Talking about Climate Change Mitigation: People's Views on Different Levels of Action

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Abstract: Previous research has examined public views on climate change and pro-environmental behavior; however, there has been little focus on in-depth qualitative examination of views on mitigation strategies carried out by different social actors. This paper examines how people discuss strategies to mitigate climate change and the relative responsibilities of individuals, the UK government, and corporations. Twenty people were interviewed about what they thought should be done to reduce the degree of climate change. Three main themes in their responses are identified: (1) representations of climate change; (2) responsibility for action; and (3) opposing environmental and economic interests. Overall, there was support for a variety of climate change mitigation strategies. There was some emphasis on individual behavior change combined with suggestions about greater information provision and the importance of personal choice. Although some participants criticized economic and profit-oriented structures, there was a strong sense among participants that change in this regard was unlikely. An expansion of examples of alternative strategies to address climate change could contribute towards transcending individualized approaches and accentuate perceptions of possibilities for significant social change.

Keywords: climate change; mitigation strategies; public perception; responsibility; individualization

1. Introduction

Largely because of greenhouse gas emissions from human activities, climate change is affecting environmental and social systems [1]. Faced with impacts, such as sea level rise and destruction of eco-systems [1], occurring across the globe and extending into the future, the issue of how to respond appropriately to climate change remains unclear. In this paper, we address lay people's views on what mitigation strategies -if any- should be adopted.

Previous research has examined in detail public views on climate change, showing some beliefs that result in the downplaying of the importance of mitigating climate change. These include, for example, suggestions that many people in North America and Europe think of climate change risks as both uncertain and as distant in the future and in geographical location [2]. There has, moreover, also been evidence that simply addressing an "information-deficit" is unlikely to be sufficient; rather, multiple communication and social influence approaches (such as tailoring information to make it personally relevant, reaching influential members in social networks, making use of social norm information, structuring incentives appropriately, appealing to existing beliefs, values and cultural context) [2–5] are necessary to engage people in climate change mitigation. Bickerstaff, Simmons and Pidgeon [6] highlighted that constructions of who is responsible for taking action and who is seen to have the competence to act in response to different societal risks are also important factors. In the case of climate change these authors found that participants drew on discourses of empowered individuals in the form of active citizens and active consumers, who were seen to be able to effect environmental improvements. However, there was also the view that the contribution of personal action was

limited due to the diffusion of effects through the inaction of other individual and institutional actors. The authors suggested that the government was seen to have more knowledge and power than individuals to implement meaningful action on climate change. Given that mitigating climate change will require action from diverse individual and institutional actors, and given that views on personal responsibility are influenced by what other actors are seen to be responsible for, we examined in detail the views of members of the public on the role and relationship of different actors (individual, government and corporations) in climate change mitigation. While there is extensive research on personal beliefs and attitudes in relation to individual "pro-environmental" behavior change [2,5], we know less about how people view the distribution of responsibility across different actors and society as a whole, i.e., on how views of multiple actors and the relation between them influences what people think should be done to mitigate climate change and by whom.

In studying views on societal response to climate change it is perhaps useful to draw on Cohen's [7] and Norgaard's [8] work on "implicatory denial". Implicatory denial, rather than involving the denial of anthropogenic climate change itself, or even the meaning of climate change, instead refers to people minimizing the moral and political implications that climate change entails; this could be seen as a means of creating distance to responsibility. Thereby, the question of knowledge of, or information on, climate change itself is no longer the focus of the issue, but rather the question becomes what action is to follow on from that knowledge. Therefore, in the present research the focus is on what people think should be done to reduce climate change. Further, rather than interpreting denial on the individual level, i.e., as a way for an individual to reduce individual responsibility, Norgaard [8] construes denial as occurring on a social level, as an emotional and psychological experience located in cultural and political-economic contexts. Instead of an information-deficit model, where the public is understood to fail to respond due to lack of information, the focus shifts towards a model of the social organization of denial: "in which the public on a collective level actively resists available information" (p. 12). For this research, this conceptualization of denial is relevant because we investigate how members of the public allocate responsibility for climate change mitigation across different actors in society and how these relate to one another. Thereby, participants are required to place responsibility somewhere, but can refer to societal context, constraints, and institutional actors.

Individual behavior changes include those that call on people to reduce their emissions, mostly through changes in lifestyle, such as driving less or recycling more [9]. In contrast, structural-level changes could relate, for example, to changes in infrastructure such as transportation, or through regulation on emissions of polluting industries, or through cultural and economic shifts that lead to entirely different production and consumption practices [10]. Some approaches to reducing carbon emissions through individual behavior change have been criticized for locating the responsibility for emissions and "solutions" to mitigation at the individual level, while failing to address the political and economic structures which maintain high emissions and influence individual behavior [8,11–15]. Although individualization of climate change mitigation has been examined in theoretical terms, there are few studies that combine such an examination with an analysis of qualitative data to explore how people discuss mitigation in practice.

The focus on individual responsibility found in today's climate change mitigation strategies can be contextualized as arising from a certain neoliberal conceptualization of the individual [12,16]. Harvey [16] suggested that neoliberalism has: "become hegemonic as a mode of discourse, and has pervasive effects on ways of thought and political-economic practices to the point where it has become incorporated into the common-sense way we interpret, live in and understand the world" (p. 145). It is important to make explicit the conceptualization of the individual that underlies this approach, as it influences the understanding and interpretation of people's behavior. Research participants referring to the importance of economic structures in influencing climate change mitigation could be treated as exemplifying denial of personal responsibility and/or displaying dissonance processes [17]; however, that point can also be treated more at face value as a relevant criticism of the economic system, a perspective that needs to be taken seriously.

