protest: availability (biographical and structural), political engagement (reported individual and collective efficacy of strikers and non-strikers), and self-reported biospheric values amongst participants. Results indicate that even in diverse city samples, structural availability (civic skills and organizational membership) predicted strike participation across city samples, but not political engagement (self-efficacy and collective efficacy). Youth who reported that ‘living in harmony with nature and animals’ was important for their wellbeing, were also more likely to strike than their peers. Descriptive statistics indicated that the majority (85 percent) of all protesters in this study agreed climate change was a serious issue and a startling 65 percent said that they think about climate change “all the time”. Reported rates of youth climate protest participation varied across city samples as did the extent to which participants reported having friends take part or expecting climate change to have a

personal impact. While the study is exploratory, it points to the need for more extensive research to understand the diversity of youth participation in ‘global climate strikes’.

Keywords: climate change₁, youth₂, school strikes₃, cities, environmental citizenship₅

INTRODUCTION

Between 2018 and 2019, millions of young people worldwide joined strikes for climate action (also known as #Fridays4Future). These youth climate protests are distinctive both for the very young age of the activists (de Moor et al., 2020), and for the way this historically large, youth movement was mobilized globally, in urban areas. What young people who live in cities do, think, and say about the climate crisis, matters a great deal. By 2030, almost 60 percent of the world’s population will live in cities and of that, 60 percent of those living in urban communities will be under the age of 18 years (Nissen et al., 2020). Cities also account for on average between 60 and 80 percent of global energy consumption, and estimates suggest up to 70 per cent of anthropogenic greenhouse gas emissions are linked to urban consumption of fossil fuels for energy supply and transportation (UN Habitat, 2016).

Yet despite the scale of these urban, youth-led, climate protests, we know little about the factors influencing youth participation, beyond a European, North American, and Australasian context. This lack of global research in diverse cities is concerning, especially at a time when young people from the global South and Indigenous communities are expressing dissent about the “racist” and “colonial” structures underpinning an often “white-dominated” climate movement (Grosse and Mark, 2020; MacKenzie, 2021; Ritchie, 2021). Increasing concern has been expressed that climate strike narratives have been dominated by “mainly white, middle-class and privileged” youth (Pickard et al., 2020, p.273). Media and discourse analysis suggests for example that the authority and claims of young African climate activists are regularly undermined in news reporting (Rafaely and Barnes, 2020), and that international climate conferences regularly advance generic (Euro-centric) “youth” concerns in ways that obfuscate climate risks faced by Indigenous youth, or young people of color, and those representing minority communities including disabled (Bullon-Cassis, 2021).

Studies that have interrogated broad factors that influence youth engagement in political protest suggest that availability (both biographical and structural), political engagement and biospheric values have significant influence on youth participation in protests in general, although most studies of the influence of these factors have been undertaken in the global North (Martyn and Dimitra, 2019). Given the lack of youth climate-protest studies in diverse cultural contexts, and concern about the lack of North-South collaborations in political engagement research more generally (Tam and Milfont, 2020), this exploratory study focused initially on two questions in a research partnership across seven world cities. First, does availability (biographical and structural), political efficacy, and support for biospheric values, influence participation in climate

protest across a diverse urban sample? Second, are there differences across cities in young climate protesters reasons for striking or their sense of agency?

The study reported here was conducted between November 2019 and December 2020 by a research network of local teams examining the lifestyles of children and youth aged 12–24 years ($n = 1,531$), living in the mega cities of Dhaka (Bangladesh), São Paulo (Brazil) and New Delhi (India); the medium sized city of Christchurch (New Zealand), a city rebuilding after major earthquakes; Makhanda (South Africa) a small town facing high youth unemployment and deprivation exacerbated by the legacy of apartheid; Lambeth (London, United Kingdom) a diverse, densely populated London borough; and Yokohama (Japan) a planned “eco-city” (Burningham et al., 2020). Drawing on empirical data collected in these diverse contexts enables an initial examination of aspects of commonality, and some contrasting experiences among young climate protesters and peers.

The terms “youth” and “children”, are contested and socially constructed, with age definitions and categories varying across domestic, international and even disciplinary contexts (Pickard, 2019; Canosa and Graham, 2020). The age group for this study was 12–24 years. This broad age range captures diverse stages of youth development. This range was selected to reflect the upper limit of the United Nations definition of youth (15–24 years) and the lower limit of 12–14 year olds as a significant, but under researched period of child development and civic participation (Hayward, 2012; Hess and Torney, 2017; Karlsson, 2018; Holmberg and Alvinus, 2020; Hayward, 2021).

BACKGROUND

Youth Activism and Climate Change in Cross-Cultural Contexts

Literature about the impacts of climate change suggests a variety of factors influence how young people experience climate change, and their vulnerability to climate risks, including geographic location, social norms, policies of exclusion, and histories of marginalization (Adger et al., 2014; Benevolenza and DeRigne, 2019). Diverse geographical and cultural factors are also likely to influence how young activists perceive and participate in the climate strike movement itself, both within and between cities (Hassan et al., 2018; Tam and Milfont, 2020; Walker, 2020; Walker, 2021). Here we briefly consider the emerging literature on cultural differences in engagement with climate activism, particularly in relation to the local contexts of the seven cities that were the research sites of this study.

The broad topic of youth political participation has been subject to much research (Nie et al., 1974; Dalton, 2008; Jennings et al., 2009; Malafaia et al., 2021). These studies have

highlighted the complex and nuanced way age intersects with cleavages of caste, class, gender, income, education, ethnicity and religious identification, voting habits and trust in institutions (Hazary, 1988; Henn and Foard, 2014). However, generational differences also persist in research (Norris and Inglehart, 2019; van der Brug and Rekker, 2021). Generational analysis of participation in recent global movements includes feminist, civil rights, peace movements, and social and economic justice struggles like Occupy, or Black Lives Matter (Honwana, 2019; Lam-Knott and Cheng, 2020). There is renewed interest in understanding whether the experience of being socialized politically during a time of “successive and overlapping crises” (pandemics, rising economic inequality, and environmental crises for example) is impacting the values of new generations of youth and how they participate in, and view, politics (Pickard and Bessant, 2017; Pickard et al., 2020).

Understanding youth participation in climate strikes can also be placed in a wider tradition of research into transnational youth political activism (Barth et al., 2021), and interest in the way local material conditions and cultural identity influence participation within, as well as across, nation states (Rossi, 2009; Baumgarten, 2014; Honwana, 2019). From this perspective universalized approaches to the study of political participation such as analysis of political behavior, attitudes, and belief can be placed alongside the analysis of everyday priorities, and localized experiences of social norms of participation, structural, and interpersonal power relationships (Norris, 2009; Nolas et al., 2017; Haugestad et al., 2021).

Research also indicates that both local values and worldviews influence cross-cultural differences in climate change awareness and engagement (Poortinga et al., 2019). For example, Indigenous traditions, and scholarship from the global South, highlight the way diverse values about human and non-human relationships and wellbeing influence how communities approach problems like climate change (Hayward and Roy, 2019; Bouman et al., 2020). Understanding the diversity of community values about climate change can help inform fairer, more effective, local solutions in climate planning (Graham et al., 2014; Adger et al., 2017). Emerging evidence also suggests there are cultural differences in the way young people engage in climate protest and environmental activism more generally. In a systematic review of 51 international studies, Lee et al. (2020) argued that young people in global North countries tended to express lower levels of belief, concern, and willingness to act on climate change than young people in countries of the global South. The authors posited that this reduced engagement might be due to young people in global North countries viewing climate change as a “distant and global problem”. In an alternative explanation, the authors propose that a country’s “democratic-autocratic or individual-collective indices” might also explain cross-cultural differences in climate change engagement. In collective societies for example, young people might consider “the greater good” and be more willing to act on climate change than those from individualistic nations (Xiang et al., 2019; Lee et al., 2020).

Direct exposure to the impacts of climate change may also influence young people’s engagement with climate protest and environmental activism more generally (Strazdins and Skeat,

2011; Lee et al., 2020). In the cities included within the current study, there is significant variation in the extent to which each city has experienced the impact of climate change. India for example, is amongst the countries most vulnerable to climate change (Eckstein et al., 2019), with young people in New Delhi frequently exposed to extreme weather events including severe heatwaves and flooding. This exposure is evident in the main study site, where children in an informal settlement formed over 50 years ago around a city drain, now have to regularly move housing arrangements to escape monsoon rains. Similarly, Dhaka is a city at extreme risk from climate change (Araos et al., 2017). Regular incidents of flooding, water logging, and heatwaves occur in Dhaka; a city that is now also home to many of Bangladesh’s internal “climate migrants” (Etzold et al., 2016). In São Paulo, Brazil and Makhanda, South Africa, water scarcity in a changing climate is a significant and ongoing concern, which has been exacerbated by poor governance (Hamer et al., 2018; Millington, 2018). In Lambeth, London, United Kingdom, young residents are at risk from serious surface water flooding impacting schools, sewers and roads and there is risk of severe urban heat compounding air pollution incidents (Lambeth Council, 2021). In Christchurch, New Zealand, the local city council has declared a “climate emergency” and residents have been affected by wildfires and surface flooding, impacting housing and human security (NIWA, 2020). In the city of Yokohama, Japan, the local authority has adopted a climate net-zero target for 2030 and the surrounding Kanton region has been hit by a series of natural disasters, such as blackouts caused by strong winds, severe damage to buildings and crops, and flooding of buildings due to heavy rain (City of Yokohama, 2018). Taken together, these observations highlight that climate change is an issue for each city in the study, although the impacts of a changing climate are experienced differently.

Media accounts of youth climate strikes and historic experiences of youth protests in each city also set the context for understanding how young people experienced climate strikes across the world. Reports of the 2019 protests describe “thousands” “staging a demonstration” in Dhaka (The Daily Star, 2019), where there has been a history of youth-led political protest, most recently around transport services in the city (Hasan, 2021). In Christchurch, reports of youth “converging” in the central city also noted that the climate protests in that city were likely to be proportionately some of the largest in New Zealand (Booker, 2019). In London, “over 100,000 people” joined climate protests, with “several hundred protesters” blocking Lambeth Bridge (Taylor and Watts, 2019). In New Delhi, 2,000 people “marched” and “about 300 people sat through the protest outside the Ministry of Environment, Forest and Climate Change” (Parakala, 2019); and “more than two thousand amassed in downtown São Paulo” (Spring and Queiroz, 2019). Fewer students turned out for the 2019 climate protests in Japan (Takahashi, 2019), where the government has consistently discouraged youth protests as “antisocial behavior” (Mesimaka, 2019). There are scant details of the school climate strikes in Makhanda, South Africa beyond reports of a protest by single, elite, girl’s school, despite a strong history of youth protest on other social justice and civil rights issues in the community (Gon, 2019).

However, as noted earlier there is also growing concern that the wider climate movement has marginalized the priorities of many diverse communities, including Indigenous communities and people of color (Grosse and Mark, 2020; Mackenzie, 2021). In 2019, the image of young Ugandan activist Vanessa Nakate was removed from a photo with other European climate activists, which was likened to “a metaphorical crop-out from the narrative of climate science in general” (Evelyn, 2019). More recently, New Zealand’s Auckland Strike4Climate chapter disbanded after acknowledging that strike movement had “avoided, ignored, and tokenised black, indigenous and people of colour voices and demands” (MacKenzie, 2021). The marginalization of Indigenous communities and people of color is also perpetuated in the scholarly literature, which up to now has almost exclusively focused on the experiences and perspectives of young climate strikers of the global North (Walker, 2020).

