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Examining the role of Individuals with High Socioeconomic Status in addressing the issue of Climate Change.

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Abstract

This thesis presents two original research articles examining the role of individuals with high socioeconomic status in addressing the issue of climate change. Across both projects, I aimed to highlight the scope of opportunities that individuals with high SES could have toward climate mitigation and identify where they themselves feel capable of addressing climate change. In Project 1, I explored the perceptions that individuals with high SES held towards climate mitigation through an online qualitative survey (N = 81), directing questions toward their role to address climate change in both their personal *and* professional lives. In Project 2, I took a closer look at their role as a consumer by conducting a mixed-methods investigation into their willingness to support voluntary action and policy to shift their high-carbon behaviours (N = 511). In the final part of this thesis, I brought together the findings of each paper to reflect on the ways individuals with high SES can be encouraged to utilise their financial and social assets to be a part of the transition toward a lower-carbon future. Overall, this body of work suggests that individuals with high SES have not yet recognised their full potential to address climate change. Yet, by emphasising pathways to engage in climate mitigation, both as consumers and beyond (i.e., role-models, organisational participants, and citizens), high status individuals can enact transformative societal change. In turn, this could afford others with opportunities to address climate change and maximise wellbeing for all within planetary boundaries.

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Author's Declaration

"This thesis contains the work completed by Sophie Duncan at the School of Health and Wellbeing, University of Glasgow, under the supervision of Dr Esther K Papies, between October 2022 and December 2023. I hereby declare that except where stated, the work included in this thesis is my own, and no part has been submitted to any other university or degree."

Contributors Statement

Listed below are the contribution roles for each chapter of this thesis in accordance with the Contributor Roles Taxonomy (CRediT) format.

Key: SD: Sophie Duncan; EKP: Esther K. Papies; AH: Annika Hjelmskog

Chapter 1

SD: Conceptualisation, Writing – Original Draft, Writing – Review & Editing.
EKP: Conceptualisation, Writing – Review & Editing.

Chapter 2

SD: Conceptualisation, Methodology, Investigation, Resources, Formal Analysis, Data Curation, Writing – Original Draft, Writing – Review & Editing, Project Administration.
EKP: Conceptualisation, Methodology, Resources, Writing – Review & Editing, Supervision.
AH: Writing – Review & Editing, Supervision.

Chapter 3

SD: Conceptualisation, Methodology, Investigation, Resources, Formal Analysis, Data Curation, Writing – Original Draft, Writing – Review & Editing, Project Administration.
EKP: Conceptualisation, Methodology, Resources, Writing – Review & Editing, Supervision.
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Chapter 4

SD: Conceptualisation, Writing – Original Draft, Writing – Review & Editing.
EKP: Conceptualisation, Writing – Review & Editing.

Abbreviations:

SES	Socioeconomic Status
OSF	Open Science Framework
GHG	Green House Gas

1. Chapter 1: General Introduction

1.1 Introduction

Urgent and profound efforts are needed to address the issue of climate change for both present and future generations (Abbass et al., 2022). Human-caused climate change indeed presents a significant challenge to navigate and relies on the actions of those who contribute most to the causes of climate change to play a crucial role in lessening its effects. Based on the demographic differences between the highest and lowest emitters within society, this thesis draws in on the role that individuals with high socioeconomic status (SES) can have toward addressing the issue of climate change. In consideration of the high-carbon lifestyles and behaviours of individuals with high SES, research has recognised their disproportionate contributions to the climate crisis (Chancel, 2022). Yet, their position within society also helms important power to mitigate climate change through not only their role as a consumer, but also as organisational participants, role-models, and environmental citizens (Nielsen et al., 2021). Hence, the research presented in this thesis examines the position of individuals with high SES to respond to the demands of climate change to generate impactful and transformative change. I particularly aimed to shed a light on how personal perceptions of climate change may underlie both their inertia *and* potential to change their behaviour within this increasingly challenging space.

Studies on individual and household behaviours have consistently shown patterns of excessive greenhouse gas emissions among those with the highest incomes (Galvin & Sunnika-Blank, 2018; Oswald et al., 2021). Such patterns are mirrored across multiple behavioural domains, where those with greater wealth contribute significantly more to the use of fossil fuels within aviation (Gossling et al., 2019), land travel (Ivanova et al., 2018) and excessive consumption (e.g., purchasing larger homes and increased food waste; Wiedmann et al., 2020). Indeed, high-income nations, and individuals with high SES within them, have a crucial role to play in navigating disproportionate emission levels at a global scale. Therefore, focusing on those with high SES, especially within high-income nations such as the UK as is this current focus, is also a means to address the emerging social justice issues resulting from the climate crisis. As explored in this thesis, it is of value to consider those whose emissions result from the excessive levels of consumption that go beyond the bounds of fair and equal needs satisfaction for all.

1.2 Thesis Overview

Despite the growing recognition of the role that individuals with high SES have within climate mitigation, few studies have focused on how this group personally perceive and navigate their roles in addressing climate change. Hence, this thesis presents two papers examining the roles of individuals with high SES within this space. Each paper, containing an introduction, methods, results, and discussion section formulates original research to support the examination of such ideas. I end on a final chapter containing a brief conclusion to synthesise and reflect on our findings as a complete body of work. The structure is therefore as follows; Chapter 1: General Introduction, Chapter 2: Paper 1, Chapter 3: Paper 2 and Chapter 4: General Conclusion. Please note that both papers were written as separate journal article and may contain a degree of overlap in the content of Chapter 2 & 3.

To begin I present Paper 1, a study titled "*Examining Climate Change Perceptions among Individuals with High Socioeconomic Status in the UK*". Given the exploratory nature of our initial research aims, the first study obtained data from an online qualitative survey to gather a large range of experiences and perspectives. Using reflexive thematic analysis, we generated 5 main themes that offer a discussion on where individuals see their position to address climate change within society and the factors that influence their environmental decision-making. Within the presentation of findings, I discussed the ways in which individuals can be encouraged to look beyond their role as an everyday consumer and find scope to address climate change within both their personal *and* professional lives. I concluded with recommendations on how to bridge the gap between the individual and societal transformation, by emphasising where those with high SES may find opportunity to use their roles as organisational participants and decision-makers to be a part of the systems change that they themselves advocate within Paper 1 is needed to address climate change (e.g., their call to the government and decision-makers to implement changes and improve infrastructure to facilitate climate action).

In consideration of the findings in Paper 1, the focus narrowed toward the consumer role through the design of a second study titled: "*A low-carbon future? Individuals with high socioeconomic status in the UK show little willingness to change high-carbon lifestyles for climate change mitigation".* Results from the first study indicated that individuals with high SES see most potential to engage in climate mitigation from their position of a consumer. Therefore, I decided to draw attention to this specific

role by exploring the conditions under which individuals are most likely to shift their consumption-based behaviours, and the extent that perceptions of others' behaviour could be of influence. I employed a mixed-methods study design to examine high SES individuals' perceptions of policy and voluntary climate action to deliver decision-makers clear directions for actionable change. By adding open questions and analysing responses qualitatively, I was additionally able to reflect on our conclusions from Paper 1 that speculate on the extent that individuals will truly accept policy to limit their high-carbon lifestyles when the behavioural implications are made clear.

In presentation of both research papers, this thesis delivers insights into the role that individuals with high socioeconomic status have toward climate mitigation and the extent that they see personal opportunity and capability to put these roles into action. Importantly, this research aims to highlight a group of individuals within society that can address climate change on an impactful and transformative scale.

2. Chapter 2: Lack of Agency and Responsibility: Exploring perceptions of climate change action among people with high socioeconomic status in the UK.

This is a copy of the following preprint:

Duncan, S., Hjelmskog, A., & Papies, E. K. (2023). *Lack of Agency and Responsibility: Exploring perceptions of climate change action among people with high socioeconomic status in the UK*. PsyArXiv. https://doi.org/10.31234/osf.io/8zweh

2.1 Abstract

Addressing climate change requires significant individual behaviour change, as well as deep societal transformations to dramatically reduce greenhouse gas emissions. It has been argued that people with high socio-economic status (SES; i.e., with relatively higher levels of wealth, income, and education) have an important part to play to deliver these changes. This is due to not only disproportionate levels of emissions resulting from their carbon-intense consumer lifestyles, but also increased power to mitigate climate change via their other social roles (e.g., investor, role model, organisational participants, and citizen). Therefore, the present study sought to understand how individuals perceive these roles and opportunities. We recruited 81 high SES individuals in the UK to take part in an online qualitative study. We performed reflexive thematic analysis and generated 5 main themes; (1) Shifting responsibility to others in the system, (2) Seeing oneself mainly as a consumer, (3) Failure to recognise power within upstream social roles, (4) Climate change is perceived as a distant threat and, (5) Climate action is a positive experience. These findings suggest that to unlock the transformative potential that high SES people can bring to climate change mitigation, targeted policy and tailored education is required.

Keywords: High Socioeconomic Status; Lifestyles; Climate Change

2.2 Introduction

From loss of biodiversity and agriculture to looming health crises in the form of heat stress and infection, climate change poses an existential risk to humans. Those with lower incomes and wealth are most vulnerable to the effects of climate change, but at the same time are least at liberty to address it, and least responsible for its impact (Diffenbaugh & Burke, 2019; Sharpe & Davidson, 2021; Thomas et al., 2018). Indeed, the majority of CO2 emissions are the result of production and consumption linked to lifestyles of high-income individuals, such that the top 10% of the world's population are responsible for almost half of all global CO2 emissions (Bruckner et al., 2022). Furthermore, 63% of this global carbon inequality is now understood to be the result of the unequal distribution between the highest and lowest emitters *within* countries (Chancel, 2022). At the same time, individuals with high levels of wealth, income, or education, and hence high socio-economic status (SES), not only disproportionally contribute to the climate crisis, but are also in prime positions to unlock long-term and impactful change through their various social roles and financial assets (Ballew et al., 2020; Nielsen et al., 2021a). In the current paper, we therefore examine high SES individuals' perceptions of their ability to contribute to climate mitigation in both their private and professional lives. Given the potentially crucial role of organisations in climate mitigation (Garnett & Balmford, 2022), we are particularly interested in emission reductions that high SES individuals may be able to enact in the workplace, which can further facilitate or constrain the emissions of others (Nielsen et al., 2021a).

2.2.1 Socioeconomic Status and Climate Change

Much psychological research has focused on individual behaviour change to reduce greenhouse gas (GHG) emissions (Bouman et al., 2021; Bradley & Reser, 2016; Clayton et al., 2015; Hornsey & Fielding, 2019; Whitmarsh et al., 2021; Wolske & Stern, 2018). Yet, research in this field has often failed to distinguish between the need, capacity, and ability of different demographics to contribute to climate mitigation (Schmitt et al., 2020). However, skewed levels of emissions within and across countries mean that targeting "average" citizens may not be enough to achieve rapid and deep emission cuts (i.e., cutting emissions by at least 7% per year), nor would it suffice to support the pursuit of need satisfaction for all within planetary boundaries (Fanning et al., 2021; Wood & Roelich, 2019), and hence, climate justice (Islam & Winkel, 2017; Milward-Hopkins, 2022; Pearson et al., 2021). Given that high SES individuals not only contribute a disproportionate amount of greenhouse gas emissions but have also been argued to hold disproportionate power to reduce emissions through various social roles (Nielsen et al., 2021a; Prosser &

Whitmarsh, 2022), we focus on this group to examine how they understand their roles and opportunities in climate change mitigation.

The term socioeconomic status refers to one's position or standing within the structure of society, and is typically measured through income, education and occupation (Manstead, 2018). Globally, the top 5% of the wealthiest individuals have a carbon footprint equivalent to the bottom half of the population, due to their engagement in carbon-intense behaviours (Oswald et al., 2020). Indeed, their resources enable them to participate in more "luxury", yet simultaneously higher impact, behaviours such as air travel, motor vehicle usage and owning larger properties (Boyce & He, 2023; Otto et al., 2019; Wiedmann et al., 2020). Furthermore, the relationship between many carbon-intense behaviours and wealth increases as income also rises, contributing to a greater divide amongst the highest and lowest emitters across society (Büchs & Schnepf, 2013; Oswald et al., 2020). To illustrate, the average carbon footprint of someone in the richest 1% could be 175 times greater than that of the bottom 10% (Otto et al., 2019). Thus, exploring the perceptions of high carbon emitters and their attitudes toward mitigation holds potential to identify opportunities for more rapid and profound emission cuts (Bruckner et al., 2022).