Modern corporations' influence on social and economic processes has grown under globalization, neo-liberalism and industrialization. Banerjee [18] has suggested that, although sometimes presented as a fundamental economic change, corporate language addressing sustainability supports the "greener" version of business-as-usual. Nyberg and Wright [19] studied discursive strategies employed by companies' sustainability managers and outlined how general "green" marketing of the company through affiliations with NGOs and environmental groups was often treated as creating a positive public image that would lead to enhanced sales and profits. Due to corporations' significant influence on climate change and environmental narratives, we examined how participants viewed the role of corporations in climate change mitigation. Stoddart, Tindall and Greenfield [20] explored environmental group members' views on responsibility for addressing climate change, suggestions for mitigation, and the relationship between different actors. They found that the top four responsibility attributions related to government leadership (76.3%), individuals (39.4%), "everyone" (28.4%) and corporations (21.6%). Government was seen as responsible because they have the power to legislate (such as obliging corporations to act more sustainably) and to enable or mandate individual behavior change. Participants also indicated that individuals play an important role in putting pressure on governments to act and voiced widespread skepticism concerning corporations' willingness to safeguard the environment. However, there is little other qualitative research examining lay people's views on climate change mitigation strategies (see also Bickerstaff, Simmons and Pidgeon [6], Norgaard [8], Capstick [21]). Therefore, the present study sought to contribute to this issue. The use of qualitative interviews for studying beliefs about different actors' responsibility for climate change mitigation supplements previous research by revealing in more depth the arguments, the thought processes and the negotiation that people engage in when conceptualizing climate change mitigation and responsibility in relation to the societal context.

2. Materials and Methods

2.1. Participants

Twenty participants (14 females; 6 males) were recruited via a University's Psychology participant database and online study participation system. Eighteen participants were undergraduate students; two were local residents. Ages ranged from 18 to 37 years (*M* = 22.45, *SD* = 5.16). In recompense, participants were each paid £5.00.

2.2. Data Generation

Semi-structured interviews with seven open-ended exploratory questions were conducted flexibly with additions, omissions, or adaptations according to the responses obtained. Following the initial question about what participants thought should be done to reduce climate change, additional questions concerned, for example, participants' views on their role in reducing the degree of climate change, as well as that of other people, and of government and corporations. Interviews lasted between 10 and 30 min. All interviews were audio-recorded and transcribed.

2.3. Procedure

Interviews were conducted individually in a University library study room. Participants were informed what the interviews involved and told they could withdraw at any point. At the end of the interview, participants were thanked, paid and debriefed. This study had ethical approval from the School of Psychology Ethics Research Board at the University of Sussex.

2.4. Analytic Procedure

We used a constructionist approach to thematic analysis to explore how views, realities and meanings result from a range of discourses existing within society [22]. The study does not intend

to make any generalizable claims about climate change beliefs, or to test any hypotheses; instead it examined what these particular participants said should be done to reduce the degree of climate change.

A theme captures something crucial in relation to the research question and ideally appears several times across the interviews [22]. Transcripts were coded with preliminary summaries, comments, and interpretations, noting language use, implicit assumptions, frequent topics, and counterviews. Passages were extracted and collated with similar statements and categorized into themes in NVivo. Relevant passages were then extracted from all interviews according to the new list of themes. Particularly compelling extracts were chosen for illustration of a theme in the presented results.

3. Results

Three main themes are presented in italics; subthemes within these are indicated in bold type and identified by roman numerals. Ellipses indicate where passages have been omitted; brackets explain what the participant is referring to or indicate non-speech utterances. Hesitations, "ums" and "errs" and repetitions have been removed. Participants' names are anonymized.

3.1. Theme 1: Representations of Climate Change: Uncertainty about Its Reality and Severity

Discussion regarding what should be done about climate change inevitably touches upon people's opinions of whether climate change is happening or not and to what extent it is caused by human activity. Some participants moved directly into suggestions for addressing climate change, but others delved into questions about the reality and severity of climate change. These contributions highlight the importance of people's understanding of climate change; the extent to which it constitutes a problem, identification of its causes, and views on how to address it.

i. Climate change as cyclical and natural. One common way in which some participants doubted the anthropogenic nature of climate change was by pointing towards the idea that climate has always changed, and that climate change is natural and cyclical.

> If you are talking about climate change as if in, the weather changing . . . I don't know if there is enough evidence to say that it is changing dramatically, 'cos there has been huge changes in our climate in the past which haven't had anything to do with what we are doing, like the ice ages and things like that and they weren't influenced by human activity, they were just natural occurrences. (Bea)

Following a similar line of argument, another participant addressed the extent to which humans have an impact on climate change. His line of reasoning combined the idea that climate change occurs naturally, with the acceptance that humans have some impact (albeit to an uncertain extent).