The scale and geographic breadth of the climate strike movement is unprecedented, but there are growing calls to understand the motivations and conditions that enabled youth participation in the strikes across far more diverse cultural contexts (Thew et al., 2020). Given research of the climate strike movement is in its infancy, scholars might initially apply existing theory about “who protests” across a broader geographic scope, inclusive of the global South. While such research is little more than a starting point for understanding cross-cultural participation in environmental activism, findings are useful for highlighting elements of continuity and contrast in existing scholarship.

Young People, Environmental Politics and Activism: Who Protests and Why?

Young people’s participation in environmental politics and activism is not new. Yet systematic reviews of the literature suggests youth participation in protest movements has been surprisingly under-researched in political science (Martiskainen et al., 2020; Weiss, 2020; Barrie, 2021). Existing studies suggest an individual’s propensity to participate in protest is influenced by; “availability”, both biographical and structural, and experiences of political engagement, (for example see Schussman and Soule, 2005; Opp, 2009; de Moor and Verhaegen, 2020), and that participation may vary within and between cultural contexts as issues of gender, region, age and institutional power intersect to influence youth activists in complex ways (Martyn and Dimitra, 2019).

Biographical availability, is defined as “the absence of personal constraints that may increase the costs and risks of movement participation” (McAdam, 1986). While providing institutional opportunities to participate is important (Cornwall, 2017), as noted elsewhere in this volume, the absence of constraints is thought to influence the ease with which young people are able to join strikes (Lorenzini et al., 2021). Interest in understanding biographical availability to protest is growing, especially within cross-cultural contexts (Walker, 2020). Personal constraints that may restrict young people’s availability to engage in protest activities include education, money, religious socialization, gender norms and time (Martyn and Dimitra, 2019). Recent reports support the notion that climate strikers are likely to be well-resourced young

people; with findings suggesting that European strikers were wealthier youth, whose parents had high levels of educational attainment (de Moor et al., 2020; Wahlström et al., 2020). However, little is known about the biographical availability of young climate strikers in wider contexts. Walker points for example, to the tensions between a global protest movement premised on “striking from school” and local values which may consider education to be “a priority and a luxury” (Walker, 2020).

Literature on *structural availability* highlights the presence of “interpersonal networks which facilitate recruitment” (Schussman and Soule, 2005). Schussman and Soule (2005) suggest networks are important because “individuals rarely participate in social movement activities (such as protest) unless they are asked to do so” (p.1086) and Walgrave and Wouters (2021) suggest social networks also play a role in validating participation. Existing research emphasizes the significance of organizational membership and civic skills for both developing networks and mobilizing activism (Horowitz, 2021). In addition, organizational membership may facilitate recruitment into protests because there is already a connection across some ideological dimensions, or in the way an issue is framed (De Vydt and Ketelaars, 2021). Closely related to organizational membership are civic skills that are often developed in organizations through for example, participation in arranging meetings and public speaking (Schussman and Soule, 2005). This literature suggests that young climate strikers are likely to belong to organizations and have high levels of civic participation. However, as Wray-Lake (2019) notes more research is needed in diverse cultural contexts to understand the, “variability in experiences, access to opportunities, and reactions to historic events shape youth’s political developmental pathways” (p.127).

Researchers also have a longstanding interest in the links between *political engagement* and protest participation. Political engagement is commonly measured in terms of political interest, knowledge and efficacy, with efficacy perceptions forming a key facet of this scholarship (Schussman and Soule, 2005; Levy and Akiva, 2019). Young people’s self-efficacy, defined as a sense that they can individually make a difference, has a strong connection with actions taken to address climate change (Corner et al., 2015). Highlighting the significance of self-efficacy in climate research, Corner et al. explain, “young people do not necessarily see what they can do in response to climate change, and when perceived self-efficacy is limited, personal engagement with climate change is likely to be lower” (p.530). However, emerging research interrogating the relationship between self-efficacy and engagement in protest is disputed. A study comparing German climate strikers and a wider sample of youth revealed no significant differences in perceived self-efficacy between the two groups (Wallis and Loy, 2021). The authors speculated that non-protesting youth who felt self-efficacious might prefer to engage in individual climate actions, such as eating less meat, rather than attend protests. By contrast, the same study found collective efficacy, or an individual’s belief in the group’s capabilities to achieve desired outcomes, was higher among protesters. Other studies such as Bouman et al. (2020) suggest

a strong sense of personal responsibility and *biospheric values* (caring about nature and the environment) predicts climate activism, while other research has found that *collective efficacy* (valuing social action) predicts intentions to engage or support climate activism (van Zomeren et al., 2010; Besta et al., 2017).

The debate about youth engagement with climate protests is set against tension in the literature about youth political action between analysis which suggests young people are increasingly disengaged or apathetic (Russell et al., 2002) and researchers who argue that young citizens are turning to new forms of political participation (Norris, 2002; Flanagan, 2013) and returning to traditional electoral politics when they think voting can affect change on issues they care about (Hart and Henn, 2017; Pickard and Bessant, 2017; Sloam and Henn, 2019). Certainly, the sheer scale of turnout of students for school climate strike protests globally has challenged the deficit assumptions implicit in some youth political research (Fisher, 2019). Given participation in social movements at a young age can also have enduring effects on the political and personal lives of activists (Fisher, 2015; Thew et al., 2020; Nissen et al., 2021a), closer examination of the factors influencing young people's engagement with climate strike protest are warranted. To this end, we turn now to our cross-sectional, exploratory study, which analyses the impact of availability (biographical and structural), political engagement, and biospheric values on protest participation in a diverse urban sample.

METHODS AND DATA

Study Context

This research draws data from the CYCLES (Children and Youth in Cities—Lifestyle Evaluation and Sustainability) International Survey, which young people (aged 12–24 years) completed in the seven cities listed above between November 2019 and December 2020. The survey is part of a larger mixed-methods study, CYCLES funded by the United Kingdom Economic and Social Research Council. CYCLES explores the conditions that both enable and constrain young people, to live sustainable and fulfilling lives (Nissen et al., 2017; Burningham et al., 2020).

Participants

In each of the seven cities, local researchers aimed to recruit a demographically diverse sample of 300 young people, aged 12–24 years, who resided in their city, in line with United Nations and World Health age ranges. The target sample size was determined partly by financial constraints, and partly to obtain a reasonable precision of estimates. For local ethics reasons only those aged 13 years and over were recruited in São Paulo; and in Lambeth, only those aged 16 or older were recruited due to the difficulty of obtaining parental consent from young participants during COVID-19. There were no further exclusion criteria. In Lambeth, São Paulo, and Yokohama, young people were recruited through commercial research panels or agencies to reflect participant quotas of gender, age, and area of residence in line with the official local demographic estimates and representative of the metropolitan area. In

TABLE 1 | CYCLES fieldwork timeline.

City	Fieldwork
São Paulo	Nov-19 to Jan-20
New Delhi	Nov-19 to Mar-20
Dhaka	Dec-19 to Jan-20
Yokohama	Mar-20
Makhanda	Apr-20 to Dec-20
Christchurch	Apr-20 to Dec-20
Lambeth	May-20 to Dec-20

addition, Yokohama researchers recruited junior high school students using a pre-screening questionnaire to obtain caregiver consent for younger students and to enable these students to answer questions with a parent present.

In Christchurch, Dhaka, Makhanda, and New Delhi, researchers recruited young people through diverse settings including schools, universities, clubs, and organizations using a recruitment strategy that aimed to reflect as far as possible the diversity of each city's ethnic and income profile. Researchers in Christchurch for example, recruited young people through the city's university and through low-, mid-, and high-income schools located across the city's four quadrants. The Christchurch study was also shared on social media and advertised at community libraries located within each of the quadrants. Researchers in Dhaka recruited young people through a university and schools located within Dhaka North City Corporation. The final Dhaka sample comprised young people living in wards located in low-income (32.5%; Ward 1), mid-income (35.0%; Wards 2–16) and high-income (32.5%; Wards 33–34) areas (Hasan, 2021). In Makhanda, young people were recruited from organizations where youth across socio-economic groups could be accessed including local schools, youth organizations, a local university, and a local vocational training college. Schools from different areas in Makhanda were approached to ensure variation across socio-economic groups. Finally, New Delhi researchers recruited young people living in low-income areas primarily through non-governmental organizations and they recruited high-income young people through private schools.

Protocol

Local researchers co-created the survey between 2018 and 2019, obtained relevant ethics approval and then led the fieldwork in their respective countries between November 2019 and December 2020 (Table 1), with the length of fieldwork reflecting the challenges of surveying young people during COVID-19. The survey instrument comprised 89 items asking young people about their demographics, wellbeing, satisfaction with their city, civic participation, and a range of questions about the sustainability of lifestyles from levels of community participation, to regular eating habits. The survey was translated into local languages and research teams had the opportunity to pilot key concepts across language and cultural differences in focus groups discussions and activities conducted with a smaller panel of students in each city prior to the survey (Burningham et al., 2020). In all cities, young people completed the survey online

where possible. Due to challenges with internet connections, researchers also distributed hardcopy surveys in Dhaka, Makhanda, and New Delhi. Young people provided their consent prior to beginning the survey, and where necessary, parental consent was obtained. The survey followed the Ethics for Research Involving Children (ERIC) guidelines (Graham et al., 2013), and research teams sought ethics approval from relevant local institutions.¹

Variables

Here we describe the variables relevant to the current study about participation in climate protests (also refer to **Supplementary Appendix S1**, which lists the study variables, corresponding question wording, and response options).

Socio-demographic variables used in the current study included age and gender. Gender response options included “gender diverse” and “prefer not to answer” categories. However, responses to these categories were treated as missing data as the resulting sub-samples were too small (gender diverse, $n = 9$; prefer not to answer, $n = 10$) for meaningful analysis. For this reason, gender was dummy coded as 0 = male and 1 = female. Age was treated as a continuous variable, ranging from 12 to 24 years.

Biographical availability variables included education and economic security. Due to the challenge that most young survey respondents had not completed their highest level of studies at the time of the survey (75 percent, $n = 1,130$), we used a proxy measure of level of engagement in education that asked: “how often do you usually spend time taking classes” (Children’s Worlds Project, 2013). Responses were recorded on a four-point Likert scale (1 = Rarely or never; 4 = Every day or almost every day). We also used a subjective measure of economic security due to the challenge of collecting household-income from very young people: “how often do you worry about how much money their family has” (Children’s Worlds Project, 2013). Responses were again recorded on a four-point Likert scale (1 = Never; 4 = always).

To assess *structural availability* we used three variables. Civic skills were assessed using the survey item “I am involved in planning or decisions for the community” (five-point Likert scale response options: 1 = strongly disagree; 5 = strongly agree) (United Nations Environment Programme, 2011). Organizational membership was assessed by asking, “In the last 12-months, have you been involved with any organisations, clubs, or groups within your city” (Response options: 0 = no; 1 = yes) (United Nations Environment Programme, 2011). The final variable assessed young people’s social networks using the survey item, “Compared to other people of your age, how often would you say you take part in social activities (e.g., meeting friends, going to events)” (European

Social Survey, 2012). Responses were recorded on a five-point Likert scale (1 = much less than most; 5 = much more than most).

Political engagement variables in this study included collective efficacy and self-efficacy. Young people’s sense of collective efficacy was assessed using the survey item: “together people in my neighbourhood can influence what happens in my city” (United Nations Environment Programme, 2011), while perceived self-efficacy was assessed using the survey item: “I believe I can make a difference in my city” (United Nations Environment Programme, 2011). Responses to both questions were recorded on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree).

To assess the importance of *biospheric values* the survey asked respondents to select five items from a possible randomized list of 17 factors that they considered most important for a “good life” including “living in harmony with nature and animals”. This survey question was adapted from Bonn and Tafarodi (2013), with the final list of 17 items developed from CYCLES focus group discussions (Bursningham et al., 2020) and in consultation with researchers across the seven cities (see **Supplementary Appendix S1** for the 17 items). In the current study, we used responses from item 14 (“living in harmony with nature and animals”) to create the biospheric values variable (0 = biospheric values not important; 1 = biospheric value important).