In addition to reducing carbon inequalities, an explicit consideration of SES offers an opportunity to explore how the position of individuals to mitigate or cause climate change can go beyond that of an everyday consumer (Whitmarsh et al., 2021). Nielsen et al. (2021a) have argued that individuals with high SES have disproportionate potential to unlock emission reductions not only as consumers, but also through other social roles; namely as role models, investors, organisational participants, and citizens. As role models, individuals with high SES can influence and shape how others respond to climate change, by modelling behaviour for others to aspire to and follow (Abrahamse & Steg, 2013; Van-Boven & Sherman, 2021). As investors, their increased financial assets afford an opportunity to contribute to change through investments, using economic resources to divest and reinvest toward a more sustainable and 'greener' portfolio (Ceddia, 2020; Mormann, 2020). As organisational participants, high SES individuals often hold professional and leadership positions that enable active opportunities to develop, endorse and adhere to climate goals and policy in the workplace (Goldstein et al., 2019; Wesselink et al., 2017). Finally, as citizens, their privileged access to key decision-makers within their social networks can enable them to influence climate movements at a more impactful level (Pettinicchio, 2017). However, no research so far has examined how high SES

individuals perceive these roles and their potential role in greenhouse gas emission reductions. Hence, this is what the current research focuses on.

How could high SES individuals be perceiving their roles and opportunities in climate mitigation? Due to the cost that some climate action can elicit, one's social and material resources have been shown to influence how one can put one's attitudes and beliefs about climate change into action (Farjam et al., 2019; Pepper & Nettle, 2017; Stankuniene et al., 2020; Toivonen, 2022). Indeed, climate mitigation behaviours such as installing solar panels or purchasing electric vehicles are often initially costly (Frederiks et al., 2015). However, the financial and social resources at the disposal of individuals with high SES afford them greater opportunities to align their environmental values with behaviours (Eom et al, 2018). Their potential to respond to climate change can then be amplified by their status and influence within social domains. For example, individuals with high SES are less likely to feel constrained by their social context (Manstead, 2018; Sparkman et al., 2020). This should allow them to break away from the social barriers and norms that foster inaction, increasing their capability to convert their environmental attitudes into behaviours or outcomes (Chan & Tam, 2020; Kennedy & Givens, 2019; Nagues et al., 2021). In sum, individuals of a higher status may have a greater financial and social potential to engage in climate mitigation (Kollmuss & Agyeman, 2002; Sherman et al., 2021).

Despite having arguably higher potential for mitigating climate change, evidence suggests that higher SES individuals continue to lead high emitting lifestyles (Arrieta et al., 2021; Buchs & Mattioli, 2021; Wiedenhofer et al., 2018). To consider why, Van Lange et al. (2018) suggested that a physical and emotional distance to the impact of climate change can reduce motivation to address it. This may especially be the case for individuals with higher incomes who often live in urban and metropolitan areas (Heinonen & Junnilo, 2011) where a lack of exposure to the negative impacts of climate change on nature may permit less personal incentive to change behaviour (Hornsey & Fielding, 2019; Maiella et al., 2020; Thomas et al., 2018). As a result, reduced nature-connectedness, and reduced emotional proximity to the issue of climate change may lead to individuals with high SES to become more detached and unconcerned (Brown et al., 2019; Spence et al., 2011). This in turn may lead individuals to favour immediate interests over future-oriented climate mitigation behaviours (Grandin et al., 2022; van Lange et al., 2018). However, it is of note that a recent examination of the literature by Van Valkengoed et al. (2023) challenged the extent that psychological distance to climate change can impact climate action.

Furthermore, whilst individuals of high SES may see less of the effects of climate change on nature, those residing in urban areas can be vulnerable to alternative effects of pollution, such as the Urban Heat Island effect and poor air quality within populated cities (Singh et al., 2020).

High SES individuals may particularly be motivated to preserve the status quo and the environment that favours their current lifestyle and privilege (Adams, 2021; Constantino et al., 2022). Indeed, environmental policy may pose a threat to such lifestyles and subsequently create strong resistance amongst decision-makers to adhere to or endorse proposed regulations (Green & Healy, 2022; Mackay et al., 2021). Even when an individual is aware of climate change, competing self-interests such as one's carbon-comfort lifestyle can fuel inaction amongst high status individuals and bias perceptions of their environmental impact (Pearson et al., 2021). For instance, in a study investigating high carbon-lifestyles, participants were seen to normalise their inaction through their ascribed 'entitlement' to their lifestyles (Cass et al., 2023). A further study indicated that individuals consistently underestimated the extent that some behaviours associated with high SES, such as air travel, may be impacting the environment (Wynes et al., 2020).

Attempts to target climate action in the general population have also often relied on cost incentives - such as carbon-taxation. However, as those with high SES are likely less deterred by cost, they may remain unaffected and unincentivized by such measures (Li et al., 2019). Thus, having high SES puts individuals in a conflicting position where they are largely free to pursue their carbon-intense lifestyles but also capable of using their resources to engage in more costly mitigation efforts. The current article therefore explores how high SES individuals perceive their roles, responsibilities, and opportunities in reducing greenhouse gas emissions. In doing so, we build on the idea of the "middle-out" approach to system change (Parag & Janda, 2014). This approach advocates for the role of those positioned between the top and bottom actors within society and the so-called "missing middle" in systemic transitions. Such "middle-actors" have been recognised as having unique agency and capacity to implement change in upstream, downstream, and sideways directions, which offers various routes to addressing climate change. Given the different spheres in which individuals with high SES may have relatively high social and material influence, we consider both their private and professional lives.

Even though not all individuals with high SES are employed or in positions that can make decisions for others, individuals with high SES make up a large proportion of

upper managerial and leadership positions within society, thus, creating an avenue in which to consider their potential for upstream environmental change. So too, considerable attention has been placed on understanding the ways individuals address climate change in the workplace (Ansari et al., 2020; Norton et al., 2014; Rayner & Morgan, 2017; Saifulina et al., 2020; Young et al, 2015). Indeed, some have argued that "every job can be a climate job" (Luke et al., 2022). More recently, attention has also been placed on understanding the role of transformative leadership within climate mitigation (Farrukh et al., 2022; Hansen et al., 2018). However, little research has examined the perceptions of primary decision-makers and leaders within the context of their other environmental behaviours and roles. Therefore, this current article also explores how individuals with high SES can actively engage in environmental behaviours in their professional lives, for example through high-level decision making or policy development (Garnett & Balmford, 2022).

2.2.2 The Present Paper

Given the limited research in this field and the therefore exploratory nature of the research, we used a qualitative design, specifically an online survey consisting of open-ended questions aimed at capturing the detailed perceptions of high SES individuals in the UK. We addressed the following research questions:

1) What beliefs do individuals with high SES have about climate change and how do they feel that they can personally contribute to addressing the issue of climate change?
2) What factors influence engagement towards addressing climate change for individuals with high SES?
3) How do individuals with high SES engage in ways to address climate change within their place of work?

2.3 Methods

2.3.1 Research Design

The study received ethical approval from the University of Glasgow Research Ethics Committee. We created an online qualitative survey to collect data from participants with high SES in the UK. The use of an online qualitative survey provided an opportunity to capture a large range of perspectives and allowed a chance for participants to share their views in an anonymous space. We conducted reflexive thematic analysis and adopted a critical realist approach to our analysis. This approach assumes the existence of an objective 'truth' to an area of knowledge whilst recognising that such knowledge is grounded and influenced by one's subjective perception of reality (Mukumbang, 2023).

Thus, adopting a critical realist stance offered an opportunity to draw meaning from participants' subjective reality but maintain consideration for the world in which their knowledge and reasoning is constructed. Due to the exploratory nature of our research questions, no specific psychological or behavioural theories were used as a framework for data analysis. However, we considered existing literature in this field to help guide the development of our questionnaire, specifically in reference to the Nielsen et al. (2021) account of the roles and opportunities high SES individuals could have within climate action.

As a tool for transparency, all procedures were pre-registered prior to data collection and can be found on the open science framework, along with all other study materials (OSF: https://osf.io/6tkrg/?view_only=f1293074ec574d0781fb7c3891223981).

2.3.2 Participants

Eighty-one participants were recruited to take part in this study via the online research platform Prolific (prolific.co). To be eligible, participants had to be between the ages 18-65, a permanent resident of the UK and fluent in English. Additionally, as our focus for this research was on individuals with high SES, only those who rated themselves between 7-10 on a scale measuring subjective SES were invited to participate. Participants were pre-screened for the above characteristics through Prolific before being invited to take part. All eligible participants on Prolific were invited to take part in the study, until we obtained the planned number of participants. Additional in-survey checks were made to confirm eligibility. The study took on average 24 minutes to complete and participants were paid £4.50 each in accordance with Prolific's pro-rata hourly rate. Full demographic information can be found in Table 1.

Table 1: Qualitative Survey Participant Demographics

Age (years)	**M**	**Range**
	40.7	21-62
Gender		
Male		33
Female		48
Level of Education		
No Formal Qualification		0
Secondary School (e.g. GCSE's or equivalent)		1
College (e.g. A-levels, vocational qualifications or equivalent)		13
Undergraduate (e.g. BA, BSc or equivalent)		35
Graduate (e.g. MSc, MPhil, MA or equivalent)		26
Doctoral Degree (e.g. PhD or equivalent)		6
Pre-tax Annual Household Income		
< 10,000		1
10,000 – 30,000		2
30,000 – 60,000		29
60,000 – 100,000		23
100,000 – 200,000		19
200,000 >		6
Mean		£87,212
Median		£70,000
Employment (in the last 2 years)		
Yes		68
No		13
Subjective SES		
7		50
8		22
9		9
10		0

The pre-determined sample size was assessed following recommendations for qualitative surveys by Braun et al. (2021) and allowed for the maximum number of participants available to recruit under our budget and resource limits.

2.3.3 Questionnaire

Given the limited focus on individuals with high SES in past research, we first aimed to explore participants' attitudes toward climate change and what behaviours they felt were required to address climate change. We additionally wanted to provide insight into how individuals felt they could personally address climate change by thinking about their role within society, what motivates them to engage and the factors that may influence their ability to do so.

To examine how participants think about addressing climate change within their place of work, they were asked to briefly describe their role in their occupation and what opportunities they felt that they had to address climate change within the workplace. Those who had no history of employment in the last 2 years (N = 13) were alternatively asked about what opportunities they had within their social or family environment. Participants were then asked to think about what they would consider to be the most impactful thing they could do to combat climate change and what keeps them from engaging in this behaviour. Lastly, to understand more about individuals' personal feelings about addressing climate change we asked participants to recount a time in which they acted against climate change and a time in which they did not.

The questionnaire used in this study was developed by SD and EKP in consideration of our research aims and interests. Prior to publishing on Prolific, the questionnaire was piloted by SD to check for comprehension and estimated response time. Additionally, questions were fed to fellow lab group members for review and amended accordingly to improve clarity and conciseness. The full questionnaire can be found in Appendix A.

2.3.4 Data Collection

We designed the questionnaire in Qualtrics. We pre-screened individuals interested in taking part via Prolific to ensure they met the criteria for participation. If participants met the desired criteria, they were directed to a participant information sheet inviting them to the study and given instructions for taking part. Once participants provided their informed consent, they answered a baseline demographic questionnaire and then completed the main survey consisting of up to 12 open-ended questions.

Afterwards, participants were debriefed and provided with contact details for the purpose of any questions or concerns. Participants were then directed back to Prolific and paid for their participation. Data obtained from this study was exported from Qualtrics (Qualtrics, Provo, UT) and imported into the software NVivo (NVivo Mac 14.23.0) in preparation for data analysis.