> Well the thing is, I don't really believe, I do actually, but I just don't believe in climate change that much. As in, I know it's happening, but I'm not a 100% sure it is human people . . . the human race is responsible for the entire climate change . . . It's hard because I do believe in climate change, I do believe we are a cause of it, but I'm also not sure how bad of a cause we are. (Ryan)

While one prominent dimension of skepticism is the idea of natural climate variability and cyclicity [23], this notion was sometimes accompanied by a more abstract idea about general cyclical patterns of damage and repair. It is a conceptualization that presents climate change as inevitable and normal.

> Climate change is sort of inevitable but I think we can slow down the effects of it . . . obviously I am not a scientist . . . but from what I can gather . . . the earth kind of has this sort of cyclical thing, you know, where you have an ice age or whatever and then it kind of like evolves . . . it kind of like goes around in cycles like that . . . people destroy themselves and then they build themselves up again . . . It's tricky because I don't know if . . . climate change has to

> happen, if the world has to kind of stop and then start again, I don't know if that is kind of how ... it is meant to work ... but obviously if we carry on doing what we are doing then it's going to stop a lot sooner. (Jasmine)

This line of reasoning downplays the importance of climate change by suggesting that there is a larger pattern in the world in which some changes are "meant to be".

ii. Climate change as a future problem. Rather than questioning whether climate change is occurring or anthropogenic, some participants did not experience it as urgent, because they saw it as a future problem.

> Probably better to do something about it now before it gets too late ... I don't think, like, it is a huge problem now, but it will be in hundreds of years' time, so it is better to get on top of it early. (Alexander)

Such statements reflect agreement with the need for action, but refer to climate change as a future threat, consequently downgrading the urgency to act. This might be interpreted as implicatory denial [8], since it is not climate change itself that is challenged, but rather the need for immediate action.

> For us it is not really a problem, because obviously we are going to be dead before the, like, the earth actually feels the real ramifications of what we are actually doing, but I mean in like one hundred or two hundred years there will be so many, like London will be under water. (Martin)

These responses highlight controversies about both the anthropogenic nature and level of urgency of climate change. Such themes have been noted in previous research [24,25] and highlight that skepticism and uncertainty are still prevalent and relevant (even after years of information campaigns), demonstrating the context in which approaches to addressing climate change are framed.

iii. Lack of personal experience. Urgency was also put into question by people's perceptions that climate change does not affect them yet. The idea that it would require a catastrophe, such as a natural disaster, for people to feel affected, wake up and change, was mentioned by several participants. This reflects the representation of climate change as a distant phenomenon both in terms of time (future) and space (other places).

> It doesn't seem like the majority of people are prepared to do anything ... I guess they don't believe any change will really happen in their lifetime, they will never see any change ... until there is a major catastrophe and people do really feel like it can affect them, they probably won't do anything. (Laurence)

> If something's not affecting your life directly, you're not going to change it because climate change isn't affecting me directly ... I mean there's nothing bad happening to me because of climate change. Whereas, if there was then I'll definitely change my lifestyle. (Ryan)

> Obviously no one wants a natural disaster, but if that's what is going to happen because of climate change, then I think that is the only thing that is going to ... open people's eyes to actually the fact that they need to change things. (Jasmine)

> Maybe it needs some kind of natural catastrophe or social, really big social upheaval for there to be a shift in the way that people see things. (Gwendolyn)

These responses are in line with previously identified reactions to climate change, such as the perceived distance and lack of immediate personal relevance [2,25]. It is noteworthy however, that the UK had at the time of the interviews, recently experienced severe flooding, which one participant referred to (see Izzy, below). This suggests that to some extent participants could have interpreted

the country they live in to be subject to extreme climate events [26]. Going beyond previous research, the recent occurrence of extreme floods and participants' sustained suggestions that climate change is distant, raises the additional question of which impacts, which degree of severity and what kind of interpretation of climate events is required for climate change to be perceived as close and relevant. Norgaard [8] suggests that the perception of distance of climate change is socially constructed and future research could examine how climate events are socially interpreted and how this might influence perceived responsibility.

3.2. Theme 2: Responsibility for Action

In responding to the question, "What do you think should be done to reduce the degree of climate change, if anything?", and in follow up questions, participants were prompted to discuss individual, governmental and corporate levels of action to mitigate climate change.

i. Individual level. Particularly noticeable at the individual level were suggestions about specific actions, e.g., more recycling.

There is a lot of things that could be done, making the planet more sustainable, like eventually we will run out of resources, so we need to recycle or reuse a lot more. (Bea)

Other suggestions related to changes in transport behavior such as driving less, car sharing, cycling, and using more public transport.

Probably encourage people to drive their cars less . . . Cycle more, and it's healthy lifestyle as well, isn't it, as well as reducing climate change. (Alexander)

Some participants who were not convinced of the reality of climate change were nevertheless supportive of these actions because they saw them as good for saving resources, reducing pollution, and improving health.

Underlying suggestions for individual behavior change was the sense that "little" changes add up to make a bigger difference and are therefore worthwhile.

I suppose small things . . . recycling, and maybe cycling instead of using a car, things like that. Which all kind of adds up, to reduce your carbon footprint. (Danielle)

Similarly, one participant suggested that there would only be some sort of impact from individual actions if several people started to engage.

