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Original Research

‘I don't really associate climate change with actual people's health’: a qualitative study in England of perceptions of climate change and its impacts on health

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ABSTRACT

Objectives: The health impacts of climate change are increasing, but qualitative evidence on people's perceptions is limited. This qualitative study investigated people's perceptions of climate change and its impacts on health.
Study design: This was an online study using semistructured interviews.
Methods: A total of 41 semistructured interviews were conducted in 2021 with members of the public aged ≥15 years living in England, recruited via community-based groups. Data were analysed using reflexive thematic analysis.
Results: Participants were concerned about climate change, which was often perceived as extreme weather events happening elsewhere. Changes in the UK's seasons and weather patterns were noted, but participants were uncertain whether these changes resulted from climate change. Participants often struggled to identify health impacts of climate change; where health impacts were described, they tended to be linked to extreme weather events outside the United Kingdom and their associated threats to life. The mental health impacts of such events were also noted.
Conclusions: The study found that most participants did not perceive climate change to be affecting people's health in England. This raises questions about whether framing climate change as a health issue, an approach advocated for countries less exposed to the direct effects of climate change, will increase its salience for the British public.

Introduction

Climate change is placing people's health at increasing risk, both globally[1–3] and within the United Kingdom.[4,5] Rising global temperatures are increasing the frequency, duration and severity of extreme weather events,[1,6,7] including flooding and heat waves in the United Kingdom,[8,9] exposures set to increase over time and across generations.[10] Highlighting the health impacts of climate change is advocated as a way of bringing climate change ‘closer to home’,[11,12] particularly in high-income countries that, to date, have been less exposed to the direct effects of climate change.[13–15] A ‘health framing’ is seen to provide a way for public health policy and practice to connect climate change with people's everyday concerns.[12,16,17]

However, evidence for such a framing is mixed. A 2018 review of studies of public perceptions of the health impacts of climate change noted that in English-speaking countries, there was a divergence between studies using closed- and open-ended questions. In response to closed questions, the majority of participants perceived climate change as harmful to human health, a finding in line with UK surveys.[18,19] However, responses to open-ended questions indicated that participants struggled to make connections between climate change and health.[20] In the single UK study within the review,[21] the majority did not perceive themselves to be at risk. Updating this review (additional file, Table S1), we located a further qualitative study in Canada,[22] where the majority of participants perceived climate change as a problem from which they were spatially and temporally distant. Our qualitative study adds to

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this small evidence base by exploring perceptions of climate change and its impacts on people's health in England.

Methods

The study was approved by the Health Sciences Research Governance Committee, University of York (ref: HSRGC/2020/409/C; 11/9.20).

Setting and participants

Participants aged ≥15 years were recruited via community groups, including local residents' groups, activity- and identity-based groups (e.g. walking and faith groups) and age-related groups (e.g. young people's groups). The groups were selected to reach into different communities, including members of the public from different age groups and social backgrounds and living in different areas (rural villages, small towns, and cities). We included participants aged <18 years to ensure the voice of future generations was represented in the study.

COVID-19 and the associated restrictions on people's everyday lives[23] meant many community groups were either suspended or limited to core support for members, restricting the range of community groups participating in the study. The pandemic context – with government-imposed 'lockdowns' requiring the public to 'stay at home' and limit social contact to a minimum – also required a change in the study design. We shifted from in-person, community-based focus groups to one-to-one online and telephone interviews.[24–26] Online interviews complied with government regulations and, arranged at a time of the individual's choosing, minimised the participant burden during a period of major disruption in people's everyday lives.

A poster circulated via group coordinators (Table S2) invited potential participants to seek further information about the study. This information (Table S3) noted that '*We are wanting to speak to people across England about their thoughts on climate change and whether they think climate change has an impact on their health. We are wanting to speak with people who have different experiences and views of climate change.*' Informed consent (assent and parental consent for participants aged 15 years) was obtained. Participants received a voucher of £10 to thank them for their time.

The sample comprised 41 participants recruited from 19 community groups (Tables S4 and S5). More than half of the participants were aged ≥60 years (compared with 23% in the wider population), and more than 60% were male. Based on the Index of Multiple Deprivation, a measure of relative deprivation at local level, participants were overrepresented in the more and less deprived deciles; with respect to its health profile, the sample was more evenly distributed across deciles[27] (Table S6).