The survey assessed *climate protest participation* by questioning whether young people had participated in a “climate protest” or “school climate strike” in the past 12-months. Responses were used to create a binary dependent variable comprising non-protester (did not protest) and protestor (protested once or twice; three or four times; nearly every month; and nearly every week). For ethical reasons young people in Yokohama were not asked to disclose their involvement in protests due to state framing of protests at the time as an “anti-social activity” (Chiavacci and Obinger, 2018). Results from Japan are therefore reported separately.

Finally, the survey used twelve survey items adapted from Chiu and Ling (2019) to assess young protesters *motivations to strike and sense of agency* in six cities (Yokohama excluded). Items assessing protest motivations asked strikers whether they thought climate change was a serious problem, how often they thought about climate change, and how concerned they were about the impact of climate change on their future, the environment, and animals. Protesters were also asked if they were motivated to join climate strikes, “because my friends were”. Items assessing agency, probed protesters sense that they could make a difference to climate change individually and collectively. Protesters were also asked whether they felt that others take their opinions on climate change seriously, whether their opinions on climate change matter, the extent to which they can freely express their thoughts on climate change, and the extent to which they considered themselves “environmentally friendly”. Responses were recorded on a five point Likert scale (1 = strongly agree; 5 = strongly disagree). In Yokohama, the survey asked all respondents about their climate attitudes and agency using an adapted version of the questions described above (see **Supplementary Appendix S1** for question wording).

¹Alongside the application of UNICEF’s ERIC principles in development of the study, the University of Surrey’s Ethics Committee for Human Research approved the ESRC funded research in Lambeth, Dhaka, Sao Paulo, and New Delhi; The University of Canterbury’s Human Ethics Committee approved the UC research in Christchurch and Dhaka; and Rhodes University Ethical Standards Committee approved the research in Makhanda.

Data Analysis

All data analyses were undertaken using SPSS (IBM SPSS Statistics for Windows, Version 25. Armonk, NY: IBM Corp.). The alpha was set at $p < 0.05$ to determine statistical significance and missing data were excluded pairwise. Before beginning analysis, we examined variable distributions, missing values, and problematic outliers. Descriptive analysis used t-tests and ANOVAs to determine statistical significance where parametric assumptions were met, and chi-square and Kruskal-Wallis H tests were used where these assumptions were violated. Multivariate analysis used binary logistic regression, with protesting treated as the binary dependent variable (0 = did not protest; 1 = protested). Six logit models were run. Model One assessed the impact of socio-demographic variables on protest participation (variables entered: age, gender, and city). Model Two assessed the impact of biographical availability on protesting (variables entered: age, gender, city, education, and economic security). In Model Three, the impact of structural availability on protest participation was examined (variables entered: age, gender, city, civic skills, organizational membership, and social networks). Model Four assessed the impact of political engagement on protesting (variables entered: age, gender, city, collective efficacy and self-efficacy). Model Five (biospheric values) examined the impact of biospheric variables on protest participation (variables entered: age, gender, city, biospheric values). The final model (Model Six) comprised all independent variables. Initial examination of the climate strike motivations and agency data showed negatively skewed responses and low counts in some categories. For this reason and due to the exploratory nature of the study, we report only descriptive statistics. Significant differences across cities were determined using Kruskal-Wallis H tests adjusted for post-hoc Bonferroni corrections.

Study Limitations

A challenge of international comparative research is balancing the need for methods to be “appropriate, ethical and feasible” in each city whilst also achieving sufficient consistency (Burningham et al., 2020). In the current study, there was some flexibility in each city’s approach to the survey to ensure we achieved this balance. For example, as noted above the survey in Yokohama did not ask young people to disclose their participation in protests and in Lambeth only those aged 16 or older were recruited, due to the difficulty of obtaining parental consent from young participants during COVID-19. Similarly, for local ethics reasons, only those aged 13 years and over were recruited in São Paulo. In this exploratory study, participant samples were not statistically representative of young people in each city. However, extensive efforts were made by local research teams to have diverse samples reflecting a range of views in each community. Finally, the challenge of measuring concepts across cultures meant that some survey questions differed from those used in other survey-based studies about political participation, which may have resulted in possible question-wording effects. Given few studies exist comparing youth climate protesters and non-protesters across nations; this exploratory study contributes a first step to an important wider research agenda that examines youth participation in a

global political movement, in unique, cultural contexts (Brügger et al., 2020).

RESULTS

In total, 2,014 young people completed the survey across seven cities. There were 1,531 responses to the question “in the last 12-months have you taken part in a climate protest or school climate strike” (Yokohama excluded). Young people across the six cities who did not respond to this question (8%, $n = 130$) were excluded from further analysis. We report responses from Yokohama separately ($n = 353$) as we did not ask young people about their participation in climate protests for ethical reasons noted above.

Descriptive Analysis of Study Variables

Descriptive analysis showed that there were significant between city differences across each of the study variables (**Table 2**). Female participation in the survey varied significantly across the cities ($p < 0.001$), with females comprising 42% of the young people surveyed in New Delhi and 73% of participants in the Christchurch sample. The mean age of survey participants also varied across city samples. New Delhi respondents reported a mean age of 16.0 years ($SD 4.0$) and Lambeth a mean age of 20.8 years ($SD 2.9$). The mean age across the whole sample was 18.5 years ($SD 3.8$).

The mean score for economic security across the sample was 2.3 ($SD 1.0$), suggesting that young people in all cities are relatively insecure. In Christchurch, young people reported lower levels of insecurity (2.0, $SD 0.8$) than in São Paulo (3.1, $SD 0.8$). Across the whole sample, 49% of young people were members of an organization. Rates of organizational membership ranged significantly across cities, with 75% of the Christchurch sample and just 25% of the Dhaka sample reporting that they belonged to an organization. High mean scores across the sample were reported for self-efficacy (3.5, $SD 1.2$) and collective efficacy (3.4, $SD 1.1$). Mean self-efficacy and collective efficacy scores were highest in Makhanda and lowest in Christchurch. Across the sample, just 13% of respondents indicated that biospheric values were important. The proportion of young people who reported valuing “living in harmony with animals and nature” varied significantly across cities ($p < 0.001$), ranging from 8% in Lambeth to 23% in New Delhi.

Turning to examine the dependent variable, **Table 2** shows that 21% ($n = 314$) of all respondents had taken part in a climate protest. The proportion of young people who reported protesting was significantly different across cities ($p < 0.001$), ranging from 12% in Dhaka to 34% in Christchurch.

Descriptive Analysis of Protesters and Non-protesters

Table 3 presents descriptive statistics comparing protesters and non-protesters across the independent variables. A *t*-test revealed no significant age differences between protesters

TABLE 2 | Descriptive analysis of independent variables.

	Christchurch	Dhaka	Lambeth	Makhanda	New Delhi	São Paulo	Total six cities	P
N	257	294	200	390	192	198	1,531	
Age								
N	257	294	200	390	192	198	1,531	
Mean (SD)	19.1 (3.2)	18.1 (3.9)	20.8 (2.9)	18.1 (3.9)	16.0 (4.0)	19.3 (3.2)	18.5 (3.8)	***
Gender								
Male (n, %)	67 (27%)	155 (53%)	82 (42%)	176 (46%)	107 (58%)	93 (47%)	680 (45%)	
Female (n, %)	185 (73%)	139 (47%)	114 (58%)	208 (54%)	79 (42%)	105 (53%)	830 (55%)	***
Economic security								
N	250	279	191	355	168	190	1,433	
Mean (SD)	2.0 (0.8)	2.1 (1.0)	2.4 (0.9)	2.4 (1.0)	2.2 (0.9)	3.1 (0.8)	2.3 (1.0)	***
Education								
N	256	293	200	367	183	198	1,497	
Mean (SD)	2.1 (1.1)	1.7 (1.0)	1.9 (1.1)	2.8 (1.2)	2.6 (1.2)	1.9 (1.1)	2.2 (1.2)	***
Civic skills								
N	253	270	198	365	166	193	1,445	
Mean (SD)	2.0 (0.9)	2.4 (1.2)	2.0 (1.0)	2.6 (1.2)	2.8 (1.1)	2.3 (1.2)	2.4 (1.1)	***
Organizational membership								
No (n, %)	69 (29%)	210 (75%)	101 (53%)	172 (47%)	66 (38%)	114 (62%)	732 (51%)	
Yes (n, %)	172 (71%)	72 (25%)	90 (47%)	192 (53%)	108 (62%)	71 (38%)	705 (49%)	***
Social networks								
N	257	294	200	388	189	198	1,526	
Mean (SD)	2.7 (0.9)	2.9 (1.1)	2.8 (1.1)	2.8 (1.2)	3.0 (1.1)	2.6 (1.3)	2.8 (1.1)	***
Self-efficacy								
N	249	273	195	347	161	190	1,415	
Mean (SD)	3.0 (1.2)	3.9 (0.9)	3.1 (1.1)	4.0 (1.1)	3.6 (1.0)	3.1 (1.2)	3.5 (1.2)	***
Collective efficacy								
N	242	269	193	351	166	192	1,413	
Mean (SD)	3.1 (1.0)	3.5 (1.0)	3.2 (1.1)	3.7 (1.0)	3.3 (1.1)	3.1 (1.3)	3.4 (1.1)	***
Biospheric values								
No (n, %)	225 (87%)	264 (90%)	184 (92%)	345 (88%)	147 (77%)	165 (83%)	1,330 (87%)	
Yes (n, %)	32 (13%)	30 (10%)	16 (8%)	45 (12%)	45 (23%)	33 (17%)	201 (13%)	***
Protest participation								
No (n, %)	169 (66%)	259 (88%)	162 (81%)	325 (83%)	138 (72%)	164 (83%)	1,217 (79%)	
Yes (n, %)	88 (34%)	35 (12%)	38 (19%)	65 (17%)	54 (28%)	34 (17%)	314 (21%)	***

Chi square tests or ANOVAs were used to determine statistically significant differences across cities. Two-tailed significance levels.

*p < 0.05.

**p < 0.005.

***p < 0.001.

TABLE 3 | Descriptive comparison of protesters and non-protesters across independent variables.

	Non-protester	Protester	P
Age			
Mean (SD)	18.5 (3.9)	18.5 (3.6)	
Gender			
Male	46%	42%	
Female	54%	58%	
Economic security			
Mean (SD)	2.3 (1.0)	2.3 (1.0)	
Education			
Mean (SD)	2.2 (1.2)	2.4 (1.2)	**
Civic skills			
Mean (SD)	2.3 (1.1)	2.6 (1.2)	***
Organizational membership			
No	56%	31%	***
Yes	44%	69%	***
Social networks			
Mean (SD)	2.7 (1.1)	3.0 (1.1)	***
Self-efficacy			
Mean (SD)	3.5 (1.2)	3.6 (1.1)	
Collective efficacy			
Mean (SD)	3.3 (1.1)	3.4 (1.1)	
Biospheric values			
No	88%	81%	***
Yes	12%	19%	***

Chi square tests or t-tests were used to determine statistically significant differences between protesters and non-protesters. Two-tailed significance levels.

* $p < 0.05$.