I think when it comes to individual actions, if I just do it on my own then obviously that's not enough, but then if people . . . each one changes a little bit, it certainly will have some sort of impact, especially the ones like us who live in the West. (Izzy)

These perspectives highlight that there is in fact willingness and predisposition to act and the belief that acting is worthwhile because it does have an impact. However, one impediment to this approach was the idea that not enough people would take part.

In order for something to actually change probably everyone would have to put their mind to it, so we are being a bit unrealistic in thinking we can change something. (Kate)

Helplessness regarding the individual level of action approach arose at the point of considering the need for actions to occur on a collective scale. Thus, policies and campaigns which convene public willingness to act on climate change mitigation into a socially concerted effort would likely be welcomed by the public, including but not limited to structural and infrastructural changes.

Another reason for inaction on climate change concerned the notion that people did not care enough.

Making the changes in your life has to be an active choice, so you actually have to care about the issue quite a lot to actually carry out those actions. (Izzy)

> People just, I am sorry, but they don't give a shit about the future. They just don't think to what extent we are ruining everything and how fast it is going, because they have their laptops, they have their little bubble. (Elena)

Communicating the immediacy and existing impacts of climate change (as mentioned above) might again be one way of reaching people who do not appear to care at the moment. Additionally, inertia was suggested due to the convenience and benefits of what was considered the more environmentally-damaging action.

> Ideally I wouldn't fly anywhere, but, you know, fact is, holidays are nice and it is the easiest, cheapest way of getting to places, which I think probably is part of the root of the problem. (Jasmine)

Both the currently inconvenient infrastructure and the purported lack of caring by some citizens, could partially be addressed through infrastructure changes.

ii. Governmental level. The UK government was largely viewed as having an important role in addressing climate change, since it has more power to act than individuals [6].

> I think it's the role of government to make the big changes, not just the personal changes, they're the ones that should be enacting stricter regulations on things. (Martin)

Some participants also viewed the government's role as that of enabling individual behavior change, such as creating adequate infrastructure.

> Maybe kind of encouraging people to . . . take public transport more, maybe improving the public transport networks. (Jasmine)

It was advocated that government should raise awareness through providing more information, campaigns, and education, so that people act more "pro-environmentally" [27].

> (Government) should be giving a lot more information about (climate change) to people. And making it easier for people to do their bit, like recycling and stuff. (Bea)

Several participants were in favor of increased government regulation and taxation of corporations.

> Taxing energy companies to the hilt . . . hitting them where it really hurts, I can't see any other way around it. I mean you can always make laws banning that, but laws can be circumnavigated as well quite easily. (Laurence)

The government was also viewed as responsible for investing in renewable energy, but participants were critical about the influence of companies and the profit motive (see below).

iii. Corporate and business level. Corporations and businesses were perceived as shouldering a lot of responsibility, because they emit a lot of pollution and waste, and because they have considerable power.

> I think (businesses) probably, if we want to have real change it probably should start there. Because business leaders and, you know, that kind of thing they have the actual . . . power, and they have the influence to kind of change things. (Jasmine)

The suggestions put forward regarding corporations ranged from more abstract normative suggestions, such as being less greedy, to stating that corporations ought to somehow cut emissions. Many participants proposed that corporations and industry could use more renewable energy, attributing a larger potential impact to these actors than to individual behavior change, due to their scale.

> (Corporations) are the main energy users I guess, because of all the factories and stuff, so I guess they need to look at newer ways of getting energy that . . . are more environmentally friendly and they need to use it more than us, because they are using more energy than us. (Tina)

Corporations and business leaders were sometimes seen to engage in green-washing and not likely to change unless externally-regulated.

> It is kind of ridiculous, because a lot of businesses are doing this like green-washing thing. So business can say look we are doing loads, but actually it is a façade of doing. (Gwendolyn)

> I don't expect anything from big businesses. They are just going to do what they want to do unless somebody stops them. (Henry)

Additionally, corporations were also seen to need to lead, to research and innovate, and to produce efficient technologies to enable the public to be more environmentally-friendly.

> They could be coming up with new ideas as to how we can combat climate change and making it easier for people. (Bea)

The need for regulation of corporations was repeatedly suggested, although some participants also saw corporations as the leaders for change. In either case they were perceived to be large-scale actors with significant potential impact. In public debates about climate change mitigation the role of large-scale actors (beyond individual behavior change) is often neglected [12–15]. Including corporations and institutional actors into the discussion and implementation of large-scale emission reductions could be an impactful way of broadening strategies for mitigation and addressing the public's concern of placing responsibility and action with various actors, especially with those who have the power and where change is seen to be most effective.

iv. Relationship between levels. In discussing different levels of responsibility and possibilities for action, participants raised issues that touched on the relationship and interaction between levels. Governments and corporations, for example, were often described as possessing more power and resources (than individuals) to bring about larger changes.

> It is easier for governments to make a bigger change, because they have far more power than an individual person, so it would be relatively simple to get them to kind of cut down on emissions and . . . other stuff that helps stop climate change. (Danielle)

However, individuals were also seen to have a normative responsibility to act.

> Yeah, because we all have a, like, responsibility to, like, sustain the world, like, we came into it and it was fine and now I think we should, like, we should be people who are looking after it. (Tina)

Members of the public were perceived as influential on government and corporations through their voting and consumer choices.