2.3.5 Data Analysis

Data obtained from this study was analysed through NVivo using the reflexive thematic analysis (RTA) approach developed by Braun & Clarke (2019). The 6 phases of data analysis outlined by Braun & Clarke (2006) are: (1) Data familiarisation, (2) Generate

initial codes, (3) Look for themes, (4) Review themes, (5) Define themes and (6) Produce report. In accordance with the stages outlined above, SD begun by reading through all participant responses and annotating where appropriate to establish an initial list of codes. A mixture of deductive and inductive analysis was conducted, where codes were developed in consideration for the researchers current understanding of the topic and anticipation of the ideas that emerged solely from the data. Throughout this process, codes were fed back to EKP for discussion with SD, and were later grouped based on shared meaning to create a list of preliminary themes. These themes were then carefully reviewed and defined through discussion between authors to generate a final thematic account used in the write up of our findings.

Credibility strategies were also employed to increase the transparency of the data. This included regular cross-checking of analysis, peer debriefing and consensus building among researchers. Reflexivity was also ensured by SD keeping a journal of her experiences coding and her position in relation to the data. We recognise that our positionality as researchers is also important to reflect upon. In the interest of transparency, we disclose that all authors are in favour of the rapid and deep emission reductions in line with the current recommendations made by the Intergovernmental Panel on Climate Change. This is especially the case for the recommendations that align with social justice concerns, emphasising the role that those with the highest emissions and decision-making power can have within climate mitigation.

2.4 Results

Through reflexive thematic analysis, we generated 5 themes, summarised in Table 2.

Table 2: Outline of Themes

Theme Name	Summary
Theme 1: Shifting responsibility to others in the system.	Participants described a system for climate change mitigation within society. They shifted responsibility on others, mainly the government, to facilitate and/or force action and described different categories of behaviours that people are capable of engaging in.
Theme 2: Seeing oneself mainly as consumer.	Within the system of climate mitigation, participants mainly saw themselves as consumers, focusing on consumer behaviours such as recycling, low carbon purchasing and taking public transport, and highlighting affordability and convenience.
Theme 3: Failure to recognise power within upstream roles.	Participants often failed to see opportunities to address climate change in their upstream social roles. When asked specifically about opportunities in the workplace, few participants reflected on their potential to utilise their position. The professional roles that they held also often contradicted their feelings of 'powerlessness' towards addressing climate change.
Theme 4: Climate change is perceived as a distant threat.	Impacts of climate change were often described as future occurences, perceived through media, with little direct personal relevance.
Theme 5: Climate action is a positive experience.	Individuals reported positive emotions in response to taking action and often described win-win scenarios (personal co-benefits). Inaction elicited negative feelings, primarily of shame and guilt, and led individuals to feel the need to justify their inaction.

2.4.1 Theme 1: Shifting responsibility to others in the system.

When asked to think about who can contribute to climate mitigation, participants constructed critical accounts in which they perceived a 'system' to addressing climate change. In this view, they placed the most responsibility onto the "top-actors" of the climate sphere, such as the government and large corporations to take action. They ascribed this responsibility due to the belief that these groups in society had the most power and influence to make a significant difference. Participants often stressed the need for those most responsible for causing climate change to be held most accountable for addressing it. In fact, some participants held the belief that individuals, such as themselves, should not be held responsible for addressing climate change. This is notable given the likely significant greenhouse gas emissions associated with the lifestyles that these participants themselves lead.

Within the system of climate mitigation described by participants, different roles and behaviours related to addressing climate change were also categorised into different "levels" of action. Primarily, behaviours were categorised into two main groups and assigned roles according to their perceived capability and responsibility to act. Those at the "top" were described as having the power to create higher-impact change through designing policy and spreading awareness. Conversely, those at the "bottom" were assigned lower impact, consumer-oriented behaviours such as recycling and driving less. This relates to lack of efficacy participants attributed to everyday individuals, where without action from the "top", real societal transformation cannot be achieved.

A dependency on the top actors in the system was also conveyed through the call for a "top-down" approach to addressing climate change. In other words, participants felt that the government and leaders within society were responsible for facilitating action for those lower in the system by using their power to develop policy and infrastructure. Notably, participants often requested the reduction of emissions to be forced, not only for large corporations but also for themselves and other citizens. Indeed, participants seemed to desire the removal of their personal agency within their decision making, and with it, the moral or social dilemma of having to choose between their carbon-intense lifestyles and addressing climate change. It seemed, therefore, that individuals wished to diffuse the responsibility of making the necessary decisions onto others and felt largely dependent on the top actors within the system to guide, incentivise and even legally enforce their behaviour.

Table 3: Data Extracts for Theme 1

Government responsibility	P1 The government has the ultimate responsibility to address these issues. As the highest legal authority in the land, the exerciser of power etc, the state is the only legitimate actor in the political sphere to combat climate issues.
Large corporation responsibility	P21 No exemptions for large businesses. If everyday people have to reduce, reuse and recycle with little to no incentives beyond guilt then there should be incentives put in place for large businesses to do the same, they have a much larger impact on the environment than individuals do.
Accountability	P25 This needs to be done by everyone, but most individuals pale in comparison to the emissions created by governments, businesses, and billionaires. They therefore need to take the biggest steps, particularly as they tend to be in the best position to implement change in the first place.
Categorising climate action	P24 Everyone needs to play their part. Individuals need to do their part but also companies and government. Action needs to come from all levels. We need to take less, use less and share things more.
Impact varying by position in society	P16 Individuals all have the power to change their own mindset and take steps to tackle climate change. But these will be small in isolation, and probably trivial in total, unless there are more structural steps taken to deal with international actors responsible for significant carbon emissions.
Top-down approach	P44 I believe it starts with the government and those in leadership positions to provide a blueprint for everyone to follow and set the right policies in place. Then businesses and corporations can do their part by changing their way of working to a more sustainable practice. Individuals have a part to play as well by making small changes to their lives to be more sustainable.

Government should facilitate action	P70 Governments need to set the tone, pass legislation and ensure that it is adhered to. Companies will only manufacture in a climate sensitive way if there is an economic advantage to doing so or if they are forced to.
Government should force action	P59 There needs to be laws to limit the damage from industrial factories. Not just fines but prison sentences to actually deter company directors and senior managers.
Removal of agency	P81 I don't think people will ever choose to significantly reduce their own carbon footprint eg choose not to fly on holiday. So it's up to governments to force them.
	P53 I would follow the laws and rules we have as a society.
	P70 To be blunt don't give me a choice, make compliance unavoidable.
	P70 Most will not act unless it is made either mandatory or easy. In general people do not want to lose the standard of living they have.

2.4.2 Theme 2: Seeing oneself mainly as a consumer

Within the system of climate mitigation articulated above, participants primarily felt that their contribution to climate mitigation fell to how they conduct themselves as consumers. Subsequently, they listed behaviours such as recycling, waste management, transport choices and low carbon purchasing as actions that they could, or have previously, achieved. Their self-ascribed consumer roles and opportunities were often reflected on as "everyday" and "smaller" behaviours, especially in comparison to the action potential of the government. Indeed, the consistency across participants' responses conveyed a sense that participants may simply be reciting the actions which they felt were expected within the mitigation sphere. Few participants acknowledged their own advantageous position to engage in more significant climate mitigation.

The focus on consumer roles was also apparent in the barriers to climate action that were described. Despite their above average incomes, participants often mentioned the influence of cost, not always as an obstacle, but often as a factor that diminished their willingness to engage in climate action. Climate action was also often described as

difficult, effortful, and time-consuming and often felt dependent on the government to make acting easier. In addition, the desire to purchase cars, holidays and second homes at times impacted their willingness to engage.

Table 4: Data-Extracts for Theme 2

Participants address climate change from their role as a consumer	P71 I can impact through my personal shopping habits - buying second hand, locally grown, organic, etc. I can also buy from brands who avoid unnecessary shipping, like water-based cleaning products when I can buy tablets and use my own water
Impact of consumer action	P14 For me as an individual, it's the smaller things such as making sure I recycle as much as I can.
Consumer-based influences	P1 I am a rational consumer, price motivated and therefore when I wish to travel, going by car is simply more economical than using as train in the UK. P22 Time, money and convenience play a big part. It can be incredibly easy to book a package holiday online instead of trying to travel sustainably. Or it's easy to forget to take a reusable bottle or cup when out for the day and end up with packaging that needs to be recycled.
Consumer roles related to carbon-intense lifestyles	P4 I like new things, and I have disposable income to try them. P16 We own a holiday home abroad, and visit regularly. We have friends and family abroad. I think it is valuable for children to be exposed to foreign cultures. Also, I like holidays. Foreign travel is inexpensive, accessible, and the externalities are largely invisible.
Recognition of high SES	P79 Of course, I recognise my privilege as someone who earns a good income and is able to spend my time and efforts into such endeavours instead of being primarily concerned with economic survival. So I guess a degree of economic security would be a necessary enabler as well.

Climate action described as effortful and time-consuming.	P44 Also the ease of integrating these sustainable practices into my life and how they can be more time-consuming or difficult. P48 You can also be more time-consuming to find ways to have less of an impact. For example, travelling by train can be more expensive and also take much longer than flying. P74 I think the Government should set out what needs to be done and also look at how it can provide support to businesses and households to help them change to support climate change.

2.4.3 Theme 3: Failure to recognise power in upstream roles

In extension of orientating themselves as consumers, participants often failed to immediately identify their other roles and opportunities to address climate change, such as within their professional lives. Despite most participants holding decision-making professional roles (e.g., manager, owner, and supervisor) or positions of influence (e.g., senior lecturers and consultants), they often failed to see their upstream power within these domains. Indeed, a notable contrast existed between participants' perceptions of feeling "small" or "powerless" within the system of climate mitigation and the positions of power they held in their professional roles. Even when participants identified ways to address climate change in their occupation, many again fell back onto the perspective of the consumer. As such, behaviours such as recycling, going paperless and turning off the lights in the office were commonly reported. Hence, the scope of behaviours identified in the workplace mirrored the "smaller", consumer-based opportunities found in their general approach to addressing climate change.

Some participants did provide insight into the high impact decision-making capabilities and influence they held in their workplace – however this happened only when directly asked about their professional roles. When asked about climate action more generally, participants failed to account for their actions within their professional lives. This perhaps indicates that individuals do not immediately associate the actions taken within their workplace with their personal contributions to causing or mitigating climate change, and instead seemed to answer with the default consumer role in mind. These contrasting perspectives can be seen in Table 5.

Aside from their role as a consumer, participants saw most opportunity through activism, such as attending protests or lobbying to the government. However, participants failed to recognise how their unique position as someone with high SES may increase their influence and potential to make a difference within these domains. Thus, without role-specific prompts, individuals largely failed to identify other social roles to engage in climate mitigation.

Table 5: Data Extracts for Theme 3. A critical realist point of view was applied to establish contrasting perspectives. This sought to ground participants' responses within both the context of their other answers and the world in which their knowledge was constructed.

	Perspective 1	**Perspective 2**
2.4.3.1 Perceived personal powerlessness vs professional role		
P54	Feeling small, as in you are a single voice and swimming against an increasingly strong wave of commercialism and greed.	I am an Operations Manager with 6 direct reports and 16 indirect reports for a manufacturing business.
P53	Very little normatively. Even if I were to cease to exist this second and have no further impact on the planet, it would not change anything at all.	Head of Service, Operations for a global insurance and reinsurance company. Manage a team of 40 people in UK and India.
P56	Even though individually I can't make a massive impact, it is still important to make changes in my everyday life.	Marketing Director - working in cross-industry sustainability for a global corporate.
2.4.3.2 Professional contributions to climate mitigation are not salient to participants.		
P65	Less travel, shop locally and more often and walk to the shops. Look at getting rid of cars and look at a community car share scheme, insulate the home, don't fly	Local government officer - I work for the environment agency so we are quite hot on environmental matters and complete lots of training

P9	Recycling all that I can. Not buying vegetables and fruit in plastic. Walking/ cycling to work. Turning off lights etc when not used. Eating less meat	Architect - I am lucky to work in a practice that focuses heavily on sustainability and the future architecture and the built environment can play. We design all of our buildings with the planet in mind first and foremost. We also focus on regeneration rather than solely new build
P44	I can ensure I recycle all suitable waste that I create. I can be more conscious of my buying habits and try to buy second-hand or items made from more sustainable/recyclable materials.	GIS Digital Analyst - I have the chance to educate residents of the Borough to be more sustainable as I create content for our Council website. I have been able to promote a "Guide to Being Sustainable" with over 2000 people.
P67	As an individual simple action like reducing energy usage - turn down your heating by 2-3 degrees. Minimise waste by actively recycling and repairing where possible. Sponsor or where you have land plant trees to absorb more carbon dioxide.	Owner Director of an e-commerce business - The main way we can address climate change is through the supply chain. Ensuring that we only do business with those suppliers who have policies and processes in place that are environmentally friendly.
P50	Be considerate when purchasing new items, such as fast fashion. Try to recycle to the extent possible. Use alternative means of transport such as walking and cycling when going to work etc.	I work for a fintech and am responsible for funding the company. This includes debt and equity investments from external investors. - We are lending to people for the purchase of a car, so we have incentives for customers to choose an electric vehicle instead of a diesel / petrol car. Also have policies in place to recycle waste, print double-sided, control electricity consumption etc. We also support a number of charities from a corporate perspective.