Interview schedule

The interview guide was informed by the review of the perceptions literature and developed iteratively by the wider project team. Interviews began with open-ended questions about perceptions of climate change and people's health. UK photographs of *'climate-related events likely to become more common with climate change'* were then introduced as prompts to elicit further thoughts and accounts of experiences (Table S7).

Data collection

Between January and October 2021, individual semistructured interviews of ≤60 min were conducted online/by telephone (with one participant providing responses by email) by J.M.K., an Australian/British White female qualitative researcher whose previous research had not focused on climate change. Interviews were digitally recorded, transcribed and pseudonymised by participant number. J.M.K. maintained a summary of interviews with notes made immediately after each interview.

Data analysis

Using NVivo,[28] reflexive thematic analysis was conducted.[29,30] This iterative process involves data familiarisation, line-by-line coding, generation of initial themes and review, further development and refinement of themes. Following Braun and Clarke's methodology,[31] one researcher (J.M.K.) undertook the analysis, generated initial codes and developed themes relating to perceptions of climate change and its health impacts. Themes were discussed and refined with P.L., H.G. and the wider project team. Trustworthiness[32,33] was protected by each of these analysis stages, including in-depth immersion in the data, and ensuring that the themes captured recurring patterns across the data set. An iterative process of internal triangulation was undertaken, and themes were discussed and refined collectively by the project team. We consistently reviewed the themes and the supporting data to ensure that our findings were based on what people said and that each theme was cohesive. In addition, rich verbatim accounts are included to support the findings. A summary of findings was made available to the study participants; all opted to receive it.

Results

Our analysis produced themes related to perceptions of climate change (two themes) and to perceptions of health impacts (two themes).

Perceptions of climate change

Although most participants reported being 'very concerned' about climate change, they did not perceive it as an immediate threat to people in the United Kingdom. It was seen as distant from participants' lives, unfolding in other areas of the world and across future generations. Britain's temperate climate and the unpredictability of its weather added to uncertainties about whether climate change was affecting the United Kingdom. These two themes are discussed below and illustrated in Table 1.

Theme 1: Climate change at a distance

When asked about climate change, participants often described extreme impacts beyond the United Kingdom. They talked about cyclones in Bangladesh, wildfires, drought and flooding in *'developing countries'* and countries with *'more extreme climates'* (e.g. Australia) with *'vast areas'* impacted by wildfires (e.g. California), heatwaves (France) and flooding (Germany). They described *'severe'* and *'devastating'* impacts in these countries, often referring to images in the media. In addition, the term 'global warming' implied a process located beyond the United Kingdom, while in the United Kingdom, '*we can't put our finger on it [climate change], you know, we can't*' (P16, male, aged 40–49 years). Some participants commented on their experiences, either direct experiences or via the media, of extreme weather events in the United Kingdom, particularly floods, but were not sure these were related to climate change.

With climate change described in terms of extreme weather events in other countries, it tended to be perceived as a future, rather than a current, threat to the United Kingdom. Participants with children described '*worry*', '*concern*' and '*fear*' about future generations of their family: '*End of the world. Not for me, but more*

Table 1
Perceptions of climate change.

Theme	Supporting quotes
Climate change at a distance: happening elsewhere and in the future	*Images on the news come to mind straight away. It's those kind of images that I see, you know, forest fires in California and that, and those places in Florida and stuff, and just to see all that happening, it's those images that come to mind straight away.* (P17, male, aged 40–49 years) *In Britain, we're not so affected really … If I thought about it for longer, I'd be thinking about how it seems to affect everywhere but us, unfortunately, and maybe that's why people don't care, cos it doesn't immediately affect them.* (P27, female, aged 30–39 years) *It [global warming] kind of talks about as being something over there, not something local, and we know that we get flooded, we know that we get mild winters now and blazing hot record breaking days in the summer, and, and that's local.* (P28, male, aged 70–79) *We do have climate change … but the extremes of changes are much more likely to happen in the extremes of climate, and we're a moderate climate.* (P02, male, aged 70–79 years) *I don't have children but it's something that is obviously so precious to them, a child's health is such a huge precious thing that we think about children as the next generation, as the future, so therefore when I'm thinking about climate change obviously I'm thinking about the future.* (P12, female, aged 30–39 years)
Uncertainty about whether the UK is experiencing climate change …	*I don't know … I guess the weather in the UK is kind of up and down at the moment; I guess it was really, really warm on Sunday and then it's like, then it goes really, really cold again. But I don't know if that's just unpredictable UK weather or that's related to global warming.* (P04, female, aged 15–19 years) *There are times when the weather does seem to play tricks with us; whether that's climate change or, I don't know.* (P15, male, aged 70–74 years) *It's quite hard to kinda pin it down in the UK; I think it'll probably be more apparent in places where you get like very definite seasons like a dry season and a wet season or whatever that's usually pretty predictable. Their extremes are a lot more apparent when rains don't turn up or they come three months later and things like that.* (P30, male, aged 40–47 years) *I would expect there not to be that much awareness [about climate change] for people in Britain, cos I think we're quite lucky, being a temperate country.* (P14, female, aged 60–62 years)

for probably my son's children if he decides to have any' (P01, male, aged 60–69 years).