> (Government) have budget restraints and they may prioritise . . . something that may appeal to voters more . . . if climate change is not a huge issue in the mind of the voters, they wouldn't really care if the government does anything or not. (Izzy)

> Not using planes and buses so much, and just cycling, and things like that . . . if lots of the population are changing the way they act, then it might get the . . . business leaders to think "oh, ok, well people are actually serious about this, maybe we should get on board too". So maybe, kind of like mass mobilisation or something like that, I am not really sure how that would be achieved. (Jasmine)

Notably, the above two quotes suggest that the onus for action again was on individuals to influence government and corporations to change, indicating that the public does attribute significant responsibility to the personal level. Strategies that can engage the public beyond the conceptualization of being merely individual consumers [12–15] could help diversify and broaden mitigation engagement. Examples include the transition town movement, car sharing initiatives, but also political protest and activism, which aim at changing structural barriers to climate change mitigation. Some participants pointed towards protest as a means towards more structural change. They highlighted the potential effectiveness people could have by organizing together.

> I think we don't realise our real potential until we speak up . . . In the sense of pushing a bit more, the government, in that kind of issues . . . people as a whole, as a group, to push these organisations (NGOs), that they have a bigger role and then push the government and the news channels, internet. (Elena)

Another participant proposed the need for protests that went to the heart of the manufacturing process. His clear invocation of environmental destruction as violent was unique among these participants.

> Active things . . . maybe things that would really cause some change . . . protest, that would let the company owners or the people in the government really think about doing change. That kind of protest can sometimes be seen as violent, but not as violent as they are, actually, they are violent . . . Going to, like, disrupt the actual manufacturing of those products . . . Yeah, so that they (government) legislate some laws against manufacturing things that will cause damage to the environment, so through targeting the government through some kind of protest action. (Henry)

The following participant highlighted that social movements have been effective in pressuring government.

> (Nuclear power in Germany) has been banned now . . . this started in the 80 s with the Green Party . . . so obviously this discussion from social movement and stuff helped to bring social change on a broad and national level. (Quinn)

Some participants discussed structural factors that make fundamental change more difficult and less likely, such as those in power having vested interests in fossil fuels.

> The people who have the power to stop it (climate change) are the people who have the least a benefit from changing and the most benefit from keeping it the same. (Martin)

> (Corporations) have, as the government, a huge role but they are just not interested by it, because it is not in their interest to spend. Of course BP wouldn't like to fund renewable energies, if that would mean they would have less money for their oil. (Elena)

Another structural issue that was mentioned related to the interconnectedness between corporations and governments and their priorities being profit and growth.

> I think the whole lobbying thing . . . how politics is influenced so heavily by corporations . . . needs to like be removed, because obviously it's having such a negative effect. (Martin)

> Governments could do a hell of a lot more . . . they are geared towards making trade deals and profits and it is all about the economy, to the expense of the environment . . . more investment needs to be put into renewable energy and stuff but governments . . . are so beholden to oil companies and to energy companies and they need to not be. (Laurence)

Social movements were discussed as one collective way of pressuring government and corporations to act on the responsibility to reduce emissions, which many members of the public

attribute to them. Perceived structural level barriers included the vested profit interests that both government and corporations were perceived to be driven by, which could influence the public's willingness to engage.

v. Information and choice. One suggestion was the need for increased awareness through the provision of more information and education. It was sometimes assumed that better information would lead people to make better decisions (for a critique of this approach see Maniates [13]). This notion was related to the imperative of autonomy and choice concerning individual behavior change. Several participants emphasized that any changes needed to occur on a voluntary basis.

> Everyone can do their own bit, you can't really force people to take part, it has to be people's own decision, whether they want to help. If people know the facts then people can make the decisions for themselves, what they want to do . . . I think people need to be more informed, if people know what all the information is, they can make better decisions. (Bea)

Some participants argued for more education and new approaches to revive interest in the topic.

> Maybe start educating people more? Although this is hard because at school we've all, it is just so repetitive, schools always hear the same thing, like, recycle otherwise you will pollute the planet, but maybe look at it from a new angle . . . even I get bored of it, like, when I am told to do this, do that. (Kate)

> I think people need to be more aware of the problem and aware of how to help towards the problem. (Tina)

The media was also seen to play an important role in increasing people's awareness. One participant particularly criticized the media for its lack of urgency on climate change and for diverting people's attention to other topics.

> We don't see how the South Pole is melting and how we don't have glaciers anymore, but we see how many people have been killed in Afghanistan or this terrorist attack, so it is just a matter of advertising as well, and the news as well, they play a huge role in this. (Elena)

3.3. Theme 3: Opposing Environmental and Economic Interests

A tension was noted between the role of the economy (such as economic growth and companies' profit motive) and climate change mitigation. Some extracts reflect the extent to which economic practices are taken for granted, how ingrained certain economic discourses are and how economic and environmental interests have been constructed as mutually exclusive.

i. Economic effects of climate change mitigation and adaptation. There was a discourse in which the economy and climate change mitigation were seen as conflicting because of perceived economic disadvantages of mitigation (cf. Diamond [28]). For example, one participant noted a tension between continued economic growth and addressing climate change:

> If the USA was going to try and do something about climate change it would have to cut down its production and emissions . . . and that would just be bad for the economy and I suppose because it wouldn't see the benefits straight away, it's just kind of thinking, "ah never mind, that's for future generations to deal with" . . . But then poorer countries are feeling the effects of climate change, but they can't do much about it, because they are not putting emissions out as much as . . . bigger powers. (Danielle)

The above quote highlights that approaches to mitigation which are not constructed on the individual behavior change level, such as reducing production, run into structural level barriers because production is required for economic growth and economic growth is considered to be positive for society. The present findings show that participants were aware of these structural constraints and

demonstrate how they navigated the different economic and environmental interests. If people believe it to be unlikely or undesirable for production levels to reduce, this might influence their views on the possibilities for and extent of societal commitment to emissions reduction, as well as their own willingness or perceived efficacy to reduce emissions.