2.4.3.3 Consumer approach vs upstream decision-making opportunity

P22	Keeping the environmental footprint of my business as low as possible. For example, having virtual meetings instead of face-to-face where appropriate, using public transport where I can, and minimising the use of paper and other resources.	Consultant Financial Director
P76	Recycle at work from plastics to metals that we use in manufacture, energy saving best practice where possible	Deputy workshop manager in a manufacturing company that makes equipment for the oil and gas sector
P6	At work we have different recycling bins that we use every day	Supervisor
P60	Limit flying to only when absolutely necessary. Limit ordering of takeout and provide food in house.	I'm an associate at a large bank
P73	General day-to-day running of the office, stopping the pointless printing and recycling	Account Director

2.4.4 Theme 4: The impact of climate change is seen as a distant threat.

Despite climate change being viewed by participants as a matter that requires serious action from all areas of society, the impact of climate change was often viewed as distant with little direct personal relevance. Indeed, the impact of climate change was mainly described as an issue that would affect the future, with limited emphasis on the past and ongoing impacts. Whilst participants referenced a need for urgent action, many held the perspective that this was mostly to protect future generations, rather than for addressing consequences that they themselves would personally experience. Even participants' desire to protect the planet often appeared detached from their own personal survival or benefit.

This can particularly be seen when individuals report wanting to protect the "beauty" of the earth and its natural environment, without associating the benefits of doing so with their own health or survival.

When participants did observe the threat that climate change is currently posing, some described scenarios that were removed from their own lives and observed through various forms of media, such as the news and documentaries. This is perhaps due to their residence in the UK, where the immediate physical impacts of climate change are currently experienced less often than in other countries, and may be similar for lower SES participants, who were not included in the current study. At times, participants reflected on their fear for others, yet reported little concern for how their own lives may be personally affected. Instead, participants mainly reported subtle changes to weather patterns within their own environments and held little first-hand experiences with extreme weather events. One participant even viewed rising temperatures positively due to their preference for a hotter climate. This suggests that lack of personal experiences with climate change impacts may reduce the motivation to address climate change in the present, particularly if that involved "sacrificing" elements of their current lifestyles.

Table 6: Data Extracts for Theme 4

The need to address climate change	P64 It is a global phenomenon with very serious consequences which is why I feel obliged to take action.
	P33 People need to start taking this very seriously, very quickly. We have to act with urgency and hopefully the indications in weather patterns; which the public can understand; will lead to more people understanding that action needs to start. We all need to do our bit to ensure we can stop the change.
Impact of climate change viewed as a future occurrence	P18 The future of my children. This is the biggest thing, that in years to come when I am not around that they are going to suffer
	P33 I am worried, not for my generation but for those in the future - my children and their children.

	P42 The motivation is the existential risk we face here on Earth. Unless we take decisive action, parts of Earth will be unliveable in a hundred years or so.
Desire to protect the planet	P76 I'd like to do my bit to live harmoniously in the world, leave only footprints.
	P11 Protect the earth as its precious
Observed threat of climate change external to oneself	P9 The natural disasters that are happening more frequently are also incredibly scary for those affected.
	P62 the way we been brought up but also seeing all the devastating news so many times about floods, fires, hurricanes and this is all because of climate change.
Observed threat of climate change in personal lives	P65 The destruction of wildlife is my key motivator, I have seen bird populations reduce significantly where I live and the impact on wildlife in general both in the uk and worldwide.
Lack of personal incentive	P41 I can see that climate change appears to be causing freak weather conditions such as floods and fires. However, I have not personally experienced any of these so do not intend to change my behaviour.
	P41 I have no motivation for action against climate change. I quite like the fact that our UK climate is getting warmer.
Not wanting to sacrifice quality of life	P72 Realistically, at a personal level it's difficult because at a personal level you are trading a future unknown for personal sacrifice, either in quality of live.

2.4.5 Theme 5: Climate action is a positive experience

When individuals were asked to reflect on their experiences addressing climate change, engaging in climate action primarily elicited positive feelings such as pride, accomplishment, and satisfaction. Moreover, positive experiences were often regarded as a 'win-win' where their actions were recognised to help the planet and themselves and at times encouraged individuals to act again. This may be due to the positive emotion elicited, money saved or health benefits. Only when climate action resulted in diminished quality of life or inconvenience, did individuals report negative, or indifferent emotions. This was especially the case when their actions were perceived as futile or meaningless.

Complementing the idea that addressing climate change elicits positive emotions, inaction was perceived to evoke negative feelings such as disappointment or guilt. This occurred most often when participants were aware that their behaviours were bad for the environment, which they felt they needed to justify. Participants justified their inaction due to the pleasure they derived from the carbon-intense behaviours in the present moment, such as driving an expensive car, taking a longer flight to enjoy the views, or travelling to new countries. However, these behaviours were reported to evoke more negative feelings when reflected on later. It seems, therefore, that participants become conflicted between the positive experiences related to their carbon-intense lifestyles and the negative feelings resulting from their inaction.

Table 7: Data Extracts for Theme 5

2.4.5.1. Climate action is a positive experience	
Climate action elicits positive feelings	P25 I have participated in three climate strikes/marches in two cities. At one of these I was interviewed by a local paper, and was excited that the press was there and proud to have my voice represented. I also felt very welcomed by the group and inspired by a united desire for change. P29 We decided to take a boat and train to a holiday destination instead of flying and it was different and we actually enjoyed it and would consider it again. Flying was cheaper and quicker but we decided because of the carbon

	footprint we would take an alternative method of going there and we enjoyed it.
	P64 A few years back, I participated in a mission to clean a very littered beach in Greece. I spent two whole days cleaning and picking up rubbish from all sorts of places. The feeling of satisfaction in the end was unimaginable. I also enjoyed the sense of community as other volunteers supported this effort and we soon became good friends.
Mutual co-benefits	P20 Changing are my lighting to be LED in order to reduce energy usage. Generally it felt good to help reduce usage and obviously that over time has saved money especially considering current energy costs.
Positive experiences encourage further action	P12 We reduce the consumption of gas for heating in our home. Initially it was a bit challenging, but we got used to it later. It certainly makes me feel good and encourages me to do more.

2.4.5.2. Climate action is a negative experience

Climate action impedes freedom	P24 Becoming vegan - I found it too limiting on what I could eat, I was annoyed I couldn't do it but I still try to be partially vegan.
	P8 Compromises my freedom and impedes on my experience of being human.
Feeling like behaviour is futile	P16 I gave up meat for a month. It felt largely futile; there were minimal individual benefits (some cost savings, probably some medium term health benefits) and it felt like a drop in the ocean. Probably, the meat I didn't buy ended up being thrown away by a supermarket anyway.
Indifference	P10 i recycled and felt nothing

	P59 I reuse plastic bags when I go to the shop. It doesn't make me feel any type of way it is just a habit.

2.4.5.3 Inaction is a negative experience

	P1 I travelled by air multiple times last year, which, whilst also being practically avoidable, made me feel personally guilty about the effect that it had on the planet, especially when one flight I took, to Oslo, was mostly empty.
	P46 A time I did not take action was when I used my car for a short journey instead of walking. It made me feel annoyed and disappointed in myself for not making the extra effort.
Reflecting on inaction in the future elicits negative feelings	P26 A protest in my local area. I was judgmental towards the people protesting because it was causing me inconvenience and I was late for work due to the protest. I felt disappointed with myself later in the day.
	P60 I took a longer flight than needed so that I could enjoy the views. It didn't make me feel bad at the time but now I see why it was probably a silly decision.

2.4.5.4 Justifying carbon-intense lifestyles

Convenience	P7 There have been times when I could have walked into town but I have chosen to drive. Town is a 35 minute walk and so both ways that just feels quite far. However, it is definitely doable and so really I should have walked as I had the time. I did feel quite guilty for this.
Perceived benefit	P80 I continued to use air travel. It makes me feel somewhat guilty, although I understand the benefits for communities (for example, traveling to less developed countries who rely on tourism) but I feel somewhat guilty and wish there was a more sustainable way.
Moral conflict	P68 I travelled to Barcelona last year. Friends suggested travelling by train but the cost was significantly higher than

	travelling by plane. I felt as if I was part of the problem as the majority of people make decisions based on what is convenient for them and I am definitely guilty of this. It feels selfish to even travel abroad but I continue to do so. I feel conflicted.
Advantageous comparison	P72 I do not feel guilt from it, there are far worse problems in the world - mass genocide in Yemen, war in Ukraine, I guess I externalise and rationalise it as 'not the biggest crime in the world'.
	P3 Going on holiday on a plane - I was happy to be going to another country even though I knew the impact
Pleasure due to carbon-intense behaviour	P70 I guess my extravagance is a have a small sports car that does 30 miles to the gallon. So not very environmentally friendly. I love driving it, I use it for local trips. I do not feel bad about it using it because there is no reasonable alternative to that sports car that is environmentally friendly.

2.5 Discussion

2.5.1 Summary of findings

Through reflexive thematic analysis of participants' responses to open questions about climate mitigation behaviour, this research provided insight into how individuals with high SES perceive their roles and opportunities to address climate change. Adopting a critical realist approach, we generated five themes. Namely, we identified the tendency for high SES individuals to shift responsibility to others to engage in and lead climate mitigation. We found that participants mainly viewed themselves as consumers and largely failed to see mitigation potential in their other upstream social roles, for example as organisational participants or investors. Indeed, a significant contrast emerged between participants' analysis of their climate action and the professional roles they held. As such, participants voiced limited agency to engage and, only when prompted, revealed their potential for high-impact behaviours within their professional roles. Our findings also illustrated the tendency for participants to view climate change distantly and, at times, they seemed to lack personal incentive to act. However, when climate action did occur, individuals often reported that their experiences were positive and rewarding. Thereby, our findings offer a critical and valuable insight into the role of high-status individuals to engage in climate mitigation.

2.5.2 Theoretical Implications

The results of this study expand on the existing literature as the behaviours reported by participants present notable implications for the role that high SES individuals may have within climate mitigation. Indeed, it seems that without role-specific prompts, people with high SES largely fail to see beyond their role as an average consumer and often redirect responsibility to those they believe can have a greater impact (e.g., the government). This is especially significant when considered alongside the subjectively high SES that was required for participation. That is, despite placing themselves between 7-10 on a subjective SES ladder, this perceived position in society often failed to translate into perceived capability for climate action. Therefore, our findings align with Value-Belief-Norm Theory (Stern et al., 1999) that suggests individuals will more likely engage in a behaviour when they sense a personal responsibility and norm to do so.

Seeing oneself mainly as a consumer indeed supports previous research investigating how the general population approaches climate mitigation, which has also been the focus of most previous research on climate-relevant behaviour change (Habib et al., 2021; Milfont & Markowitz, 2016; Trudel, 2018). Given their carbon-intensive

lifestyles, this focus on consumer behaviours is of essential importance in the case of high SES individuals (Nielsen et al., 2021b). At the same time, and in line with recent arguments by Charter & Loewenstein (in press), emphasis on the individual level changes can, at times, crowd out the pursuit of the transformative system level changes that are needed for effective and long-term climate mitigation. As our findings suggest, even individuals with high SES and arguably powerful social roles did not easily look beyond the scope of consumer action. Therefore, even when voicing their desire for structural change, participants primarily viewed opportunity for climate action in everyday consumer behaviours, neglecting consideration of their upstream social roles and opportunities, and hence their potential to initiate or contribute to systems change.