** $p < 0.005$.

*** $p < 0.001$.

and non-protesters, and a chi-square test similarly showed that gender did not vary significantly between the two groups. In comparing protesters and non-protesters across the biographical variables, t-tests revealed that protesters reported a significantly higher mean score for engagement in education ($t = -3.23$, $p = 0.001$) while reported scores for economic security did not differ significantly. Looking at the structural availability variables, significant differences between protesters and non-protesters were observed for civic planning ($t = -4.58$, $p < 0.001$) and organizational membership ($\chi^2(1) = 55.25$, $p < 0.001$) but not for social networks. T-tests revealed no significant differences between protesters and non-protesters reported scores for political engagement (self-efficacy nor collective efficacy). Finally, in comparing biospheric values, a chi-square test showed that significantly more protesters (19%) than non-protesters (12%) reported that 'living in harmony with nature and animals' was a factor important for their sense of wellbeing ($\chi^2(1) = 10.48$, $p = 0.001$).

Multivariate Analysis of Protest Participation

Binary logistic regression examined the effects of socio-demographics, availability (biographical and structural), political engagement, and biospheric values on protest participation. **Table 4** presents the odds ratios and 95% confidence intervals (95% CI) for each model. Regression

coefficients and standard errors are reported separately in **Supplementary Table S1**. Looking at the *socio-demographic* variables, Model One and Model Six (full model) suggest that gender nor age are associated with strike participation. These models do however show that protest participation varied across cities. In both models, young people in all cities (excluding New Delhi) were significantly less likely to take part in protests compared with young people in Christchurch. Model Six shows that in Dhaka, young people were almost four times less likely ($OR\ 0.22$, 95% CI 0.12–0.39) to protest than young Christchurch residents.

In turning to examine *biographical availability*, Model Two suggests increased engagement with education is associated with an increased likelihood of protest participation ($OR\ 1.21$, 95% CI 1.08–1.37). This association is however negated in the full model (Model Six) suggesting that in the current study biographical availability did not influence young people's propensity to protest after adjusting for all other variables. By contrast, our results indicated that *structural availability* was a significant predictor of protest participation. Model Three revealed that civic skills, organizational membership, and social networks were all significantly and positively associated with an increased likelihood of protest participation. In the full model (Model Six), the association between social networks and protesting was negated but the significant effects for the two other structural variables remained. These results suggest that civic skills and being a member of an organization increases the likelihood of a young person participating in climate protests.

Political engagement appears to have little effect on protest participation in this study. While Model Four suggested that self-efficacy was significantly and positively associated with protesting, this effect did not remain in the full model (Model Six). By contrast, both Model Five and Model Six (full model) revealed that *biospheric values* were significantly associated with protest participation. In summary, the full model suggested that the young people were more likely to join a climate protest if they lived in Christchurch, were members of an organization, reported higher scores for civic skills, and agreed biospheric values were important for their wellbeing.

Descriptive Analysis of Young Protesters Motivations to Strike and Sense of Agency: A Cross-City Comparison

Turning now to examine young protesters motivations to strike and their sense of agency, **Figure 1** shows the distribution of strikers' responses. Young strikers across all cities said they were motivated to strike because they were concerned about the effects of climate change on "animals" (87%), the "environment" (86%), and "my future" (83%). Most climate strikers across all cities also agreed that climate change is a serious problem (85%), while 33% of climate strikers across all cities said they took part in a climate protest "because my friends were". Most climate strikers (84%) thought that "acting with other people" could make a difference to climate change. By contrast, a somewhat smaller percentage (63%) of respondents agreed

TABLE 4 | Logistic regression models showing odds ratios and 95% confidence intervals.

	Model 1: Demographics OR (95% CI)	Model 2: Biographical OR (95% CI)	Model 3: Structural OR (95% CI)	Model 4: Political OR (95% CI)	Model 5: Biospheric OR (95% CI)	Model 6: Full model OR (95% CI)
Age	1.01 (0.97–1.05)	1.01 (0.97–1.05)	1.01 (0.97–1.05)	1.00 (0.97–1.04)	1.01 (0.97–1.04)	1.00 (0.95–1.04)
Gender (male = Reference)	1.06 (0.81–1.38)	1.05 (0.79–1.39)	1.09 (0.82–1.46)	0.99 (0.74–1.30)	1.08 (0.83–1.41)	0.99 (0.72–1.36)
Christchurch	Reference	Reference	Reference	Reference	Reference	Reference
Dhaka	0.27 (0.17–0.42)***	0.28 (0.17–0.44)***	0.28 (0.17–0.47)***	0.21 (0.13–0.34)***	0.27 (0.18–0.43)***	0.22 (0.12–0.39)***
Lambeth	0.47 (0.30–0.74)**	0.49 (0.31–0.78)**	0.55 (0.34–0.87)*	0.48 (0.30–0.75)**	0.48 [0.31–0.76]**	0.56 (0.34–0.91)*
Makhanda	0.39 (0.27–0.58)***	0.30 (0.20–0.45)***	0.33 (0.22–0.50)***	0.32 (0.21–0.49)***	0.39 (0.27–0.58)***	0.22 (0.13–0.37)***
New Delhi	0.82 (0.53–1.26)	0.75 (0.47–1.2)]	0.63 (0.38–1.05)	0.85 (0.53–1.36)	0.77 (0.49–1.19)	0.62 (0.35–1.08)
São Paulo	0.41 (0.26–0.65)***	0.39 (0.24–0.64)***	0.43 (0.26–0.71)**	0.41 (0.25–0.65)***	0.40 (0.25–0.63)***	0.38 (0.22–0.67)**
Economic security		1.08 (0.93–1.26)				1.04 (0.88–1.24)
Education		1.21 (1.08–1.37)**				1.09 (0.94–1.25)
Civic skills			1.32 (1.16–1.50)***			1.22 (1.05–1.43)*
Organizational membership (no = Reference)			2.10 (1.55–2.86)***			1.86 (1.32–2.61)***
Social networks			1.15 (1.01–1.32)*			1.13 (0.98–1.32)
Self-efficacy				1.15 (1.00–1.32)*		1.08 (0.92–1.26)
Collective efficacy				1.12 (0.97–1.29)		1.06 (0.90–1.24)
Biospheric values (no = Reference)					1.73 (1.22–2.44)**	1.62 (1.08–2.43)*
Constant	0.42	0.23	0.10	0.23	0.40	0.91
N	1,510	1,384	1,344	1,315	1,510	1,128
-2 Log likelihood	1,475.895	1,329.12	1,249.446	1,298.617	1,466.737	1,052.983
Cox & Snell r^2	0.034	0.046	0.080	0.047	0.040	0.095
Nagelkerke r^2	0.053	0.072	0.126	0.073	0.062	0.147

Protest participation is the binary dependent variable dummy coded as 0 = non-protester; 1 = protester.

Two-tailed significance levels.

* $p < 0.05$.

** $p < 0.005$.

*** $p < 0.001$.

Variables entered: **Model 1:** age, gender, city; **Model 2:** age, gender, city, economic security, education; **Model 3:** age, gender, city, civic skills, organizational membership, social networks; **Model 4:** age, gender, city, self-efficacy, collective efficacy; **Model 5:** age, gender, city, biospheric values; **Model 6:** all variables.

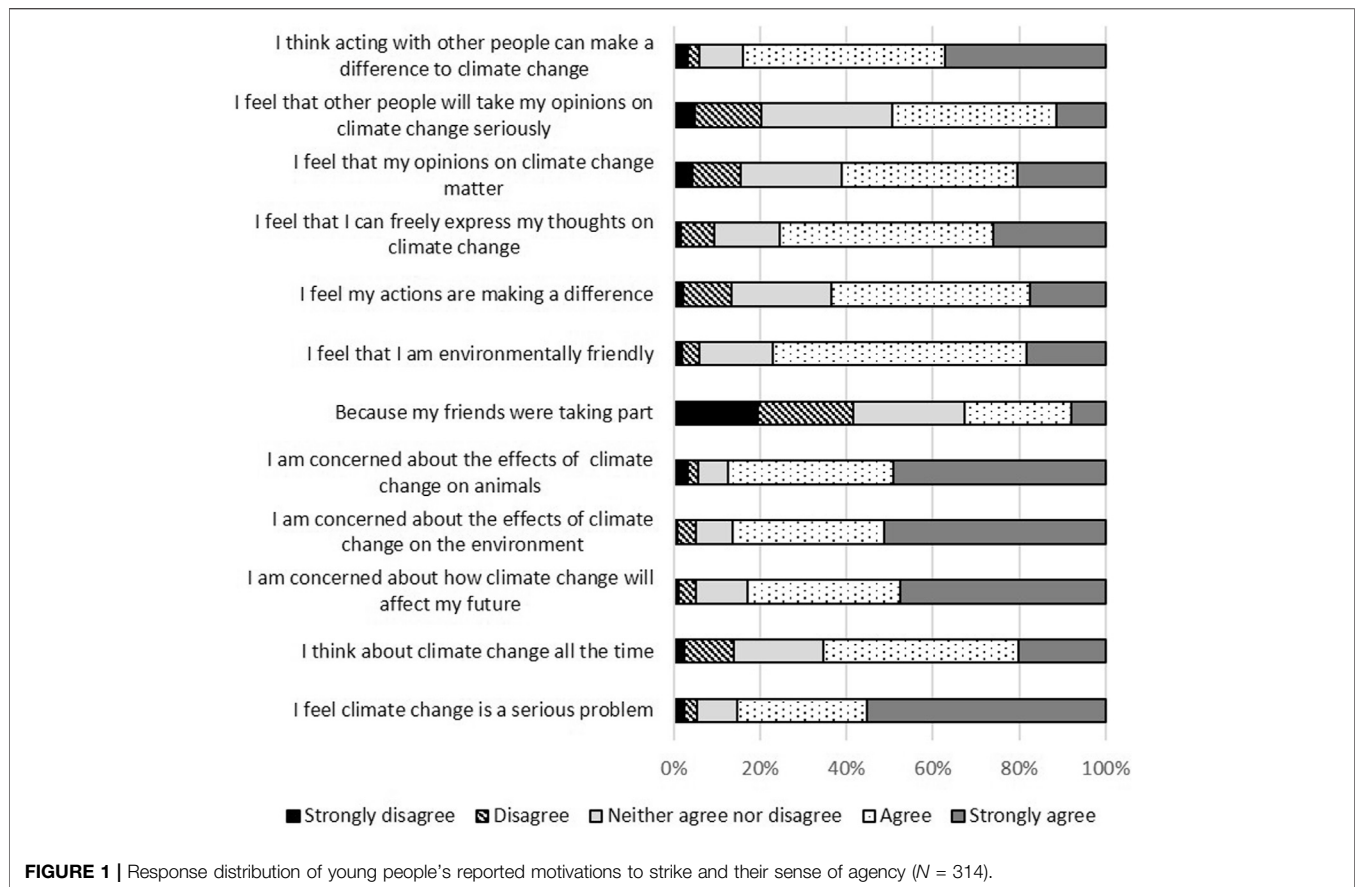
taking actions as individuals could make a difference. Half of the climate protesters agreed that other people take their opinions on climate change seriously.

Kruskal-Wallis H tests compared climate protesters motivations to strike across cities and their sense of agency. **Figures 2, 3** present the results and significance levels of these tests. The figures also show the median scores reported in each city and significance levels for post-hoc pairwise comparisons with Christchurch (reference city). **Supplementary Table S2** provides mean ranks and results for post-hoc pairwise comparisons across all cities.

From **Figure 2** we see that the reasons why young protesters took part in climate strikes varied across cities. Post-hoc tests adjusted for Bonferroni corrections showed that in comparison to Christchurch, young people in Dhaka, Makhanda, New Delhi, and São Paulo reported significantly lower scores when asked whether they felt climate change was a serious problem (**Figure 2A**). In comparing the same four cities with Christchurch, young people also reported significantly lower median scores in response to the statements: “I am concerned about how climate change will

affect my future” (**Figure 2C**) and “I am concerned about the effects of climate change on animals” (**Figure 2D**). By contrast, young people in Dhaka, Makhanda, and São Paulo reported significantly higher median scores ($Md = 4$) than young people in Christchurch ($Md = 3$) for the statement: ‘because my friends were taking part’. No significant differences between Christchurch and Lambeth were observed across the six variables (see **Supplementary Table S2**).