Another participant highlighted the economic impact of the consequences of climate change, such as extreme weather events.

> It affects people differently, it can make one country's climate hotter, to the extent that it changes what you can grow, like your crops and that can affect your economy and in the other country it can cause . . . floods that we had in England that just broke out . . . I am pretty sure the economy took quite a big toll in that. (Izzy)

ii. Prioritising the economy over the environment. It was sometimes suggested that climate change was not a priority because people had more pressing issues in their lives, such as the economy, getting a job and earning money.

> That is not (people's) priority considering how many problems there are nowadays, like the economy . . . they wouldn't be like "oh yeah, I will vote for him, 'cos he wants the environment to be protected" (laughs) . . . because they are so preoccupied by . . . more important things in their lifetime, they don't really care about what is going to happen in two hundred years, because they don't recycle or whatever. And it is fair enough, like if someone is in need of money they are not going to think "ooh, let's recycle that would be better than getting a job", like . . . too much on people's minds. (Kate)

One assumption here seemed to be that economic and environmental interests are opposing and mutually exclusive. The statement indicates that the perceived opposition between the economy and the environment exists both on a personal level (get a job or recycle) and in relation to a more structural level (vote for the environment or the economy).

iii. The profit motive. Several participants discussed that corporations' profit motive clashed with environmental interests and climate change mitigation. A failure to regulate corporations and industry appropriately due to corporate and government collusion was also mentioned.

> Business interests . . . quite often they clash with . . . environmental interests. It is quite rare . . . to . . . find someone who is making money but also wants to save the planet . . . If we want to have real change it probably should start (with businesses) . . . It is probably not that profitable, it is not necessarily in their interest, because they probably don't get that much from it apart from, you know, saving the planet. (Jasmine)

The above quote in particular highlights that the social norm which people experience is that business interests and the way in which these large-scale actors operate in society is that "saving the planet" is given less importance than making money.

> I suppose corporations again are all about the profit and just like the wheels of industry and chucking out all their products, so they are not going to be bothered about climate change at all. (Danielle)

Some participants contrasted how things currently are to how things ought to be (profit motive versus revised priorities).

> Obviously (corporations) tend to focus heavily on things like profit and that's their priority as opposed to what are we doing to the environment. So I think they need to, like, change their priorities slightly. (Phoebe)

> (Corporations) should definitely be investing in ways to make themselves greener. The only thing is, corporations would then lose a lot of money so I understand why they don't, it's logical. But they should be. (Ryan)

Notably, corporations making money was considered to be more "logical" than was them prioritizing being "greener". Other participants noted that change in this regard seemed unrealistic.

So there is different levels, there's like, what ideologically, like, should they do and there is what can (corporations) reasonably do. (Gwendolyn)

(Significantly reducing emissions) would take a big effort, I mean realistically, I don't think it could happen so that it would reduce (climate change) a lot, but theoretically I think it could. (Alexander)

If the profit motive is normalized and taken for granted at the expense of the environment, then which options does it leave for members of the public to respond effectively and what message does it convey to them? Policy makers and campaigns need to take into account that many social messages which people are exposed to daily convey the impression that bigger institutional actors prioritize profit over the environment. On the societal level the profit motive appears to dominate over the motive to mitigate climate change and several participants indicated that change in this regard seemed unrealistic and unlikely. If powerful societal actors, such as corporations, are not perceived to take an interest in and assume responsibility for reducing emissions, then this could also influence engagement of members of the public, their own perceived efficacy and perception of what is normal (not to prioritize climate change mitigation). That is, rather than treating this kind of public discourse as denial of personal responsibility [17], it is noteworthy that participants attributed responsibility to individual members of the general public and to government and corporations, but that the latter were seen to have other priorities.

iv. Win-win solutions. A commonly-proposed approach to solve the conflict between the profit motive and climate change mitigation was a "win-win" scenario in which profits could continue to be made in a sustainable way. For example, some participants suggested scenarios in which corporations needed to be incentivized to reduce emissions and become more "sustainable", while still able to make a profit.

Maybe more focus on (renewable energy) would be good . . . then maybe it wouldn't make a difference to the big corporations. They could easily, cheaply, use that energy which is good for them, for their profits, and also for the environment, so everyone wins. (Danielle)

Like government, (corporations) should lead and inspire, but their bottom line is the profit . . . at the end of the day, they have a legal duty to make a profit for their shareholders and they will do that the cheapest way possible, which is unfortunately usually the most environmentally unfriendly way possible, so . . . they need incentives as well . . . so that they can make a profit but still convert to more, greener, way of life. (Laurence)

(Corporations) should think about the waste management and their energy efficiency . . . because it is very difficult, they have to have some incentive to do that . . . They are like seeking profits so they should have incentives . . . otherwise it is very difficult to say that they have to do something. (Sophia)

Rather than looking critically at the profit motive, the win-win approach seeks a solution to address environmental issues while maintaining the economic system status quo.

v. Counterviews to the win-win solution. In contrast to taking the profit motive for granted, the following participant advocated an alternative type of economic system.