Given the globalised issue of climate change, it is perhaps not surprising that individuals often sense a lack of personal efficacy within this space (Bostrom et al., 2021; Crosman et al., 2019; Heald, 2017). Even with increased wealth and social status, many in this present sample still reported their efforts to be small or futile. However, participants' propensity to adopt the consumer role may contribute to research exploring the distinction between one's objective capability and their subjective experiences (Kalch et al., 2021; Kenis & Mathijs, 2012). Indeed, in consideration of our critical realist perspective, participants in our study likely did not feel powerless due to their lack of material and social resources. Instead, participants may have been more likely engaging in mechanisms of 'moral disengagement' (Peeters et al., 2019) where perhaps participants strategically adopted the position of the average consumer to disengage from the responsibility of their own calls for structural change. Through advantageous comparison, respondents then emphasised the role of the 'worst offenders' (such as the government), lessening the pressure to hold themselves accountable for their own carbon-intensive lifestyles (Doorn et al., 2021; Van De Poel, 2011). This aligns with recent exploration of "discourses of climate delay" that suggest individuals will redirect responsibility to justify and come to terms with personal inaction (Lamb et al., 2020).

A redirection of responsibility is also apparent within participants' call for the government to facilitate or even force climate mitigation behaviour. Expanding on mechanisms of moral disengagement and our critical realist perspective, the present sample perhaps desired the removal of their agency to avoid 'choosing' between their carbon-dependent lifestyles and addressing climate change. For instance, the status of many carbon-intense activities, such as frequent air travel, may be seen as something to attain rather than consciously avoid (Gossling, 2019). Therefore, by outsourcing control,

responsibility is placed on external forces to regulate their behaviour (Kukowski et al., 2022) and determine the extent that personal "sacrifice" is required. Indeed, a tendency to consider climate action as a "sacrifice" can itself act as a deterrence and negates consideration of how climate action could *increase* quality of life. Whilst the possibility of policy support may be promising for governments concerned about public perceptions of stricter regulation (Kysela et al., 2019), future research should examine the types of behaviours that individuals desire to be enforced and the extent that individuals understand the personal implications of adherence; in other words, whether individuals would accept the possibility of policy that may impede their personal choices or behaviour (Cass et al., 2022; Player et al., 2023).

Our findings additionally speak to an emerging line of literature recognising the importance of behavioural plasticity when assessing individual behaviour change within climate mitigation (Kukowski et al., 2023). Specifically, the opportunities identified by participants in this study suggest that individuals with high SES recognise the greatest potential within their choices as consumers. Although participants tended to mention lower-impact actions such as recycling and public transport usage, respondents also indicated intentions to consider higher-impact consumer actions such as purchasing an electric vehicle and limiting air travel. Perceiving personal capability within this space may, therefore, indicate a more feasible opportunity to achieve more rapid and immediate emission cuts via their role as a consumer (Nielsen et al., 2020; Stern et al., 2022). This again reflects a need for future research to understand where policy is desired, or with appropriate guidance, voluntary uptake of behaviours could be achieved.

Even though participants accepted the need for large-scale climate action, the impact of climate change was often viewed at both a spatial and temporal distance. In accordance with Construal Level Theory (Liberman et al., 2007), our findings link to research showing that the lack of personal experience of the impact of climate change has been theorised to lower risk perceptions, diminish affective responses, and facilitate moral disengagement (Bouman et al., 2020; Bradley et al., 2020; Brosch, 2021). Indeed, a notion likely not exclusive to high status individuals, where the geographical and economic position of the UK as a whole mean that few have experienced the immediate physical threat of climate change. However, a recent review of the literature suggested that the link between psychological distance and climate inaction across the literature is mixed and inconsistent (van Valkengoed et al., 2023). Though this discrepancy could be attributed to the lack of attention to high SES individuals, it should be noted that only a few participants

in the present study explicitly stated that perceptions of distance directly reduced their willingness to act. Thus, further research should clarify the link between perceptions of psychological distance and the actual impact this has on motivation and engagement in climate action.

Our findings can be conceptualised quite naturally in the COM-B model of behaviour change (Michie et al., 2011), which offers an overall framework in which to understand how individuals with high SES perceive the opportunity, capability, and motivation to engage in climate mitigation. According to Michie et al. (2011), *opportunity* refers to the physical and social opportunity that one's environment affords, *capability* is understood as the psychological and physical capacity to pursue a given behaviour and *motivation* examines what drives an individual towards action; together, these factors predict *behaviour*. Indeed, the results from our study suggest that high status individuals see most opportunity to address climate change as consumers but see little immediate potential in other social roles. Despite their high SES, participants perceived a lack of agency and reported limited personal capability to address climate change on a larger and more impactful scale. Lastly, their motivation to address climate change was present yet at times hindered by the perceived distance of its impact. Thereby, the COM-B model offers a means in which to identify targets for intervention (Cass et al., 2022). In this case, interventions may benefit from tailored communication to increase perceived capability and help individuals to consider their unique roles within this space.

2.5.3 Practical Implications

It is possible that participants' perceptions within this research are a product of how climate change as an issue is framed within their environment, and of societal discourse that does not seem to provide individuals with the conceptual tools to recognise and use their potential to mitigate climate change (Kurz & Prosser, 2021). If they could be encouraged to use their non-consumer social roles, especially those that involve decision-making and influence, they could directly be a part of the structural change they themselves advocate for. Especially given that participants were aware of the needs and obstacles of climate mitigation, they may hold the unique perspective to recognise and relate to what policy is needed from their position as a consumer but also feasible to be acted upon as an organisational participant. In reflection of researchers advocating for the "middle-actors" in system change, our findings therefore offer a direction for the role of high SES individuals within this space. Indeed, participants in the current study did not seem to be resistant to addressing climate change, but just lacked direction as to where

their efforts could have the most impact. Thus, encouraging action from the ‘middle out’ could be a vital step toward navigating both upstream and downstream pathways to climate mitigation (Parag & Janda, 2014).

To consider how this can be put into action, strategic communication to emphasise the agency and capacity of high-status individuals is needed. This not only applies to encouraging individuals to be aware of their disproportionate emissions, but also point out the opportunities and capabilities that they as a demographic uniquely possess. This may be most effective by emphasising individual responsibility and signalling agency within specific contexts (Stern et al., 2021). For example, high SES individuals can be targeted within their respective professional roles to adhere to the idea that “every job can be a climate job” (Luke et al., 2022; Nicholas & Nielsen, 2021). Emerging initiatives such as Project Drawdown (Project Drawdown, 2023) advocate for this potential by suggesting ways for decision-makers to leverage their position for ambitious climate action, beyond net zero targets. Examples of this include creating pathways for their employees to engage in climate action, addressing supply chain emissions, and valuing long-term thinking over the prioritisation of profit. Furthermore, schools and universities can look to normalise such ideals by supporting emerging adults to explore how their future careers could be intertwined with the demand for sustainability (Wynes & Nicholas, 2017) and advocate for the role they may have in promoting action via intergenerational learning (Lawson et al., 2018). Notably, this includes academics and professionals at universities, who have key roles through research, teaching, and the organisational citizenship to turn universities into role models for low-carbon organisations (Bernard & Chevance, 2023; Latter & Capstick, 2021; Papies et al., 2023). However, this will require stepping up for example in curbing academic air travel, breaking ties with fossil fuel investments and recruitment, and decarbonising campuses and supply chains, including university food systems (Hoolohan et al., 2020; Kourgiozou et al., 2021).

In addition to providing clear opportunities for climate action, communication efforts should also avoid presenting climate mitigation as a “self-sacrifice” (Peeters et al., 2021). Especially toward those who report the comforts of a carbon-intense lifestyle (Isham et al., 2022), efforts should elaborate on the possible benefits that climate mitigation can offer an individual, including leaving a positive legacy (Sherman et al., 2020) and intergenerational justice (Syropoulos & Markowitz, 2023). Evidence from the present research indeed supports the idea that climate action can be a positive experience, by eliciting satisfaction and pride, as well as cutting down on costs. However, it is also

important to motivate via the prospect of a better future and emphasise the increase of quality of life that comes with reducing carbon emissions (Schneider et al., 2021). Likewise, prompting individuals to consider the health impact of their emissions and highlighting the "unusualness" of their carbon-intensive lifestyles at a global level may also target motivations to engage. For instance, Lerner & Rottman (2021) showed that when high SES positions to act against climate change is compared to scenarios a lower SES, individuals with elevated SES attributed greater moral obligation to those of a high SES. This suggests that individuals' defensiveness of their lifestyles may be countered through subtle comparisons to others within society.

2.5.4 Limitations and Future Directions

We used Prolific to collect qualitative survey data to explore perceptions more broadly than by a small sample of interviews or by quantitative responses to closed, pre-defined questions. This was particularly suited to the exploratory nature of our research aims, as it enabled consideration of a wide range of responses to interpret. Furthermore, Prolific offers an anonymised space for participants that may help to generate more honest responses, which can be difficult during face-to-face interviews due to concerns of social desirability. Yet, using participants from Prolific limits our sample to those who are interested in participating in research, which may not be representative of the wider population of individuals with high SES. It is possible that using a prolific sample reflects stronger, more polarised opinions than if we had included participants who are less keen to share their views with researchers. In addition, qualitative survey data is at times restricted by the depth of response and the inability to probe for further insight into participants answers, compared to interviews. In the present study, it could have been particularly useful to understand participants' personal circumstances in more depth, especially with regard to their professional roles, as scope to implement decisions is often domain-specific and dependent on situational factors (Lee & Kim, 2015). For this reason, we cannot fully account for the obstacles that one may face when confronted with decision-making opportunities in professional roles. Future research may benefit from conducting interviews or asking more detailed questions about the organisational context to understand the domain specific barriers and facilitators to workplace opportunities.

A second limitation is that, despite our measures for subjective and objective SES, our sample does not fully represent those in society that are at the very "top" of society. As discussed above, our sample more likely represents the role of the "middle" actors in society, albeit with above average levels of income and typically high levels of education.

Where our analysis has provided insight into the role of this population, research in the future may choose to understand how those in the very "top" may share or differ in their climate change perceptions (Otto et al., 2019), focusing on the highest levels of wealth, emissions, and influence potential. Furthermore, sampling was primarily determined via subjective SES ratings, rather than specifically pre-screening for high-carbon lifestyles. Indeed, despite participants often indicating their engagement in high-carbon behaviours within their responses, we should not simply assume that all individuals in this study lead high emitting lifestyles. As a result, a further measure of individuals' personal engagement in high-carbon behaviours may aid in our current interpretations of their lifestyles and support the conclusions drawn from this data and could be addressed in future research. Our study also focused explicitly on individuals in the UK, a high-income country with high levels of emissions (Büchs & Schnepf, 2013). As generalising to other contexts is not the aim of in-depth qualitative research, similar studies in other high-income countries may be useful to determine if similar or different perceptions occur there. This should be established before developing targeted communication to catalyse climate action among high SES individuals.

It is also important to recognise that the presentation and interpretation of current findings may be inadvertently influenced by our positionality as authors. As researchers, we first acknowledge that exploring this topic is in line with our motivation to address the issue of climate change for both present and future generations. In particular, concerns about climate justice may motivate a strong desire to catalyse action among those who have the highest capacity to affect societal systems that lock in high emissions, and who often simultaneously have the highest carbon footprints. Furthermore, we acknowledge that the authors' own SES is of relevance, accepting that the privilege that accompanies our residence in a high-income nation such as the UK and our access to the social and financial resources afforded through a higher education institution may play a role in the perspectives, we hold over both the topic investigated and the participants connected to this study. However, to counter any potential influences or biases, we enabled an open discussion amongst authors and, adopted several credibility strategies (as documented on the OSF), including SD keeping a reflexive diary of thoughts and feelings throughout data analysis.

Lastly, for the purpose of the current research, participants were unaware that this study focused on the role of high SES individuals. While this was useful to reduce socially desirable responding, it may be interesting for future studies to understand how perceptions

differ when participants are directly encouraged to think about their SES. This could provide an opportunity to understand how attitudes emerge when confronted with one's position in society, especially relative to others.

2.6 Conclusion

Our findings offer an opportunity to consider the role of individuals with high SES in contributing to climate mitigation. Importantly, we offer insight into a population who hold privileged opportunities to address climate change not only as a consumer but also through their other social roles, such as their occupation and position within their social contexts. Our findings signal that communication efforts and targeted policy is required to encourage individuals to consider their roles beyond those of a consumer and increase their perceived opportunity, capability, and motivation within this space.