Theme 2: Uncertainty about whether the United Kingdom is experiencing climate change

Many participants described the seasons *'changing'* and *'shifting'*, with more winter snow in the past and hotter summers now: '*I feel like the seasons have shifted, like they're not quite in line from what I remember like growing up*' (P12, female, aged 30–39 years). However, participants often expressed uncertainty about whether these changes were driven by climate change or were part of *'the variability'* of *'the British weather'*. Britain's *'temperate'* and *'moderate'* climate was seen to protect the country and its people from the changes seen elsewhere: as participants put it, '*I think we're quite lucky, being a temperate country*' (P14, female aged 60–69 years) without '*definite seasons like a dry season and a wet season (where) rains don't turn up*' (P30, male, aged 40–49 years).

UK photographs of climate-related events prompted some participants to talk about experiences of flooding and heatwaves, but these did not appear to inform their responses. For example, in response to the photograph of flooding, a participant noted that the river near her village '*was flooded for weeks last year*', but when asked earlier in the interview about her thoughts on climate change, she talked about the Pacific Islands (P14, female, aged 60–69 years).

Perceptions of the health impacts of climate change

Two interconnected themes were identified. First, participants spoke of the difficulty of linking climate change to people's health: *'I don't really associate climate change with actual like people's health'* (P04, female, aged 15–19 years). Secondly and relatedly, they were uncertain about whether the human impacts that came to mind would qualify as 'health impacts': as one participant put it, *'it depends how you define health impact'* (P16, male, aged 40–49 years). These themes are discussed below and illustrated in Table 2.

Theme 1: It's hard to see connections between climate change and people's health

Participants often struggled to link climate change to people's health: '*despite the fact that I've had notice of this conversation for quite some time, people's health isn't very high up what I think about'* (P10, male, aged 60–69 years). Instead, it was other impacts of climate change that participants spoke about, particularly impacts on wildlife and the natural environment: "*for me, I keep thinking 'oh it's the animals, the animals, and how long will it take'. I mean some species will be wiped out*" (P37, female, aged 70–79 years).

Theme 2: Uncertainty about what is meant by 'health' in the context of climate change

Where health impacts were noted, they tended to relate to *'dramatic'* events outside the United Kingdom and associated threats to life (*'death', 'survivability'*). As a participant put it, '*it seems to be that the impacts of climate change are having a gradual impact on the physical world which then has a catastrophic event that then kills people rather than making them less healthy*' (P17, male, aged 30–39 years). However, participants expressed uncertainty about whether such impacts fell within the concept of health: *'So the health impacts that we might expect to become prominent would be more like starvation, but then is that really health?'* (P10, male, aged 60–69 years).

It appeared to be easier to identify mental health impacts, linking these both to events outside the United Kingdom and to flooding within it. Participants described *'the anxiety'* of living on '*one of these low lying islands'* (P14, female, aged 60–69 years) and in flood risk areas in the United Kingdom, noting '*the stress of that certainly, I mean it's stress-related things which are probably gonna be felt more than actual illnesses'* (P07, male, aged 70–79 years).

Discussion

Main findings

Climate change was seen as primarily affecting people in other places and in future times. These perceptions were related to understandings of climate change as an extreme phenomenon, manifested in major meteorological events and their associated impacts: extensive flooding and wildfires and intense heatwaves. Perceptions of the inherent variability of the British weather – its *'ups and downs'* and '*tricks'* – appeared to add to uncertainty about whether climate change was yet affecting the United Kingdom. This

Table 2
Perceptions of the health impacts of climate change.