I think that our impact can only be reduced if there is a global change in what kind of system we use for economics, 'cos at the moment we are using a growth-based economy which is based on inflation. And 'cos there's only a finite amount of resources on this earth . . .

what we have to do is change from this kind of growth-based economy to a more flat rate economy, so we are not trying to increase production all the time, we are trying to level it out, and in some areas reduce it. (Martin)

Another participant, also pointed to the longer-term rationality of a pro-environmental stance.

I think (governments around the world) should all . . . be a bit less ignorant and greedy and stop focusing things into short-term gains . . . it doesn't seem logical to, trade in part of an eco-system for money, it just doesn't seem like a long-term gain . . . It just doesn't seem logical to me to chop down trees for money to then have no eco-system for something else. (Oliver)

The discussion and promotion of wider-ranging individual and systemic level changes (which interact with each other) could support the imagination and implementation of alternative mitigation approaches.

4. Discussion

Some participants were not convinced that climate change was anthropogenic or that it posed an immediate global threat [25,29]. Furthermore, cyclical climate patterns were used to suggest a higher natural order in which cycles of destruction and repair were normal. These findings support previous research [2,25] and add that uncertainty and skepticism persist after decades of information campaigns about climate change. Further, several participants suggested that people might only change their behavior to reduce emissions if they could actually feel the effects of climate change. This point is noteworthy given that in the weeks prior to the interviews the UK had experienced severe winter floods [26], raising further questions over what degree, which effects and which interpretation of extreme climate events are necessary for people to feel that the effects are close and immediate. Norgaard [8] suggested that perceived distance to climate change is not inherently given in the phenomenon but is socially constructed. How climate change is framed and especially how local weather events are presented and interpreted could be important factors in communication about climate change. Future research could extend existing work investigating the role of news coverage of local weather events [30,31]. Increasingly connecting global and local issues and linking local weather events to climate change (where the evidence permits it) could be crucial to highlight the ways in which climate change is already spatially and chronologically close, in addition to emphasizing international responsibility for mitigation.

Several participants advocated individual behavior change and here participants had the most specific suggestions for action. It is noteworthy that participants focused on actions such as recycling, but rarely mentioned, for example, the need to reduce consumption and production levels. The widespread attention to this individual action approach is in line with those who have suggested that individualized pro-environmental behavior change campaigns could be problematic, as they fail to emphasize large-scale systemic approaches to climate change mitigation [12–15]. For example, Norgaard [8] argued that: "Americans are so immersed in the ideology of individualism that they lack the imagination or knowledge of alternative political means of response" (p. 192). Promoting alternative political responses beyond the individual level actions of, for example recycling, could also be worthwhile in the UK.

Previous work has highlighted the focus on individualized approaches to mitigation in behavior change campaigns [11–15]. The present findings support the notion that the narrative of individual responsibility has to some extent been internalized, standing in contrast to the narrative that people do not accept responsibility [17], or do not believe in the necessity to act. What these findings indicate and add, is that people do show willingness to act and attribute responsibility to individuals, but that they lack adequate strategies to respond effectively. Recycling is clearly not "enough" to mitigate climate change, and the mismatch between the scale of the issue of climate change and the level of response sought in standalone individual behavior change strategies (such as recycling) is now acknowledged from many perspectives [32,33]. Further, participants in the present research highlighted the need for

more action on behalf of the government to enable individual change, such as addressing infrastructure for transportation. What this suggests is that campaigns and policies aimed at engaging the public with climate change mitigation could consider ways of promoting mitigation beyond the individual level and addressing infrastructure such as transportation and energy supply. This is not to say that individual level responsibility and action is not important, but rather that an effective response to climate change requires more than this conceptualization of mitigation to include structural and societal level changes [32], which will also impact on the possibilities that members of the public perceive to be achievable.

Beyond that, suggestions for government action involved changing legislation and regulating corporations. Many participants agreed that government should play a crucial role in addressing climate change [6,20] because of its greater influence and impact. However, several participants also indicated that, although government ought to regulate corporations, this was unlikely because of government's entwinement with corporations and economic motives [12]. Contrary to previous research which has suggested the denial of personal responsibility [17,34], the participants in the present research did attribute responsibility to members of the public, as well as the government and corporations. However, participants perceived corporations and the government to pursue predominantly profit and economic growth motives at the expense of environmental interests. If the perceived social norm of large-scale institutional actors with significant power is for them to prioritize profit over climate change mitigation, this could have detrimental effects on people's views of societal commitment towards change and on beliefs of their own effectiveness to achieve change. Future research could examine the role of the dominance of profit and economic growth narratives on climate change mitigation and public engagement.