In comparing young striker’s agency across cities, **Figure 3** shows there were no significant differences in young people’s beliefs that they were environmentally friendly (**Figure 3A**), that their opinions on climate change mattered (**Figure 3D**), or that other people took their opinions on climate change seriously (**Figure 3E**). By contrast, post-hoc tests adjusted for Bonferroni corrections showed that in comparison to Christchurch, young people in Dhaka, Makhanda, and São Paulo reported significantly higher median scores for the statement: “I feel my individual actions are making a difference”. For the statement, “I think acting with other people can make a difference to climate change” young people reported a significantly higher median score in Christchurch than in



New Delhi. Again, no significant differences between Christchurch and Lambeth were observed across the six variables (see **Supplementary Table S2**).

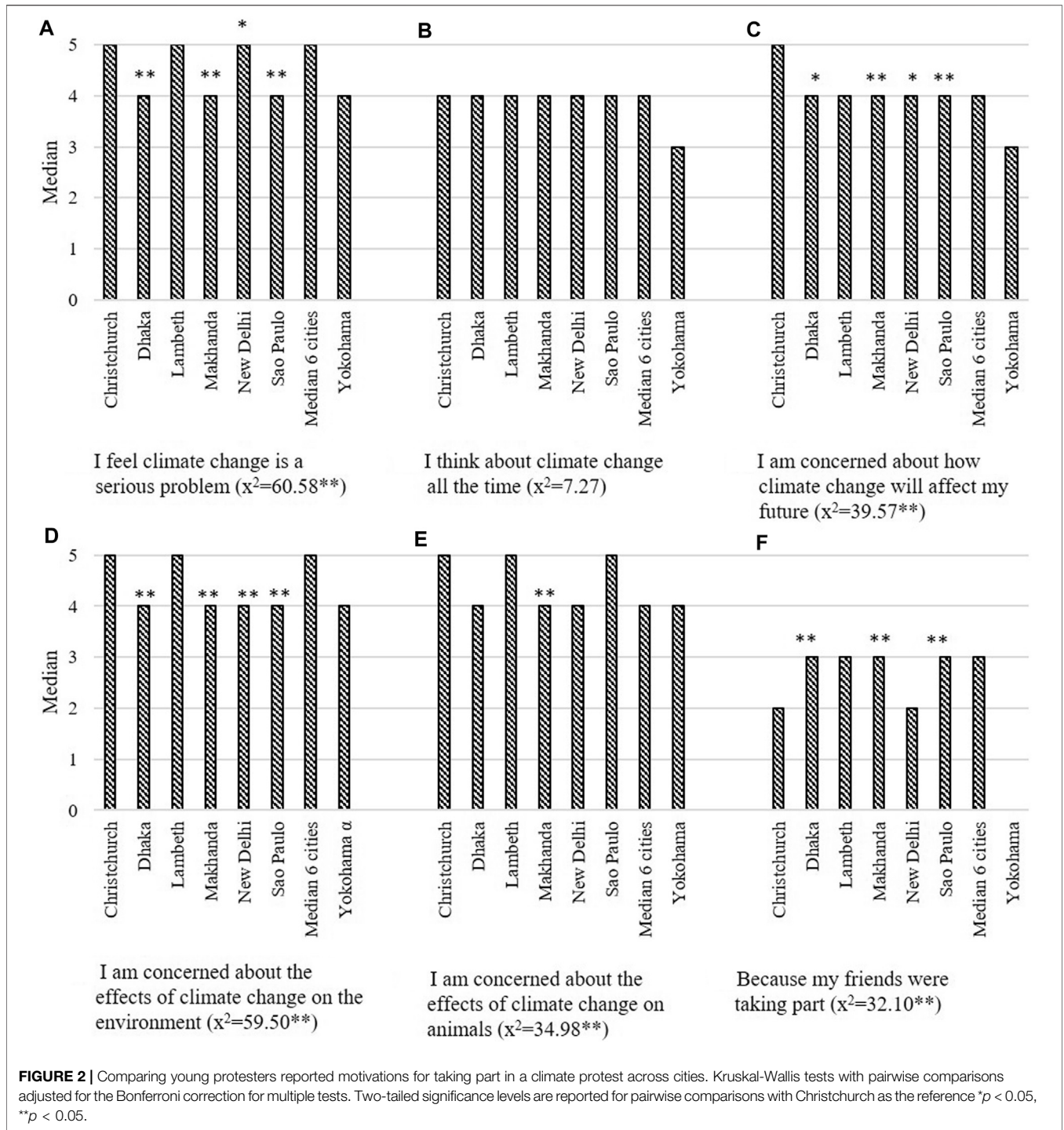
DISCUSSION

The global, youth-led climate strikes of 2018 and 2019 were unprecedented in their global impact, prompting research into the motivations and conditions that have sustained the movement in a variety of contexts. Contributing to this scholarship, the exploratory study reported here examined common explanations for youth participation in climate protests in seven diverse cities, including availability (biographical and structural), political engagement (individual and collective efficacy), and self-reported biospheric values. Notable for the inclusion of strike participants across a broader geographic scope, inclusive of the global South, the study results suggest that structural availability (civic skills and organizational membership) predicts strike participation, but not political engagement (self-efficacy and collective efficacy). Youth who reported that 'living in harmony with nature and animals' was important for their wellbeing, were also more likely to strike than their peers.

In comparing findings from the current study with other research examining the climate protests, we observe elements of contrast and continuity. Contrasting previous in-protest surveys, which suggested that young strike participants were wealthier individuals (de Moor

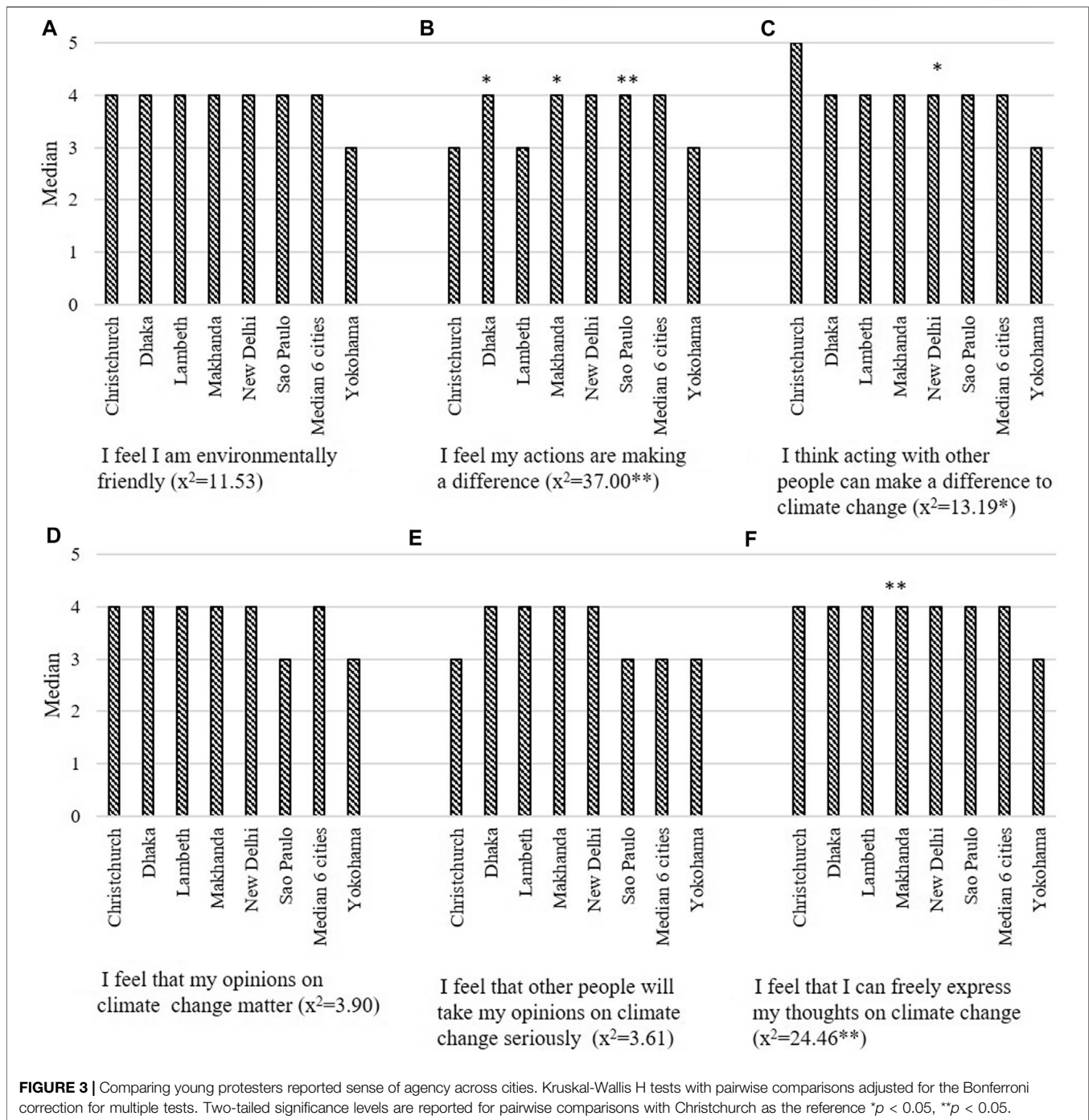
et al., 2020; Wahlström et al., 2020), we found no significant relationship between economic security and strike participation. Both protesters and non-protesters reporting relatively high levels of economic insecurity may in part explain our results. This finding resonates with research by Bowman (2019; 2020) and Pickard and Bessant (2017) about youth political participation in the context of a "precarious generation" motivated by a sense of "situated injustice", and concerns they are "deprived of a decent future" and the feeling they have been "betrayed by governments" (p.100).

Resonating with previous research (see for example Schussman and Soule, 2005; Walgrave and Wouters, 2021), we found that structural availability influences protest participation. To date, analysis of the school strike movement has suggested that young people are often recruited by friends or in classroom contexts (Wahlström et al., 2020). Similarly, the descriptive results reported here indicate that around a third of climate protesters reported participating "because their friends were". Walgrave and Wouters (2021) research indicates that "networks matter" because they increase the chance of recruitment to protest. Protesting with friends can however also be a fun social activity (Martiskainen et al., 2020). Martiskainen et al. (2020) suggest that linking climate concerns with positive experiences might be a useful strategy for coping with dominant "doom-and-gloom" climate narratives. More research, using measures that are standardized and relevant across cultures, is needed to understand the mobilization impact of social networks and structural availability on youth participation in global protests.



Research examining whether young climate protesters have higher perceptions of efficacy than their peers is inconclusive, with a recent study showing that collective efficacy, but not self-efficacy, was associated with protest participation (Wallis and Loy, 2021). It was however somewhat surprising to find that neither self-efficacy nor collective efficacy were associated with protest participation in the current research. The reason may be due to both protesters and non-protesters reporting

relatively high mean scores across measures of perceived self-efficacy and collective efficacy. However, protesters who viewed biospheric values (caring about nature and the environment) as significant for their wellbeing were more likely to engage in protest across in this exploratory study. This finding broadly supports other research that shows that biospheric values are positively associated with climate mitigation behaviors (Bouman et al., 2020). In addition, the



finding that more protesters than non-protesters identified that living harmoniously with nature and animals was important for their wellbeing adds weight to Bowman (2019; 2020) argument that there is more “going on” in youth protests than is frequently identified in “adult-centric” political analysis. Bowman (2020) suggests for example, that analysis of the motivations for climate strikes have too often failed to recognize the complex way young protesters may be expressing forms of “subaltern” or marginalized political identities including in this case a possible concern to reduce climate

change that is connected to care for non-human nature (Bouman et al., 2020; Bowman, 2020).