3. Chapter 3: A low-carbon future? Individuals with high socioeconomic status in the UK show little willingness to change high-carbon lifestyles for climate change mitigation.

This is a copy of the following preprint:

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3.1 Abstract

Changing high-carbon lifestyles of individuals with high socioeconomic status (SES) is an important step toward reducing greenhouse gas emissions and ensuring social justice within climate mitigation. However, many high-carbon behaviours (such as frequent flying and car ownership) are also used to signal status within individuals' social networks. Shifting consumption levels within high status individuals therefore may present a challenge, especially when individuals believe that engaging in high-carbon lifestyles is both normal and necessary. Here, we report the findings of a pre-registered online mixed-methods study in the UK (N = 511) that examined the associations of descriptive norms (i.e., perceptions of how often others engage in these behaviours) about high-carbon behaviours with policy support and with the likelihood to voluntarily reduce these behaviours for climate change mitigation. Contrary to our hypotheses, we found no meaningful association of descriptive norms with increased policy support, nor with decreased likelihood of voluntarily shifting behaviour. Participants showed high reluctance toward changing high-carbon behaviours through voluntary or policy action, but showed a slight preference for voluntary action that ran contrary to our initial predictions. This was mirrored within thematic analysis of our open-ended questions that revealed two main themes: (1) The desire for personal choice, which includes the option of not changing one's behaviour, and (2) High-carbon lifestyles increase happiness. There was little awareness of the need to reduce personal greenhouse gas emissions to secure a liveable future. Overall, our findings show that individuals with high SES are unlikely to reduce lifestyle-related emissions, or support policy to this effect, when it requires them to make direct changes to high-carbon behaviours. To change high-carbon lifestyles of individuals with high SES, citizens should be supported in envisioning and creating pathways for sufficiency-focused lower-carbon lifestyles that can be desirable and fulfilling.

Keywords: High Socioeconomic Status: Lifestyle; Descriptive Norms; Climate Change; Policy

3.2 Introduction

Certain groups within societies in the so-called Global North, such as those with high socioeconomic status (SES), may have opportunities for achieving deep and long-term societal transformations to curb the effects of climate change (Nielsen et al., 2021). This is due to not only their engagement in *unfavourable* high-carbon behaviours that contribute to the causes of climate change (Chancel, 2022; Oswald et al., 2020), but also their capacity to engage in more *favourable* action in support of climate mitigation (Matthies & Merten, 2022; Moser & Kleinhückelkotten, 2017). To illustrate their potential influence, aligning the per-capita emissions of the richest 10% to the EU average would reduce yearly emissions by over a quarter (Gore, 2020). However, the embedded use and coinciding social desirability of many high emitting behaviours (e.g., frequent air travel and motor vehicle usage) may hinder individuals with high SES voluntarily shifting their behaviours (Gossling et al., 2019a). This raises the question under what conditions individuals with high SES are likely to shift their behaviour to reduce their personal carbon emissions. Therefore, this paper examines to what degree individuals with high SES would support policy and voluntary action to shift their high-carbon lifestyles. This can provide policy makers with actionable insights for transformative change toward reducing GHG emissions. While our analysis here focuses on the UK, it may be applicable to other countries or populations with similar consumption profiles and cultures.

3.2.1 High-Carbon Lifestyles and High Socioeconomic Status

Individuals with high SES (i.e., those with increased wealth, education, and/or income) represent a demographic group whose material and social resources allow them to abundantly engage in above average levels of high-carbon behaviours (e.g., owning larger homes, increased air travel, owning and driving large and/or multiple cars; Büchs & Schnepf, 2013; Garcia et al., 2021; Gossling et al., 2019b). Indeed, just 10% of the population are responsible for over 50% of global CO2 emissions (Bruckner et al., 2022). Emissions from aviation in individuals with high SES are particularly disproportionate, where only 13% of individuals are responsible for 70% of all flights in the UK (Hopkinson & Cairns, 2021). Frequency of high-emitting behaviours, such as air travel, notably increases with income (Ivanova & Wood, 2020). Furthermore, excess levels of GHG emissions stem from other high-carbon behaviours such as increased car usage (Bel & Rosell, 2017) and owning larger homes that require increased energy usage (Wang & Meng, 2019). Emissions from clothing consumption also indicate that the richest 20% in Britain are responsible for 20 times the emissions of the poorest 20% (Wightman-Stone, 2023). Thus, it seems that consumption within higher status individuals is linked with the

pursuit of behaviours that may reflect “wants” more than actual “needs” (Cherrier et al., 2012; Dubois et al., 2021; Oswald et al., 2023; Wang et al., 2022).

Given that the lifestyles led by many individuals with high SES are characterised by the pursuit of high-carbon behaviours and practices, the perceived “cost” of restricting or limiting these behaviours may also be considered greater than for the average person (Rabaa et al., 2022). For example, restricting the air travel of someone with low SES who flies only once every few years may seem substantially easier compared to those of a high SES who flies multiple times in a single year. Therefore, to shift behaviour, it is necessary to examine what it will take for individuals with high SES to implement lifestyle shifts that will reduce their carbon emissions (Girod et al., 2014). Specifically, a focus is needed on understanding the willingness or intentions to change the behaviour that may directly limit their lifestyle choices (Wynes et al., 2018), such as those that involve the reduction of personal consumption habits (e.g., sufficiency behaviours; Sandberg, 2021).

3.2.2 The Potential for Behaviour Change in High SES Individuals.

Extensive research has sought to understand the scope and potential for individual behaviour change within climate mitigation (Habib et al., 2021; Ivanova et al., 2018). Accordingly, interventions aimed at curbing climate change have largely relied on individuals’ efforts to engage in more favourable consumption habits and practices (Whitmarsh et al., 2021). So too, researchers have been inclined to evaluate the conditions under which individuals are most motivated and encouraged to act, especially when the choice to do so is voluntary (Choi et al., 2021; Howell & Allen, 2017; van Valkengoed, 2019). Other research has also begun to examine individuals’ acceptance of policy, implemented by the government, that attempts to curb the emissions from individual behaviours (Drews & Van Den Bergh., 2015; Fesenfeld, 2022). However, it remains unclear whether individuals are more willing to shift their behaviour if this harbours a direct personal cost, or to support policy that would enforce this for everyone (Bernauer & Gampfer, 2015). This is especially relevant for individuals with high SES, where the pursuit of high-carbon lifestyles is both normalised and seldom questioned within society, suggesting strong social norms around high-carbon behaviours (Cass et al., 2023; Wiedmann et al., 2020).

Which factors reinforce and sustain current high carbon lifestyles of high SES individuals? Individuals’ perceptions of the behaviour of others in their social network’s (i.e., descriptive norms) can signal and validate that their high-carbon lifestyle behaviours

are not only normal, but desirable (Sparkman et al., 2020). Indeed, social norms and people's perceptions of these norms have been shown to be intrinsically linked with adoption of environmentally friendly behaviours on the one hand, and with inertia hindering change on the other (Constantino et al., 2022; Ham et al., 2015). This can manifest via the tendency for individuals to look to others to evaluate whether their choices are appropriate, and act accordingly based on these judgements (Cialdini & Jacobson., 2021). This may be particularly problematic for individuals with high SES whose reference group is primarily made up of others leading similar, or even higher emitting, lifestyles. Indeed, having high SES may be linked with less exposure to other groups within society (Manstead et al., 2018), for example those having lower-carbon lifestyles (Wang et al., 2021). Thus, selective perceptions of the status quo can lead to the view that high-carbon lifestyles are both normal and appropriate (Tankard & Paluck, 2016) – even when evidence at wider societal levels point to the emissions from these lifestyles as excessive and "unusual" (Ivanova & Wood, 2020). This may contribute to findings showing that individuals underestimate the impact of their behaviour on the environment (Wynes et al., 2020).

The pursuit of self-enhancement may also play a role in maintaining high-carbon lifestyles (Choi et al., 2020). According to social comparison theory, people may compare themselves to others to not only assess their choices, but also as a source of social validation (Pillai & Nair, 2021). So too, individuals look to signal their social status through their engagement in high-carbon lifestyles, for example showcasing their ability to purchase certain material items or go on expensive holidays (Choi et al., 2020; De Nardo et al., 2017). Therefore, the social desirability of these lifestyles can lead to individuals actively pursuing behaviours that may provide momentary reward, but also disproportionally contribute to the climate crisis. On the other hand, concerns over social desirability have also been used to explain the uptake of some environmentally friendly actions that have become increasingly embedded within social norms (e.g., recycling, Thomas & Sharp, 2013; electric vehicles, Griskevicius et al. 2010). However, unsustainable consumption habits remain locked in by equally embedded forces of social influence that maintain that their behaviours are a normal and desirable part of life (Cole et al., 2022; Seto et al., 2016).

People tend to conform to social norms especially when the deviance from norms is expected to lead to social or economic repercussions (Van Kleef et al., 2015). Indeed, studies have shown that the willingness to shift behaviour is negatively influenced by the

perception that doing so will be personally "costly" to an individual (Farjam et al., 2019). For many, these costs are primarily of a financial concern (Diederich & Goeschl, 2017), but for individuals with high SES who have increased wealth, these costs may be perceived in terms of threats to their social status or current lifestyle. Evidence shows that this may especially be the case when the cost is viewed as unilateral and without reassurance that others too will act (McGrath & Berauer, 2017). Conceptualised as the "free rider" effect, literature has shown that the belief that others will not limit their high-carbon behaviours can decrease intentions to do so oneself (Lamb et al., 2020). Moreover, people also want to engage in similar behaviours as their peers, not only to signal status, but also in part due to their desire to maintain social ties and share experiences within their social networks (Constantino et al., 2022). Therefore, individuals may be unwilling to voluntarily deviate from the activities that structure many of their social interactions and identities. Hence, we propose that when individuals perceive others to be engaging in these same high-carbon lifestyle behaviours, they will be less willing to voluntarily shift their behaviours to reduce their carbon emissions.

On the other hand, the reassurance that others too will engage in behaviour change, and thus the perception of a mutual cost, may increase willingness to engage. For instance, in a recent survey, only 28% of participants reported a willingness to reduce their personal carbon footprint, however this rose to 66% if participants could be count on others to do the same (Pearce, 2019). An effective pathway to ensuring this would be through policy that sets out a standard for everyone to adhere to (Jenny & Betsch, 2022). Indeed, when it comes to support for policy, studies show that individuals will often favour policy that appears proportional and fair (Maestre-Andres et al., 2019). Although it is unclear that how this manifests specifically in individuals with high SES who have been shown to be less supportive of redistributive policy (Brown-Iannuzzi et al., 2021), we propose that having reassurance that individuals in their social network will be required to limit high-carbon behaviours may counter concerns over losing social status from limiting one's own high-carbon behaviours. Thus, the perception of a level playing field amongst peers may avert upward social comparison that drives the desire for self-enhancement through high-carbon lifestyles. Therefore, we predict that high SES individual will be more supportive of policy that aims to shift everyone's behaviour compared to their voluntary willingness to limit high-carbon behaviours.

It is of note that research examining public acceptability of climate policies has offered considerably mixed findings that are largely dependent on the nature and type of

policy proposed (Mitev et al., 2023). For instance, studies show that individuals prefer industry focused policies over policies that aim to directly change demand-side consumer or citizen behaviour (Swim & Geiger, 2021). Furthermore, "pull" or incentivise-based policies are favoured over legislation that comprises of "pushes" or bans to behaviour (Swim & Geiger, 2021). Given the suspected unpopularity of push measures, lack or attention has therefore been placed on examining their acceptability (Capstick et al., 2014). However, for individuals with high SES that may be less incentivised by financial "pulls", considering their attitudes toward "push" policy may be important, as is assessing their willingness to voluntarily change their behaviour. This is especially relevant to consider within contexts where limiting luxury or surplus consumption would bring everyone toward a more sustainable level of consumption.