The importance of individual behavior change was often accompanied by a caveat of people having the right to "choose" to change and to "help". The discourse of helping is noteworthy for two reasons. Firstly, "helping" implies assisting someone or something else, as if the environment were detached from the participant and separate from human welfare more generally [35]. Secondly, the discourse of helping draws attention away from the harmful impact of current actions, as if the status quo were neutral in terms of impact upon others. Since dominant lifestyle choices in the global North are predicated upon detrimental social and environmental effects elsewhere [36], the line of argument that focused on individual choice suggests little awareness of "climate justice" [20]. The narrative of rights and choice prevalent in the West has previously been contrasted to notions of responsibility to take care of fellow humans and living beings [37]. Participants' emphasis on the voluntariness of reducing one's environmental impact might be reflective of a more general prevalence of choice narratives in Western societies. Maniates [13] succinctly analyzed how narratives of choice are sustained through the presentation of options in the marketplace, when ultimately it is an illusion of choice, because appropriate options (e.g., efficient public transport alternatives) are often unavailable.

Another theme in the interviews related to a conflict between environmental and economic values. Participants indicated a clash of interests between capitalist motives (corporations' mandate to make profits and a growth-oriented economy) and successfully tackling climate change [10,38]. The way in which participants framed economic and environmental interests resulted in a "false" dichotomy, in which they had to choose between the well-being of either the economy (often taken as an indicator of social well-being) or the environment. One way in which some participants attempted to resolve this conflict was to propose win-win scenarios, whereby profit motives and sustainability could be combined. Some participants criticized the prioritization of the economy over the environment, while others viewed it as understandable. There was little mention of any need for systemic change in economic production [10,39]. However, a few participants did indicate that they thought a larger-scale change was necessary, albeit unlikely. The importance of believing that alternatives *are* possible is highlighted by Maniates' [13] suggestion that ideas have power and that ideas are continually being separated as either realistic or idealistic. Similarly, Norgaard [37,40] emphasized the importance of imagining on a societal level how we might be able to effectively respond to climate change.

Notwithstanding the above reflections, we need to be very clear that our research involved a very small participant sample from a very specific population group. Our findings cannot therefore be generalized to any wider populations in the absence of further evidence. We should also emphasize that the nature of our research, with its focus on individuals' accounts, means that the influence of wider political and social ideologies, the socialization of belief systems and social-normative processes may largely remain part of the "unacknowledged conditions of action". Thus, any detailed examination of the diverse social-ideological processes that impact upon people's beliefs about, for example, the reality and nature of climate change, the relationship between economic growth and sustainability, the relationship of the *individual* to the *social*, and the effects of any one individual's pro-environmental actions may be notable by its absence in this research.

Moreover, we acknowledge that there are different forms of capitalism in the world today, differences in political ideologies across countries, as well as diverse socio-cultural and media landscapes, all contributing to a variety of beliefs, values and behaviors across contexts. The ways in which people understand and respond to climate change in our study is therefore somewhat specific to the social, political, and cultural context in the UK.

Nevertheless, our findings point to a level of complexity in people's beliefs and attitudes (in relation to climate change) that is rarely elicited in quantitative research in this area. For example, our interviews show that people who believe in anthropogenic climate change will vary in the extent to which they believe humans are and have been a causal factor; rather than ascribing responsibility in one place and absolving it in others, people seem to acknowledge that responsibility rests simultaneously on the shoulders of different social actors; some participants expressed views indicating a fundamental opposition between economic and environmental interests, while others expressed views that these interests were compatible. In addition, we do not doubt that in other contexts, participants may express different views than those offered in this piece of research; this would only serve to accentuate the highly nuanced views that were evident here.

Many of the views expressed by participants could be interpreted in terms of denial mechanisms, as we have indicated in our Introduction. However, the notion of denial may encompass a variety of processes. Some of these may reflect unconscious processes [41,42] or something akin to dissonance resolution mechanisms [43] but at other times there may be no conflict of cognitions (and hence, no dissonance), or dissonance may be resolved without the involvement of denial mechanisms. Moreover, we find it useful to interpret many beliefs and values (that people express) in terms of "motivated cognition" or more sociological processes that influence the factors that people deem to be relevant to the issue at hand, e.g., "the social organization of attention" [44]. In short, the complexity of participants' views on the mitigation of climate change is matched by the variety of explanatory frameworks within which those views can be interpreted.

We consequently see one implication of this small contribution to the body of research in this area as highlighting the need not to simplify and misrepresent people's often complex views on climate change mitigation, nor to constrain our interpretation of what they are saying in terms of single explanatory frameworks. An oversimplification of public views and their consequences would be likely, we fear, to result in an oversimplification of the strategies that need to be adopted to address climate change mitigation. Significant change is often difficult to achieve [4,45] and strategies for mitigating climate change should reflect this. Our participants often acknowledged the potential significant impact of economic and other structural influences on climate change mitigation [32], such that a greater emphasis on strategies to promote higher levels of intervention would appear warranted.

Overall, there was support in this study for a variety of climate change mitigation approaches. In public debates and campaigns, it may be important to discuss feasible alternatives to the current economic and governing systems to highlight alternative strategies to climate change mitigation beyond the attentional focus on individual choice and responsibility. Increased focus on climate justice is also required to expand notions of climate change mitigation beyond the expectation that it should merely be a matter of individual preferences. Further, debates encompassing the economy, and social

and environmental benefits need to be more widespread to counteract the narrative whereby they are constructed as separate and mutually exclusive. In pro-environmental climate change initiatives, it is important to emphasize the interdependence of humans and the environment and to challenge and expand existing strategies of climate change mitigation.

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