In considering the motivations for engaging in climate protests, some research suggests significant clusters of young protestors turn out because of spontaneous novelty seeking behavior with peers, or opportunism (Martiskainen et al., 2020). Arguments that caution against attributing adult political aspirations to youthful political action are not new (Miles, 2015). However, descriptive findings within the current study challenges the critics who claim that for many youth, participation in climate protests was merely frivolous, or

driven by pressure from friends to “join in”. While we acknowledge young people may have a variety of significant, non-instrumental, even joyful reasons for joining protests (Bowman, 2020), our study results suggest a high level of issue-oriented, everyday climate concern amongst strikers. In particular, the findings point to very high levels of climate anxiety with protesters worrying about their own futures, the environment, and animals. A surprisingly large proportion (65 percent) of protesters reported thinking about climate change ‘all the time’. This also supports the arguments of others (Bowman et al., 2020; Martiskainen et al., 2020) that a strong sense of worry and personal responsibility for climate change, and strong biospheric values may motivate protest engagement.

Given the reality and severity of climate change, some researchers have argued that participating in climate protests may be heightening this sense of eco-anxiety among young people (Hickman, 2020). However many scholars argue that eco-anxiety, including emotions of anxiety, frustration, grief, and guilt, is normal (Verplanken and Roy, 2013; Ojala, 2018; Prendergast, 2021). At times, these emotions can be challenging for young people to navigate and without adequate support can lead to apathy, defeatism, or denial (Verplanken and Roy, 2013; Ojala, 2018; Thomas et al., 2019; Prendergast, 2021). In this context, research also suggests that taking action with others through protest can be powerful ways of supporting young citizens particularly when the experience nurtures a sense of generational solidarity (O’Brien et al., 2018; Thomas et al., 2019; Bowman, 2020). Further research in large samples and across diverse cultural contexts should not only interrogate young people’s motivations for climate protest, but also ways to sustain the wellbeing of young climate protesters.

Despite the current study’s modest sample sizes, a notable contribution of this exploratory research includes our cross-culture collaborations and the study’s emerging comparative insights. Comparing findings across cities suggested a four-fold difference between the city with the highest proportion of strikers (Christchurch, New Zealand) and the city with the lowest proportion of strikers (Dhaka, Bangladesh). There was also significant across city variation across cities in response to the questions probing the reasons why protesters strike. In Christchurch, more youth strikers felt climate change was a serious problem than young protestors in Makhanda, Dhaka, New Delhi, and São Paulo which is surprising given these cities are amongst the most exposed in a changing climate (Araos et al., 2017; Hamer et al., 2018; Millington, 2018; Eckstein et al., 2019).

The variation in protest participation across cities may be attributed to a number of factors, which need more research in larger samples. Local researchers suggested that while young people may see the climate crisis as a serious problem, they may frame their experiences in ways that differ from dominant, international climate narratives or they face other urgent, pressing local concerns that have occupied their focus. Across the cities, there were significant barriers to political protest, which young people experienced including social norms, government policy, and gender inequities. For example, in some cities, national governments actively discouraged youth protest. State attitudes to protest can have a chilling effect on youth willingness to engage in public protest as well as exacerbate dissent (Pickard,

2019). Dhaka city for example has had a long tradition of student political protest, so low participation in climate strikes may in part reflect other pressing issues and the very recent experience of brutal state retribution against thousands of youth who took part in large-scale student protests about unsafe public transport in 2018, shortly before the climate protests (Human Rights Watch, 2018). In Yokohama, the Japanese state has positioned protest as an anti-social activity, and discouraged engagement in dissenting behaviors (Chiavacci and Obinger, 2018). By contrast in Christchurch, it has been suggested that the ongoing youth mobilization of a city wide “student volunteer army” following earthquakes in 2010 and 2011, has increased civic organization skills, networks, and norms of engagement in ways that may have helped enable higher turnout for climate strikes (Hayward, 2021; Nissen et al., 2021b). The impact of prevailing political conditions are important issues for future research, and qualitative studies in particular would be useful for providing nuanced insights into how local contexts influence young people’s propensity to engage with climate protest.

CONCLUSION

The current study has responded to the need for more research to understand the diversity of youth participation in the global climate strikes. In applying existing theory and examining young people’s propensity to strike in seven diverse cities, inclusive of the global South, the study makes a notable contribution to the literature. There is however much scope for future research to unravel the complexities of young people’s participation in global climate protests. Such research should be inclusive of ethnic minorities, people of color, and Indigenous communities. In addition, future research should pay further attention to the cultural and local contexts that shape young people’s motivations for participating in climate strikes. The research reported here suggests that while young people may report similar motivations for engaging in climate action, local contexts also play a role in shaping the manifestations of youth agency, perceptions of the efficacy of climate action and their pressing environmental concerns. We hope future research will engage in meaningful ways with young people from a wider diversity of cities to better understand what brings young people across the world to strike together, and the conditions that serve to sustain their engagement with the global crisis of climate change.

DATA AVAILABILITY STATEMENT

The datasets analyzed for this study will be offered to the United Kingdom Data Archive upon completion of the research.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by University of Surrey Ethics Committee; University of Canterbury Human Ethics Committee; Rhodes University Human Ethics Research Ethics Committee. Written informed

consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

FUNDING

This research was funded by the United Kingdom Economic and Social Research Council grant to the Centre for the Understanding of Sustainable Prosperity ES/M010163/1, and by the GCRF fund to the University of Surrey, 88200 08.

REFERENCES

- Adger, W. N., Butler, C., and Walker-Springett, K. (2017). Moral Reasoning in Adaptation to Climate Change. *Environ. Polit.* 26 (3), 371–390. doi:10.1080/09644016.2017.1287624
- Adger, W. N., Pulhin, J. M., Barnett, J., Dabelko, G. D., Hovelsrud, G. K., Levy, M., et al. (2014). "Human Security Climate Change 2014: Impacts, Adaptation, and Vulnerability," in *Part A: global and sectoral aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change ed CB Field et al. Change*. Cambridge: Cambridge University Press, 755–791.
- Araos, M., Ford, J., Berrang-Ford, L., Biesbroek, R., and Moser, S. (2017). Climate Change Adaptation Planning for Global South Megacities: The Case of Dhaka. *J. Environ. Pol. Plann.* 19 (6), 682–696. doi:10.1080/1523908x.2016.1264873
- Barrie, C. (2021). Political Sociology in a Time of Protest. *Curr. Sociol.*, 1–24. doi:10.1177/00113921211024692
- Barth, M., Masson, T., Fritsche, I., Fielding, K., and Smith, J. R. (2021). Collective Responses to Global Challenges: The Social Psychology of Pro-environmental Action. *J. Environ. Psychol.* 74, 101562. doi:10.1016/j.jenvp.2021.101562
- Baumgarten, B. (2014). "Culture and Activism across Borders," in *Conceptualizing Culture in Social Movement Research: Palgrave Studies in European Political Sociology*. Editors B. Baumgarten B, P. Daphi, and P. Ullrich (London: Palgrave Macmillan). doi:10.1057/9781137385796_5
- Benevolenza, M. A., and DeRigne, L. (2019). The Impact of Climate Change and Natural Disasters on Vulnerable Populations: A Systematic Review of Literature. *J. Hum. Behav. Soc. Environ.* 29 (2), 266–281. doi:10.1080/10911359.2018.1527739
- Besta, T., Jaśkiewicz, M., Kosakowska-Berezecka, N., Lawendowski, R., and Zawadzka, A. M. (2017). What Do I Gain from Joining Crowds? Does Self-Expansion Help to Explain the Relationship between Identity Fusion, Group Efficacy and Collective Action? *Eur. J. Soc. Psychol.* 48 (2), O152–O167. doi:10.1002/ejsp.2332
- Bonn, G., and Tafarodi, R. W. (2013). Visualizing the Good Life: A Cross-Cultural Analysis. *J. Happiness Stud.* 14 (6), 1839–1856. doi:10.1007/s10902-012-9412-9
- Booker, C. (2019). *Christchurch School Strike 4 Climate Attracts Thousands*. Christchurch: Star News. Available at: <https://www.odt.co.nz/star-news/star-christchurch/christchurch-school-strike-4-climate-attracts-thousands> (Accessed March 8, 2021).
- Bouman, T., Verschoor, M., Albers, C. J., Böhm, G., Fisher, S. D., Poortinga, W., et al. (2020). When Worry about Climate Change Leads to Climate Action: How Values, Worry and Personal Responsibility Relate to Various Climate Actions. *Glob. Environ. Change* 62, 102061. doi:10.1016/j.gloenvcha.2020.102061
- Bowman, B. (2020). "They Don't Quite Understand the Importance of what We're Doing Today": the Young People's Climate Strikes as Subaltern Activism. *Sustain. Earth* 3, 16. doi:10.1186/s42055-020-00038-x

ACKNOWLEDGMENTS

Special thanks to the research assistants in each city: Ashim Bery; Vrinda Bajaj; Imrana Jahan Erina; Farhana Islam; Fenanda Iwasaka; Mandilive Matiwane; and Lona Musiyiwa. Also to Prof Alex Tan for statistical advice, to Yurika Arai and Carolina Nery for translation, and to all our research participants.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpos.2021.696105/full#supplementary-material>

- Bowman, B. (2019). Imagining Future Worlds Alongside Young Climate Activists: a New Framework for Research. *Fennia* 197, 295–305. doi:10.11143/fennia.85151
- Brügger, A., Gubler, M., Steentjes, K., and Capstick, S. B. (2020). Social Identity and Risk Perception Explain Participation in the Swiss Youth Climate Strikes. *Sustainability* 12, 10605. doi:10.3390/su122410605
- Bullon-Cassis, L. (2021). Beware of Generationalism: The Structural (In)visibility of BIPOC Youths in Global Climate Summits. *NEOS* 13 (1), 16–18.
- Burningham, K., Venn, S., Hayward, B., Nissen, S., Aoyagi, M., Hasan, M. M., et al. (2020). Ethics in Context: Essential Flexibility in an International Photo-Elicitation Project with Children and Young People. *Int. J. Soc. Res. Methodol.* 23 (1), 7–22. doi:10.1080/13645579.2019.1672282
- Canosa, A., and Graham, A. (2020). Tracing the Contribution of Childhood Studies: Maintaining Momentum while Navigating Tensions. *Childhood* 27 (1), 25–47. doi:10.1177/0907568219886619
- Chiavacci, D., and Obinger, J. (2018). "Social Movements and Political Activism in Contemporary Japan," in *Social Movements and Political Activism in Contemporary Japan: Re-emerging from Invisibility*. Editors D. Chiavacci and J. Obinger (London: Routledge), 1–23. doi:10.4324/9781315107790
- Children's Worlds Project (2013). International Survey of Children's Well-Being: 12 Year Olds Questionnaire. Zurich: Jacobs Foundation. Available at: <https://iscweb.org/the-questionnaire/using-the-questionnaires/> (Accessed March 8, 2021).
- Chiw, A., and Ling, H. S. (2019). *Young People of Australia and Climate Change: Perceptions and Concerns*. Western Australia: Millennium Kids. Available at: <https://www.millenniumkids.com.au/wp-content/uploads/2019/02/Young-People-and-Climate-Change.pdf> (Accessed July 19, 2020).
- City of Yokohama (2018). *Yokohama City Action Plan for Global Warming Countermeasures*. Yokohama City: Yokohama City Climate Change Policy Headquarters. Available at: https://www.city.yokohama.lg.jp/lang/overseas/climatechange/contents/zcy/actionplan.files/0003_20200731.pdf (Accessed July 31, 2021).
- Corner, A., Roberts, O., Chiari, S., Völler, S., Mayrhuber, E. S., Mandl, S., et al. (2015). How Do Young People Engage with Climate Change? the Role of Knowledge, Values, Message Framing, and Trusted Communicators. *Wires Clim. Change* 6 (5), 523–534. doi:10.1002/wcc.353
- Cornwall, A. (2017). Introduction: New Democratic Spaces? the Politics and Dynamics of Institutionalised Participation. *IDS Bull.* 48 (1A), 1–10. doi:10.1111/j.1759-5436.2004.tb00115.x
- Dalton, R. J. (2008). Citizenship Norms and the Expansion of Political Participation. *Polit. Stud.* 56 (1), 76–98. doi:10.1111/j.1467-9248.2007.00718.x
- de Moor, J., and Verhaegen, S. (2020). Gateway or Getaway? Testing the Link between Lifestyle Politics and Other Modes of Political Participation. *Eur. Pol. Sci. Rev.* 12 (1), 91–111. doi:10.1017/S1755773919000377
- De Vydt, M., and Ketelaars, P. (2021). Linking Consensus to Action: Does Frame Alignment Amongst Sympathizers lead to Protest Participation? *Soc. Move. Stud.* 20 (4), 439–458. doi:10.1080/14742837.2020.1770071