3.2.3 The Present Paper

In a pre-registered online mixed-methods survey among individuals with high SES, we examined the willingness to voluntarily limit high-carbon behaviours, the support for policy that would limit high-carbon behaviours, and how these are associated with perceptions of others' engagement in these behaviours. We included the behaviour changes proposed by the "Take the Jump" movement which presents individuals, leaders and businesses with opportunities to address consumption-based emission (takethejump.org). Based on 'The Future of Urban Consumption in a 1.5c World' report (*The Future of Urban Consumption in a 1.5c World* - Arup), this framework outlines six behavioural shifts to reduce personal carbon emissions, namely in the domains of air travel, diet, car usage, electronic goods, clothing consumption, and lifestyle shifts to "nudge" the system toward decarbonisation (such as improving the energy efficiency of one's home). Using this framework, we first assessed individuals' self-reported frequency of engaging in high-carbon behaviours, and their perceptions of the frequency of these behaviours among others in their social network. Next, we included measures of participants' willingness to voluntarily shift their behaviour towards the levels proposed by "Take the Jump" (e.g., taking a maximum of one flight every three years), and their support of policy aimed at shifting the lifestyle behaviours of everybody to those levels. Finally, we included a measure to assess whether individuals with high SES understand the impact of various actions on GHG emissions (i.e., carbon numeracy; Wynes et al., 2020), and we included four open-ended questions to explore the reasoning behind their quantitative responses.

3.2.3.1 Hypotheses

We hypothesised that higher estimates of the prevalence of high-carbon behaviours in their social networks would be associated with high SES individuals being less willing to voluntarily limit these behaviours (H1). In contrast, we hypothesised that higher estimates of the prevalence of high-carbon behaviours in their social networks would predict greater support of policy to limit these behaviours (H2). Finally, we predicted that individuals with high SES would be more supportive of policy aiming to shift the lifestyle behaviours in everybody rather than voluntarily shift their behaviour (H3).

3.3 Methods

3.3.1 Participants

Five hundred and eleven participants were recruited for this study via the participant recruitment platform Prolific (Prolific.co) (Age(M) = 43.8 years). To be eligible for this study participants had to be fluent in English, a permanent resident of the UK and between the ages 18-65. Additionally, only those who placed themselves between 7-10 on a subjective SES ladder on Prolific's pre-screening were invited to take part. A baseline questionnaire was used to collect relevant demographic information including age, gender, household income and education. Full demographic information is reported below. Participants completed this study on Qualtrics (Qualtrics, Provo, UT) (M(time) = 9 minutes and 40 seconds) and were paid £1.50 for taking part in accordance with Prolific's standard pro-rate hourly rate. Demographic information can be found in Table 8 below.

Table 8: Full Demographic Information

Mean Age (SD)	**43.8 (21.32)**
CV Age	48.68
Gender	
Male	261
Female	246
Non-Binary	2
Prefer not to say	2
Level of Education	
No Formal Qualification	1
Secondary School (e.g. GCSE's or equivalent)	22
College (e.g. A-levels, vocational qualifications or equivalent)	73
Undergraduate (e.g. BA, BSc or equivalent)	228
Graduate (e.g. MSc, MPhil, MA or equivalent)	160
Doctoral Degree (e.g. PhD or equivalent)	27
Mean Pre-tax Household Income (SD)	£83,500 (40,000)
CV Income	47.90
Subjective SES	
7	344
8	135
9	21
10	10

Note: Standard Deviations (SD) and Coefficients of Variance (CV)

The sample size was predetermined by conducting a power analysis prior to data collection for a simple linear regression. Analysis revealed that with an effect size of .2 and significance level of 0.05/3 (adjusted for Bonferroni corrections) sample size of 524 participants was required to obtain a power of .8. Our sample size was additionally bound by resource access and allowed the maximum number of participants under budget constraints.

3.3.2 Procedure

Participants who met the pre-screening criteria were invited to take part and directed to an information form containing study details. Before beginning, participants were required to give informed consent and met with additional in-survey checks to confirm their eligibility. The main survey consisted of five quantitative measures and four open-ended questions. These included measures concerning participants own behaviours, their perceptions of others' behaviours, their support for policy, and likelihood of voluntarily shifting behaviour. A final measure was used to determine how participants

perceive the impacts of certain actions to address climate change (i.e., “carbon numeracy”). The order in which the measures for policy or voluntary action appeared was counterbalanced between participants to avoid any potential order bias. When finished, participants were fully debriefed and given a final opportunity to withdraw their data from analysis. Participants were then directed back to Prolific and paid for their participation.

All procedures were in line with the British Psychological Society code of conduct and approved by the University of Glasgow Ethics Committee. To enhance transparency, all procedures, materials, and hypotheses were pre-registered prior to data collection via the Open Science Framework (OSF; https://osf.io/g43wb/?view_only=92e05d5b3cfd4856a6274e67ac760ee1), where all data is also available.

3.3.3 Quantitative Measures

3.3.3.1 *Prevalence of high-carbon behaviours in personal life*

Participants answered 7 questions to determine the prevalence of high-carbon behaviours in their personal life (e.g., “How many flights have you taken in the last 3 years?”). These behaviours were adapted from ‘Take the Jump’ (takethejump.co) and cover the domains of air travel, clothing consumption, electronic devices, diet, car ownership, and substantial life shifts. The behavioural shift of shifting to a plant-based diet was split into “shifting to a meat-free diet” and “shifting to a dairy-free diet”, resulting in seven questions to cover the six domains of Take the Jump. Each response was a numerical value. For the complete set of questions presented, see Appendix B.

3.3.3.2 *Prevalence of high-carbon behaviours in others’ lives*

Covering the same domains as above, participants answered seven questions to determine their perceptions of the prevalence of high-carbon behaviours among others in their social networks (e.g., “How many flights do you think others in your social network have you taken in the last 3 years?”).

3.3.3.3 *Support for policy to shift high-carbon behaviours*

Participants reported their support for policy of shifting seven high-carbon behaviours (e.g, “To what degree would you support policy that limits everyone’s air travel to a maximum of one flight every three years?”), namely to limit air travel to 1 every three years, limit new items of clothes to 3 per year, keep phones for at least 7 years, shift to a meat free diet, shift to a dairy free diet, no longer own a personal vehicle, and make at least 1 substantial

life shift, by responding on a 7-point Likert scale (‘1’ = “strongly oppose”, ‘7’ = “strongly support”).

3.3.3.4 *Likelihood of voluntarily shifting high-carbon behaviours*

Covering the same domains as above, participants reported their likelihood of voluntarily shifting seven high-carbon behaviours (.e., “How likely would you voluntarily limit your flights to 1 every 3 years?”) by responding on a 7-point Likert scale (‘1’ = “very unlikely”, ‘7’ = “very likely”).

3.3.3.5 *Perceived impact of behaviours to address climate change*

Participants reported their perceptions of the impact of various behaviours for addressing climate change. In addition to the seven behaviours mentioned above, we included 6 other behaviours with varying levels of carbon emissions (e.g., reducing food waste, recycling), taken from (Creutzig et al., 2021; Ivanova et al., 2020; Wynes et al., 2020; Wynes & Nicholas., 2017). Participants responded to the question “To what degree do you think that the below behaviour can contribute to addressing climate change?”, and responses were recorded on a 7-point Likert scale (1’ = “very low impact”, ‘7’ = “very high impact”).

3.3.4 Open-ended Questions

Participants were also asked four open-ended questions outlined in Table 9 below. These questions were developed by SD and EKP in weekly discussions of our research questions and interests. Questions were then piloted by SD to assess for clarity and comprehension and amended accordingly.

Table 9: Qualitative Questions

Q1	How would it make you feel to **voluntarily adopt these measures** (i.e. limit air travel to 1 every three years, limit new items of clothes to 3 per year, keep phones for at least 7 years, shift to a meat free diet, shift to a dairy free diet, no longer own a personal vehicle and make at least 1 substantial life shift)?
Q2	What, if anything, would hinder you from voluntarily shifting your behaviour towards the patterns described above?
Q3	How would it make you feel if the **government introduced these measures as policy** that applies to all people in the UK (i.e. limit air travel to 1 every three years, limit new items of clothes to 3 per year, keep phones for at least 7 years, shift to a meat free diet, shift to a dairy free diet, no longer own a personal vehicle and make at least 1 substantial life shift)?
Q4	What, if anything, would you alternatively do to reduce the greenhouse gas emissions from your own behaviour?

3.3.5 Data Analysis

Confirmatory quantitative analysis was conducted prior to qualitative analysis, as we felt that the quantitative findings could provide insights into possible patterns emerging from the open-ended responses. Specifically, we felt that knowledge of participants' policy and voluntary support could help provide an understanding into the contexts to which their attitudes and perceptions emerge. We used linear mixed effects analysis to assess the effect of descriptive norms on support of policy and voluntary action.

3.3.5.1 Quantitative Analysis

To test H1 and H2, we used linear mixed effects models. This allowed us to monitor both the fixed effect of descriptive norms and account for the variance that may occur amongst the random effects of behavioural domain and participants. Two linear mixed effects models accounting for the random effects of behavioural domains and participants were used to estimate the fixed effect of the perceptions of others lifestyle behaviours (i.e., descriptive norms) on both policy support (H1) and voluntary action (H2). To test H3, a third linear mixed effects model was performed to examine the effect of type of support (i.e., policy or voluntary) on participants' response. Results were deemed statistically significant if $p < .05/3$. All analysis was conducted in RStudio using the packages "*tidyverse", "ggplot"* and *"lme4".*

For H1, H2 and all exploratory linear mixed effects models, ‘descriptive norms’ were entered as a fixed effect and behavioural ‘domain’ and ‘subjects’ were entered as random effects. We also included by-domain random slopes for the effect of descriptive norms. Visual assumption checks were carried out on all residual plots and did not reveal any clear deviations from homoscedasticity or normality. P-values were obtained via likelihood ratio tests.

3.3.5.1.1 Data Preparation

Values of individuals numerical responses to the question of how long a participant keeps their phone were recoded as “7 – response”, taking the “Take the Jump” criterion of 7 years as a reference point, such that a smaller number of years translates into a higher score, reflecting higher carbon emissions. Similarly, values of individual numerical responses to the question of lifestyle shifts were recoded as “6 – response”, taking the “Take the Jump” criterion of 6 possible lifestyle shifts as a reference point, such that a smaller number of shifts made translates into a higher score, reflecting higher carbon emissions.

Through visual inspection and preliminary analysis, we found that our data contained a number of outliers within participants’ numerical responses to the frequency of their own and others’ behaviours. We conducted a sensitivity analysis to assess the impact of these outliers on model parameters. Looking at the output of both versions of the models (i.e., data with and without outliers present) we determined that the presence of outliers within the data did not meaningfully impact model interpretation. Furthermore, as it was plausible that participants did engage in such high frequency of such behaviours, outliers were therefore treated as naturally occurring and included in final analyses (Aguinis et al., 2013).

3.3.5.2 Qualitative Analysis

The qualitative data obtained via 4 open-ended questions was analysed through NVivo (NVivo Mac 14.23.0) using the reflexive thematic analysis (RTA) approach developed by Braun & Clarke (2006). The 6 phases of data analysis outlined by Braun & Clarke are: (1) Data familiarisation, (2) Generate initial codes, (3) Look for themes, (4) Review themes, (5) Define themes and (6) Produce report. A critical realist approach was adopted, whereby codes were developed in consideration for participants’ subjective realities and the researchers’ understanding of the world in which their knowledge was constructed. Applying this approach allowed us to gain insight into participants’ perspectives while also

reflecting on the context that may help explain how and why they occur. Credibility strategies were also employed to increase the transparency of the data. This included regular feedback of analysis, peer debriefing and consensus building among researchers. SD kept a journal of her experiences coding and her position in relation to the data to ensure reflexivity throughout.

3.4 Results

3.4.1 Descriptive statistics and correlational analysis

The means of each measure per behavioural domain are reported in Table 10. Individuals with high SES rated others in their social network as engaging in more high-carbon behaviours than themselves for all behavioural domains. Individuals also indicated a higher likelihood to voluntarily shift their behaviour for all behavioural domains compared to supporting policy to shift the behaviour of everyone.

Correlational analyses are reported in Table 11. This shows that there is a moderate correlation between participants' personal behaviour and descriptive norms. In addition, there are sizable correlations between the perceived impact of behavioural changes and the policy support and likelihood of voluntary shifts reported, such that actions seen as more impactful receive higher support.

Table 12 shows the substantial life shifts that participants reported that they had made, with the highest number of participants indicating that they had installed energy efficiency measures in their home (N = 157).