Theme	Supporting quotes
Hard to see the connections between climate change and people's health …	*Until you mentioned this interview thing, I never thought of it in terms of the consequence for human life because other life took precedence in my mind.* (P03, male, aged 60–69 years) *I don't know, I don't really associate climate change with actual like people's health. Cos we don't really see climate change within the UK, you see it in like developing countries rather than the UK, and countries like America who aren't developing [laughs]. So yeah, lack of nutrition, under-developed people. You get like those adverts on TV that are advertising; this is where I've got it from.* (P04, female, aged 15–19 years) *I wouldn't say I've seen it [climate change] so far on people's health. So I don't think health-wise I've seen it so far. I mean some people may get very deeply worried about it and think that we're going to disappear in the next year or two. I don't know that I've got to that position yet.* (P15, male, aged 70–79 years) *I think there's the kind of more visible destruction, so like the destruction of rain forests or the destruction of the coral reef or all the kind of things that come to mind when people talk about climate change, so whether that's, you know, ice disappearing or whatever it might be, those kind of more visible things.* (P12, female, aged 30–39 years) *I mainly think about, like the wild, like the animals and like how as humans like climate change is destroying like habitats that were once there and the animals are getting extinct … I think about stuff like that.* (P18, female, aged 15–19 years) *I just feel like with that kinda of thing, what these environmental issues have on people's health, they think more about its affecting the earth than how it's affecting humans.* (P11, female, aged 15–19 years)
Uncertainty about what is meant by 'health' in the context of climate change … but greater certainty about the mental health impacts of climate change	*So the health impacts that we might expect to become prominent would be more like starvation, but then is that really health? I would label that slightly differently, I think.* (P10, male, aged 60–69 years) *I suppose survivability is maybe not health so I won't go down the route of, you know, it's endangering lives.* (P17, male, aged 30–39 years) *I guess I don't think about it in terms of individual health, it's more that kind of big impacts on like lack of food and water, impacts of heat on people. So yeah, I guess I don't think about it in terms of people's personal like health and fitness but more of a kind of global, social scale.* (P30, male, aged 40–49 years) *So it depends how you define health impact, because there's definitely psychological impact and mental health and I think the way people react to it and, as I say, flooding and everything else and so on.* (P16, male aged 40–49 years) *For those people who are living in flood risk areas, I would expect that would have a pretty significant impact on mental health on the basis that they're going through, horrific, you know, trauma from having their houses destroyed, and rebuilding and then destroying them again and then rebuilding. So I'd expect there'd be a pretty significant mental health impact.* (P17, male, aged 30–39 years) *I think probably the biggest one at the moment is the anxiety; it's actually that intangible, but, you know, birds and wildlife, and then that knock-on effect of you've lost that wellbeing from the natural environment, but it's the anxiety of not knowing what's gonna happen, when it's gonna happen. If you're on one of these low lying islands or if you're one of these farmers, if you were me trying to, you know, have my garden and worry about my garden birds and my hedgehogs, it's the anxiety of not knowing exactly how far it's gonna go, how far it's going to tip. I mean it's the anxiety level of the uncertainty.* (P14, female, aged 60–69 years)

perception may be because while 'talking about the weather' is a reassuring part of everyday social interactions, reframing the UK's changing weather patterns as part of long-term changes in the climate could move the conversation into highly charged political territory.[22,34,35]

Participants' perceptions of climate change as episodic, unexpected and life-threatening appeared to inform their perceptions of its health impacts. Seen in this way, they *'didn't see much of a connection'* between climate change and people's health, particularly in a UK context. This may in part reflect a conceptualisation of health that does not include its negation (*'starvation'*, *'death'*) and where positive health is seen as influenced by individual-level factors, such as health behaviours, rather than wider environmental determinants.[36]

It has been argued that in countries relatively protected from climate change, perceiving it as a phenomenon happening in other places and times is a manifestation of 'psychological distancing'.[37,38] While such a distancing is evident in our study, it appears, at least in part, to be shaped by participants' exposure to media representations of extreme weather events (cyclones in Bangladesh, wildfires in California and Australia, flooding in Germany), a central factor in how the public understand climate change and its human impacts.[39–41] A qualitative study in Canada similarly noted that perceptions of climate change drew on what participants had seen in the media.[22]

The pandemic context may also have reduced the potential salience of climate change and its health impacts. During the interview period, the United Kingdom experienced high rates of infection and long periods of lockdown.[23] In a UK survey conducted in July 2021, participants were asked to identify the three 'biggest threats' to their health from a list that included 'the effects of climate change'; the list was dominated by 'chronic diseases such as cancer, obesity and diabetes' and 'the COVID-19 pandemic', with only a small minority identifying climate change.[50]

What is already known about this topic?