- Eckstein, D., Künzel, V., Schäfer, L., and Wings, M. (2019). *Global Climate Risk Index 2020*. Bonn: Germanwatch. Available at: https://www.germanwatch.org/sites/germanwatch.org/files/20-2-01e%20Global%20Climate%20Risk%20Index%202020_13.pdf (Accessed March 8, 2021).
- Etzold, B., Ahmed, A. U., Hassan, S. R., Neelormi, S., and Afifi, T. (2016). "Rainfall Variability, Hunger, and Social Inequality, and Their Relative Influences on Migration: Evidence from Bangladesh," in *Rainfall Variability, Hunger, and Social Inequality, and Their Relative Influences on Migration: Evidence from Bangladesh* in *Environmental Migration and Social Inequality*. Editors R. McLeman, J. Schade, and T. Faist (Cham: Springer), 27–41. doi:10.1007/978-3-319-25796-9_2
- European Social Survey (2012). *ESS Round 6 Source Questionnaire*. London: Centre for Comparative Social Surveys, City University London. Available at: https://www.europeansocialsurvey.org/docs/round6/fieldwork/source/ESS6_source_main_questionnaire.pdf (Accessed March 8, 2021).
- Evelyn, K. (2019). *Like I Wasn't There: Climate Activist Vanessa Nakate on Being Erased from a Movement*. Washington: The Guardian. Available at: <https://www.theguardian.com/world/2020/jan/29/vanessanakate-interview-climate-activism-cropped-photo-davos> (Accessed March 14, 2021).
- Fisher, D. R. (2019). The Broader Importance of #fridaysforfuture. *Nat. Clim. Chang.* 9 (6), 430–431. doi:10.1038/s41558-019-0484-y
- Fisher, S. R. (2015). Life Trajectories of Youth Committing to Climate Activism. *Environ. Educ.* 22 (2), 229–247. doi:10.1080/13504622.2015.1007337
- Flanagan, C. A. (2013). *Teenage Citizens: The Political Theories of the Young*. Cambridge, MA: Harvard University Press. doi:10.4159/harvard.9780674067233Teenage Citizens
- Gon, J. (2019). *Youth Climate Strikes*, *Grocotts Mail*. Available at: <https://www.grocotts.co.za/2019/03/27/youth-strike-for-climate-action/> (Accessed March 1, 2021).
- Graham, A., Powell, M., Taylor, N., Anderson, D., and Fitzgerald, R. (2013). *Ethical Research Involving Children*. Florence: UNICEF office of research – Innocenti. Available at: <http://childethics.com/wp-content/uploads/2013/10/ERIC-compendium-approved-digital-web.pdf> (Accessed March 1, 2021).
- Graham, S., Barnett, J., Fincher, R., Hurlimann, A., and Mortreux, C. (2014). Local Values for Fairer Adaptation to Sea-Level Rise: A Typology of Residents and Their Lived Values in Lakes Entrance, Australia. *Glob. Environ. Change* 29 (1), 41–52. doi:10.1016/j.gloenvcha.2014.07.013
- Grosse, C., and Mark, B. (2020). "A Colonized COP: Indigenous Exclusion and Youth Climate justice Activism at the United Nations Climate Change Negotiations," in *From Student Strikes to the Extinction Rebellion: New Protest Movements Shaping Our Future*. Editor B. J. Richardson (Cheltenham: Edward Elgar Publishing), 146–170. doi:10.4337/9781800881099.00011
- Hamer, N. G., Lipile, L., Lipile, M., Molony, L., Nzwana, X., O'Keeffe, J., et al. (2018). Coping with Water Supply Interruptions: Can Citizen Voice in Transdisciplinary Research Make a Difference? *Water Int.* 43 (5), 603–619. doi:10.1080/02508060.2018.1497863
- Hart, J., and Henn, M. (2017). Neoliberalism and the Unfolding Patterns of Young People's Political Engagement and Political Participation in Contemporary Britain. *Societies* 7, 33. doi:10.3390/soc7040033
- Hasan, M. M. (2021). *Towards a Play Model of Youth Participation in Sustainable Urban Decision Making: Investigating Young People's Experiences, Expectations and Empowerment in green Space and Public Transport Planning in Dhaka City*. Christchurch: University of Canterbury. dissertation/thesis.
- Hassan, S., Ghias, W., and Fatima, T. (2018). Climate Change Risk Perception and Youth Mainstreaming: Challenges and Policy Recommendations. *Earth Syst. Environ.* 2, 515–523. doi:10.1007/s41748-018-0058-6
- Haugestad, C. A. P., Skauge, A. D., Kunst, J. R., and Power, S. A. (2021). Why Do Youth Participate in Climate Activism? A Mixed-Methods Investigation of the #FridaysForFuture Climate Protests. *J. Environ. Psychol.* 76, 101647. doi:10.1016/j.jenvp.2021.101647
- Hayward, B. (2021). *Children, Citizenship and Environment*. #schoolstrike Edition. New York: Routledge.
- Hayward, B. (2012). *Children, Citizenship and Environment: Nurturing a Democratic Imagination in a Changing World*. New York: Routledge.
- Hayward, B., and Roy, J. (2019). Sustainable Living: Bridging the north-south divide in Lifestyles and Consumption Debates. *Annu. Rev. Environ. Resour.* 44 (1), 157–175. doi:10.1146/annurev-environ-101718-033119
- Hazary, S. C. (1988). 6. Politics and the Interests of Cultivators. *Indian J. Polit. Sci.* 49 (1), 105–120. doi:10.1525/9780520330016-010
- Henn, M., and Foard, N. (2014). Social Differentiation in Young People's Political Participation: The Impact of Social and Educational Factors on Youth Political Engagement in Britain. *J. Youth Stud.* 17 (3), 360–380. doi:10.1080/13676261.2013.830704
- Hess, R., and Torney, J. (2017). *The Development of Political Attitudes in Children*. New York: Routledge.
- Hickman, C. (2020). We Need to (Find a Way to) Talk about ... Eco-Anxiety Eco-Anxiety. *J. Soc. Work Pract.* 34, 411–424. doi:10.1080/02650533.2020.1844166
- Holmberg, A., and Alvinus, A. (2020). Children's Protest in Relation to the Climate Emergency: A Qualitative Study on a New Form of Resistance Promoting Political and Social Change. *Childhood* 27 (1), 78–92. doi:10.1177/0907568219879970
- Honwana, A. M. (2019). Youth Struggles: From the Arab Spring to Black Lives Matter & beyond. *Afr. Stud. Rev.* 62 (1), 8–21. doi:10.1017/asr.2018.144
- Horowitz, J. (2021). Do college Social justice Activists Stop when They Graduate? Explaining Volunteer Activist Participation in a Life Course Transition. *Soc. Probl.* 68 (2), 409–437. doi:10.1093/socpro/spz040
- Human Rights Watch (2018). *Bangladesh: Wave of Arrests over Peaceful Dissent*. New York: Human Rights Watch. Available at: <https://www.hrw.org/news/2018/08/15/bangladesh-wave-arrests-over-peaceful-dissent> (Accessed March 1, 2021).
- J. de Moor, K. Uba, M. Wahlström, M. Wennerhag, and M. De Vydt. (2020). in *Protest for a Future II: Composition, Mobilization and Motives of the Participants in Fridays for Future Climate Protests on 20-27 September, 2019, in 19 Cities Around the World*. Available at: <http://urn.kb.se/resolve?urn=urn:nbn:se:sh:diva-40271> (Accessed March 8, 2021).
- Jennings, M. K., Stoker, L., and Bowers, J. (2009). Politics across Generations: Family Transmission Reexamined. *J. Polit.* 71 (3), 782–799. doi:10.1017/s0022381609090719
- Karlsson, S. (2018). 'Do You Know what We Do when We Want to Play?' Children's Hidden Politics of Resistance and Struggle for Play in a Swedish Asylum centre. *Childhood* 25 (3), 311–324. doi:10.1177/0907568218769353
- Lam-Knott, S., and Cheng, Y. E. (2020). Youth Politics in Urban Asia: An Introduction. *Space and Polity* 24 (1), 1–11. doi:10.1080/13562576.2020.1732200
- Lambeth Council (2021). *What Do We Know about Climate Change in Lambeth? Common Place*. London: Lambeth Council. Available at: <https://lambethclimateaction.commonplace.is/> (Accessed July 29, 2021)
- Lee, K., Gjersoe, N., O'Neill, S., and Barnett, J. (2020). Youth Perceptions of Climate Change: A Narrative Synthesis. *Wires Clim. Change* 11, 3. doi:10.1002/wcc.641
- Levy, B. L. M., and Akiva, T. (2019). Motivating Political Participation Among Youth: An Analysis of Factors Related to Adolescents' Political Engagement. *Polit. Psychol.* 40 (5), 1039–1055. doi:10.1111/pops.12578
- Lorenzini, J., Monsch, G.-A., and Rosset, J. (2021). Challenging Climate Strikers' Youthfulness: The Evolution of the Generational gap in Environmental Attitudes since 1999. *Front. Polit. Sci.* 3, 40. doi:10.3389/fpos.2021.633563
- Mackenzie, P. (2021). *Auckland Chapter of New Zealand's School Climate Group Admits Racism and Disbands in the Guardian*. Available at: <https://www.theguardian.com/world/2021/jun/15/auckland-chapter-of-new-zealands-school-strike-4-climate-group-admits-racism-and-disbands> (Accessed July 15, 2021).
- Malafaia, C., Neves, T., and Menezes, I. (2021). The gap between Youth and Politics: Youngsters outside the Regular School System Assessing the Conditions for Be(com)ing Political Subjects. *Young*, 1–19. doi:10.1177/1103308820987996
- Martiskainen, M., Axon, S., Sovacool, B. K., Sareen, S., Furszyfer Del Rio, D., and Axon, K. (2020). Contextualizing Climate justice Activism: Knowledge, Emotions, Motivations, and Actions Among Climate Strikers in Six Cities. *Glob. Environ. Change* 65, 102180. doi:10.1016/j.gloenvcha.2020.102180
- Martyn, B., and Dimitra, P. (2019). *Civic and Political Engagement Among Youth: Concepts, Forms and Factors*. London: Routledge.
- McAdam, D. (1986). Recruitment to High-Risk Activism: The Case of freedom Summer. *Am. J. Sociol.* 92 (1), 64–90. doi:10.1086/228463

- Mesimaka, S. (2019). *Where Are Japan's Climate Strikers?* Tokyo Review. Available at: <https://www.tokyoreview.net/2019/12/japan-climate-strike/> (Accessed July 31, 2021).
- Miles, S. (2015). Young People, Consumer Citizenship and Protest. *Young* 23 (2), 101–115. doi:10.1177/1103308815569392
- Millington, N. (2018). Producing Water Scarcity in São Paulo, Brazil: The 2014–2015 Water Crisis and the Binding Politics of Infrastructure. *Polit. Geogr.* 65, 26–34. doi:10.1016/j.polgeo.2018.04.007
- M. Wahlström, P. Kocyba, M. De Vydt, and J. de Moor (2020). *Protest for a Future: Composition, Mobilization and Motives of the Participants in Fridays for Future Climate Protests on 15 March, 2019 in 13 European Cities*. Available at: <https://eprints.keele.ac.uk/6571/> (Accessed March 1, 2021).
- Nie, N. H., Verba, S., and Kim, J.-o. (1974). Political Participation and the Life Cycle. *Comp. Polit.* 6 (3), 319–340. doi:10.2307/421518
- Nissen, S., Aoyagi, M., Burningham, K., Hasan, M. M., Hayward, B., Jackson, T., et al. (2017). *Young Lives in Seven Cities: A Scoping Study for the CYCLES Project*. Guildford: University of Surrey. Available at: <https://www.cusp.ac.uk/wp-content/uploads/CYCLES-background-report-online.pdf> (Accessed December 14, 2020).
- Nissen, S., Carlton, S., Wong, J. H. K., and Johnson, S. (2021a). 'Spontaneous' Volunteers? Factors Enabling the Student Volunteer Army Mobilisation Following the Canterbury Earthquakes, 2010–2011. *Int. J. Disaster Risk Reduction* 53, 102008. doi:10.1016/j.ijdr.2020.102008
- Nissen, S., Prendergast, K., Aoyagi, M., Burningham, K., Hasan, M. M., Hayward, B., et al. (2020). Young People and Environmental Affordances in Urban Sustainable Development: Insights into Transport and green and Public Space in Seven Cities. *Sustain. Earth* 3, 1. doi:10.1186/s42055-020-00039-w
- Nissen, S., Wong, J. H. K., and Carlton, S. (2021b). Children and Young People's Climate Crisis Activism - a Perspective on Long-Term Effects. *Children's Geographies*. 19 (3), 317–323. doi:10.1080/14733285.2020.1812535
- NIWA (2020). *Climate Change Projections for the Canterbury Region*. Wellington: Wellington National Institute of Water and Atmospheric Research. Available at: <https://niwa.co.nz/sites/niwa.co.nz/files/ClimatechangeprojectionfortheCanterburyRegionNIWA.PDF> (Accessed July 31, 2021).
- Nolas, S.-M., Varvantakis, C., and Aruldoss, V. (2017). Political Activism across the Life Course. *Contemp. Soc. Sci.* 12, 1–12. doi:10.1080/21582041.2017.1336566
- Norris, P. (2002). *Democratic Phoenix: Reinventing Political Activism*. Massachusetts: Harvard University. doi:10.1017/CBO9780511610073Democratic Phoenix
- Norris, P., and Inglehart, R. (2019). "Cultural Backlash," in *Cultural Backlash: Trump, Brexit, and Authoritarian Populism* (Cambridge I-I: Cambridge University Press). doi:10.1017/9781108595841
- Norris, P. (2009). "Political Activism: New Challenges, New Opportunities," in *The Oxford Handbook for Comparative Politics*. Editors C. Boix and S. Stokes (Oxford: Oxford University Press), 628–649. doi:10.1093/oxfordhb/9780199566020.003.0026
- O'Brien, K., Selboe, E., and Hayward, B. M. (2018). Exploring Youth Activism on Climate Change: Dutiful, Disruptive, and Dangerous Dissent. *E&S* 23, 3. doi:10.5751/ES-10287-230342
- Ojala, M. (2018). Eco-anxiety. *RSA J.* 164 (4), 10–15. doi:10.2307/26798430
- Opp, K. (2009). *Theories of Political Protest and Social Movements: A Multidisciplinary Introduction, Critique, and Synthesis*. London: Routledge
- Parakala, V. (2019). *Youngsters in Delhi Demand Action on Climate Change*. New Delhi: The Hindu. Available at: <https://www.thehindu.com/news/cities/Delhi/youngsters-in-delhi-demand-action-on-climate-change/article29472957.ece> (Accessed March 1, 2021).
- Pickard, S., Bowman, B., and Arya, D. (2020). "We Are Radical in Our Kindness": The Political Socialisation, Motivations, Demands and Protest Actions of Young Environmental Activists in Britain. *Youth Glob.* 2 (2), 251–280. doi:10.1163/25895745-02020007
- Pickard, S. (2019). *Politics, Protest and Young People: Political Participation and Dissent in 21st Century Britain*. London: Springer.
- Poortinga, W., Whitmarsh, L., Steg, L., Böhm, G., and Fisher, S. (2019). Climate Change Perceptions and Their Individual-Level Determinants: A Cross-European Analysis. *Glob. Environ. Change* 55, 25–35. doi:10.1016/j.gloenvcha.2019.01.007
- Prendergast, K. (2021). "Supporting Young People's Wellbeing in a Changing Climate," Editor B. Hayward (New York: Routledge), 197–200. *Children, Citizenship and the Environment*.
- Rafaely, D., and Barnes, B. (2020). African Climate Activism, media and the Denial of Racism: The Tacit Silencing of Vanessa Nakate. *Community Psychol. Glob. Perspective* 6 (2), 71–86. doi:10.1285/i24212113v6i2-2p71
- Ritchie, J. (2021). Movement from the Margins to Global Recognition: Climate Change Activism by Young People and in Particular Indigenous Youth. *Int. Stud. Sociol. Educ.* 30 (1), 53–72. doi:10.1080/09620214.2020.1854830
- Rossi, F. M. (2009). Youth Political Participation: Is This the End of Generational Cleavage? *Int. Sociol.* 24 (4), 467–497. doi:10.1177/0268580909334498
- Russell, A., Fieldhouse, E., Purdam, K., and Kalra, V. (2002). *Voter Engagement and Young People*. London: The Electoral Commission.
- Schussman, A., and Soule, S. A. (2005). Process and Protest: Accounting for Individual Protest Participation. *Social Forces* 84 (2), 1083–1108. doi:10.1353/sof.2006.0034
- Sloam, J., and Henn, M. (2019). *Youthquake 2017. Palgrave Studies in Young People and Politics*. Cham: Palgrave Pivot. doi:10.1007/978-3-319-97469-9_3The Silent Revolution in Youth Political Engagement.
- S. Pickard and J. Bessant (2017). *Young People Re-generating Politics in Times of Crises* (London: Palgrave).
- Spring, J., and Queiroz, S. (2019). *Brazilian Climate Strikers Take Aim at Bolsonaro for Amazon Fires*. Sergio Queiroz: Reuters. Available at: <https://www.reuters.com/article/us-climate-change-strike-brazil-idUSKBN1W52HX> (Accessed March 1, 2021).
- Strazdins, L., and Skeat, H. (2011). *Weathering the Future: Climate Change, Children and Young People, and Decision Making*. Canberra: Australian Research Alliance for Children and Youth.
- Takahashi, R. (2019). *Why Aren't More Young People Fighting Climate Change*. Tokyo: Japan Times. Available at: <https://www.japantimes.co.jp/news/2019/09/20/national/japanese-activists-join-global-climate-strike-ahead-u-n-summit-global-warming/> (Accessed March 1, 2021).
- Tam, K.-P., and Milfont, T. L. (2020). Towards Cross-Cultural Environmental Psychology: A State-Of-The-Art Review and Recommendations. *J. Environ. Psychol.* 71, 101474. doi:10.1016/j.jenvp.2020.101474
- Taylor, M., and Watts, J. (2019). *Enough Is Enough: Biggest-Ever Climate Protest Sweeps UK*. London: The Guardian. Available at: <https://www.theguardian.com/environment/2019/sep/20/enough-biggest-ever-climate-protest-uk> (Accessed March 1, 2021).
- The Daily Star (2019). *Children Join Global Climate Strike in Dhaka, the Daily Star*. Dhaka: The Daily Star. Available at: <https://www.thedailystar.net/city/news/children-join-global-climate-strike-dhaka-1802773> (Accessed March 1, 2021).
- Thew, H., Middlemiss, L., and Paavola, J. (2020). "Youth Is Not a Political Position": Exploring justice Claims-Making in the UN Climate Change Negotiations. *Glob. Environ. Change* 61, 102036. doi:10.1016/j.gloenvcha.2020.102036
- Thomas, A., Cretney, R., and Hayward, B. (2019). Student Strike 4 Climate: Justice, Emergency and Citizenship. *N. Z. Geog* 75 (2), 96–100. doi:10.1111/nzg.12229
- UN Habitat (2016). *World Cities Report Summary*. Nairobi: UN Habitat. Available at: <https://unhabitat.org/un-habitat-launches-the-world-cities-report-2016> (Accessed March 1, 2021).
- United Nations Environment Programme (2011). *Global Survey on Sustainable Lifestyles: Visions for Change*. Sweden: United Nations Environment Programme.
- van der Brug, W., and Rekker, R. (2021). Dealignment, Realignment and Generational Differences in The Netherlands. *West Eur. Polit.* 44 (4), 776–801. doi:10.1080/01402382.2020.1774203
- van Zomerem, M., Spears, R., and Leach, C. W. (2010). Experimental Evidence for a Dual Pathway Model Analysis of Coping with the Climate Crisis. *J. Environ. Psychol.* 30 (4), 339–346. doi:10.1016/j.jenvp.2010.02.006
- Verplanken, B., and Roy, D. (2013). "My Worries Are Rational, Climate Change Is Not": Habitual Ecological Worrying Is an Adaptive Response. *PLoS one* 8, e74708. doi:10.1371/journal.pone.0074708
- Walgrave, S., and Wouters, R. (2021). More Than Recruitment: How Social Ties Support Protest Participation. *Soc. Probl.*, spab010. doi:10.1093/socpro/spab010

- Walker, C. (2021). 'Generation Z' and 'second Generation': an Agenda for Learning from Cross-Cultural Negotiations of the Climate Crisis in the Lives of Second Generation Immigrants. *Children's Geographies* 19 (3), 267–274. doi:10.1080/14733285.2020.1817334
- Walker, C. (2020). Uneven Solidarity: The School Strikes for Climate in Global and Intergenerational Perspective. *Sustain. Earth* 3, 5. doi:10.1186/s42055-020-00024-3
- Wallis, H., and Loy, L. S. (2021). What Drives Pro-environmental Activism of Young People? A Survey Study on the Fridays for Future Movement. *J. Environ. Psychol.* 74, 101581. doi:10.1016/j.jenvp.2021.101581
- Weiss, J. (2020). What Is Youth Political Participation? Literature Review on Youth Political Participation and Political Attitudes. *Front. Polit. Sci.* 2. doi:10.3389/fpos.2020.00001
- Wray-Lake, L. (2019). How Do Young People Become Politically Engaged? *Child. Develop. Perspect.* 13 (2), 127–132.
- Xiang, P., Zhang, H., Geng, L., Zhou, K., and Wu, Y. (2019). Individualist-Collectivist Differences in Climate Change Inaction: The Role of Perceived Intractability. *Front. Psychol.* 10, 187. doi:10.3389/fpsyg.2019.00187

Conflict of Interest The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations or those of the publisher, the editors, and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

Copyright © 2021 Prendergast, Hayward, Aoyagi, Burningham, Hasan, Jackson, Jha, Kuroki, Loukianov, Mattar, Schudel, Venn and Yoshida. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.