The limited evidence suggests that in high-income countries less directly affected by climate change, the public have a low perception of personal risk and perceive climate change as being worse in other places and times.[22] Framing it as a health issue is advocated as a way of increasing its personal salience.[11,14,15] But the evidence to support this approach is limited, particularly with respect to qualitative studies of the general public where participants express their thoughts and understandings in their own words.[20,22]

What this study adds

Our study adds to the small qualitative literature on public perceptions of the health impacts of climate change. It adds to an even smaller evidence base exploring people's perceptions of the health impacts of climate change in the United Kingdom.

Our findings are in line earlier studies in the United Kingdom, and Canada where climate change was understood to be happening elsewhere in place and time, and the public were often uncertain about whether it was affecting people's health.[14,51] Our study adds to these findings by noting how perceptions of 'the British weather' as inherently variable contributed to uncertainty about whether the United Kingdom was experiencing climate change. We also note how participants' perceptions of climate change appear to draw on media images of life-threatening events beyond the United Kingdom. This suggests that climate change is understood, not as a change in climate patterns from the late 20th century affecting all regions of the world but as sudden and extreme periods of flooding, wildfires and heatwaves. Understood in this way, study participants found it difficult to identify impacts on people's health, pointing instead to risks to life.

The study contributes to wider discussions within public health policy and practice about how to communicate climate risks in ways that connect with people's understandings and concerns.[12,17] A health-centred approach is seen to hold promise in countries less vulnerable to the direct effects of climate change. In our study, participants struggled to connect climate change and people's health, pointing to potential challenges in engaging the public through a health framing of climate change.

Limitations of the study

Our study was conducted before the UK's heatwaves in June to August 2022,[42] a prolonged period of extreme heat that may have brought climate change and its health risks closer to home.

Conducted during the COVID-19 pandemic, study recruitment was restricted to community groups remaining open during lockdown and with capacity to circulate study details. The range of groups – which included groups with an environmental (e.g. neighbourhood forums, cycling groups) or health (e.g. young person's advisory groups) focus – may have skewed the participant profile to those more engaged in climate change and health. However, while like the general population,[43] most participants were concerned about climate change, their accounts suggest uncertainty about whether climate change is happening in the United Kingdom and whether it is affecting people's health. It could therefore be argued that these perceptions would be evident, and possibly to a greater extent, in the wider population. While participants spanned a wide age range (15–80 years), there was a higher proportion of older and male participants than in the general population. However, the themes were informed by the full range of interviews, including younger and female participants.

COVID-19 and its associated restrictions on people's lives required a shift from in-person focus groups to individual online and telephone interviews. While the dynamics of focus groups can generate jointly produced accounts and discourses,[44,45] one-to-one interviews may have enabled a wider range of individual views to be expressed. Nonetheless, the thematic analysis pointed to consistency of perspectives and opinions across the study participants. Most UK adults (95%) have online access, but digital exclusion is associated with multiple social and health disadvantages.[46,47] We offered telephone interviews to enable participation by those without internet access or who were not comfortable with online interviews.

Conclusions

In democratic societies, policies require public support. An understanding of people's perceptions of climate change is therefore integral to ethical and effective policy-making. Connecting climate change to health is seen as a way to bring climate change closer to people's lives,[11,14,15] particularly in countries currently less exposed to climate change. While quantitative surveys point to the potential for such a framing, qualitative studies paint a more nuanced picture. Our study in England adds to this small qualitative evidence base.

Participants mainly understood climate change in terms of extreme weather events beyond the United Kingdom, which were sudden, widespread and devastating in their impacts. Perceived in this way, they located climate change as a process from which they were spatially and temporally distant and with limited health implications for the United Kingdom. In this context, alternative framings of climate change may have greater personal resonance. Climate change's impacts on the natural environment and future generations were ones that participants spontaneously discussed and in ways that suggested these impacts were more meaningful to them. A 'coupling' of climate change with environmental change and children's futures is supported by evidence: damage to the Earth's natural systems is undermining human and planetary health[48,49] and lifetime exposure to climate extremes will increase across birth cohorts at both global and country levels.[10] Our findings suggest that in countries less exposed to the health impacts of climate change, such 'couplings' may speak more directly to people's concerns and values. We recommend that future UK studies explore health alongside other framings of climate change to inform public messaging and public health policies to protect people and the planet.

Author statements

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Ethical approval

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Competing interests

None declared

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.puhe.2023.03.020.

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