Table 10: Descriptive Statistics: *Personal Behaviour and Descriptive Norms display the means (M), standard deviations (SD) and coefficients of variance (CV) per domain of participants numerical rating of the frequency of engagement. Policy Support and Voluntary Likelihood represent the display the means (M), standard deviations (SD) and coefficients of variance (CV) of Likert score ratings per domain. Recoded means for both lifestyle and phone domains are reported in accordance to the described data preparation procedures (i.e., higher scores always indicate higher carbon emissions associated with a behaviour). Impact ratings represent the mean scores per domain of participants response to how impactful a behaviour is toward addressing climate change.*

Behaviour Domain		**Personal Behavior** (Own behaviour)	**Descriptive Norms** (Others' behaviour)	**Policy Support**	**Voluntary Likelihood**	**Impact Ratings**
		Numerical Value	***Numerical Value***	***7-Point Likert***	***7-Point Likert***	***7-Point Likert***
Flights		Number of flights in the last 3 years.		Limit to 1 flight per 3 years.		Less air travel
	M (SD)	5.52 (6.52)	7.70 (9.11)	2.42 (1.78)	2.86 (1.99)	5.09 (1.56)
	CV	118.12	118.31	73.55	69.58	30.65
Phones		Number of years phone is kept.		Keep phone for 7 years.		Keep electric goods
	M (SD)	3.12 (1.75)	4.44 (1.09)	2.99 (1.91)	3.38 (2.04)	4.64 (1.46)
	CV	55.21	24.55	63.88	60.36	31.47
Clothing		Number of new clothing items in a year.		Limit clothing to 3 new items per year.		Reduce clothing consumption
	M (SD)	14.15 (14.58)	25.57 (41.64)	2.64 (1.81)	3.51 (2.08)	4.51 (1.49)
	CV	103.04	162.85	68.56	59.26	33.04
Meat		Number of times meat is consumed in a day.		Shift to a nutritionally adequate, meat-free diet.		Eating a plant-based diet
	M (SD)	1.71 (0.94)	1.75 (1.75)	2.69 (1.83)	3.40 (2.12)	4.54 (1.67)
	CV	80.34	104.57	68.03	62.35	36.78
Dairy		Number of times dairy is consumed in a day.		Shift to a nutritionally adequate, dairy-free diet.		Eating a plant-based diet
	M (SD)	2.44 (1.76)	2.97 (1.89)	2.53 (1.70)	2.98 (1.91)	4.54 (1.67)
	CV	72.13	63.064	67.19	64.09	36.78

Vehicles		Number of personal vehicles.		Shift to no longer owning a personal vehicle, unless necessary.		Living car free
	M (SD)	0.98 (0.55)	1.40 (1.05)	2.59 (1.76)	3.01 (2.00)	5.08 (1.54)
	CV	56.12	75.00	67.95	66.45	30.31
Lifeshift		Number of lifeshifts (select all that apply).		One lifeshift to change the system per year.		Installing solar panels/renewable
	M (SD)	4.76 (0.93)	4.80 (0.93)	4.05 (1.90)	4.90 (1.69)	5.25 (1.30)
	CV	19.54	19.38	46.91	34.49	24.76

Figure 1: *Likert plot visualising policy support and voluntary likelihood ratings. Percentages represent the proportion of participants at either side of the scale.*

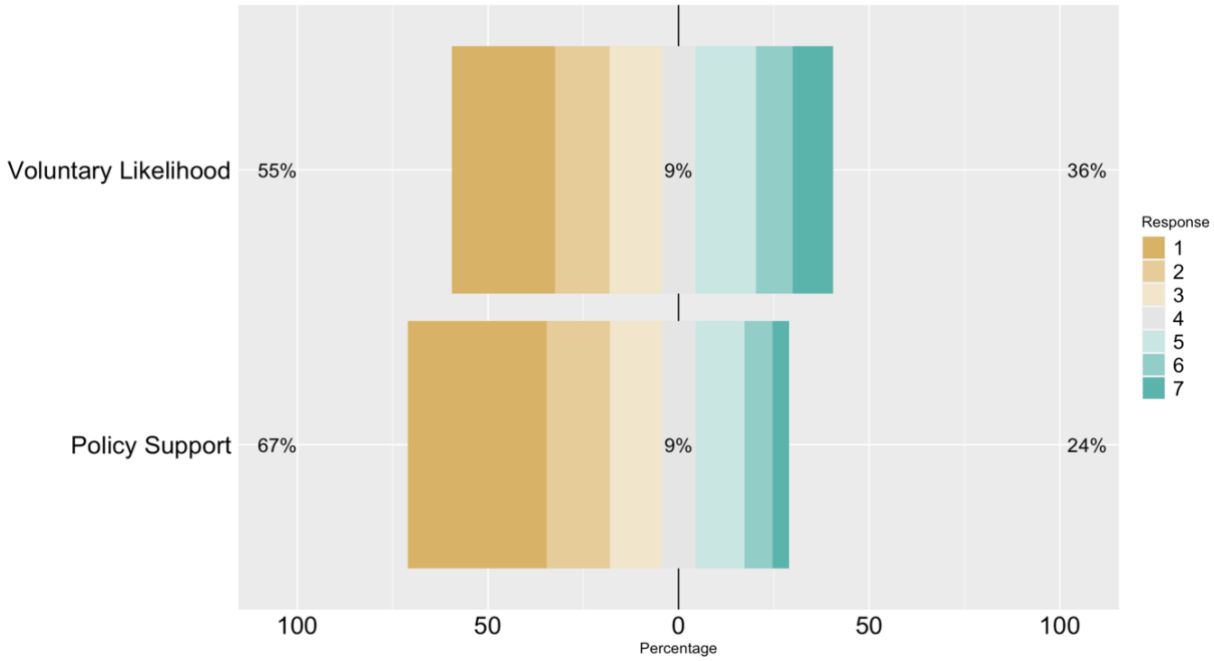

Figure 2: *Likert plot visualising policy support and voluntary likelihood ratings per behavioural domain. Percentages represent the proportion of participants at either side of the scale.*

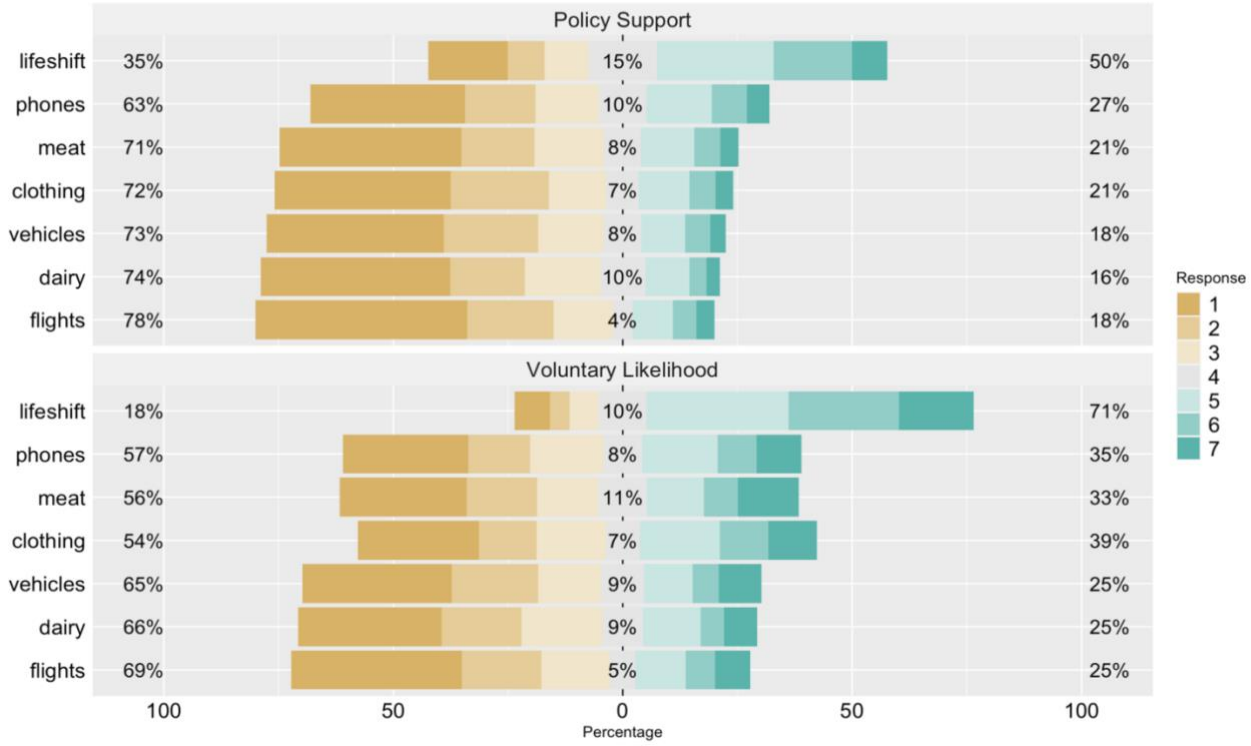

Table 11: Correlation Matrix

	Voluntary Likelihood	**Policy Support**	**Descriptive Norms**	**Personal Behaviors**	**Impact Ratings**
	7-point Likert	*7-point Likert*	*Numerical Response*	*Numerical Response*	*7-point Likert*
Voluntary Likelihood	1.00				
Policy Support	0.72**	1.00			
Descriptive Norms	-0.04*	-0.04*	1.00		
Personal Behaviours	-0.17**	-0.13**	0.56**	1.00	
Impact Ratings	0.40**	0.41**	0.00	-0.06**	1.00

*P < .05, **P < .001

Table 12: Count of Participants' Lifestyle Shifts

Substantial Lifeshift Behaviour	**Count**
Shift to a green energy supplier.	49
Shift your pension to a green investor.	3
Shift to an ethical or green bank.	3
Install energy efficiency measures in your home.	157
Decarbonising your home (e.g., heat pump or solar panels).	5
Other (e.g., work from home, switch to electric vehicle)	27

3.4.2 Confirmatory hypothesis tests

3.4.2.1 Descriptive Norms and Voluntary Shifts (Hypothesis 1)

Mixed effects regression analysis showed that in contrast to our hypothesis, there was no evidence that descriptive norms were meaningfully associated with the likelihood of participants voluntarily shifting their behaviour (see Table 13).

Table 13: Model 1 Summary

Fixed Effect	**Estimate**	***SE***		**Significance Test**
Intercept	3.81	0.40		
				0.08
Descriptive Norms	-0.08	0.05		
Random Effect		**Variance**	**SD**	**Correlation**
Participant	*Intercept*	1.49	1.22	
Domain	*Intercept*	1.04	1.02	-0.75
	Slope	0.01	0.12	

3.4.2.2 Descriptive Norms and Policy Support (Hypothesis 2)

Mixed effects regression analysis showed that in contrast to our hypothesis, higher descriptive norms did not predict increased support of policy (see Table 14).

Table 14: Model 2 Summary

Fixed Effect	**Estimate**	***SE***	**Significance Test**
Intercept	3.06	0.31	0.06
Descriptive Norms	-0.05	0.03	

Random Effect		**Variance**	**SD**	**Correlation**
Participant	*Intercept*	1.76	1.33	-0.83
Domain	*Intercept*	0.64	0.80	
	Slope	0.004	0.07	

3.4.2.3 Voluntary shifts vs. policy support (Hypothesis 3)

To test the hypothesis that individuals with high SES would be more supportive of policy aiming to shift the lifestyle behaviours in everybody rather than voluntarily shift their behaviour, performed another linear mixed effect model (in contrast to the t-test that we had pre-registered). Type of support (e.g., voluntary likelihood or policy support) were dummy coded so that policy support was the reference level, and thus coded as ‘0’, and voluntary likelihood coded as ‘1’. We entered ‘type of support’ as a fixed effect and behavioural ‘Domain’ and ‘Participant’ were entered as random effects. We also included by-domain random slopes for the effect of ‘type of support’. The model is summarised in Table 15. Examination of the output reveals that participants responses were on average 0.59 higher for voluntary likelihood relative to policy support.

Table 15: Model 3 Summary

Fixed Effect	**Estimate**	***SE***	**Significance Test**
Intercept	2.84	0.22	<0.001
Type of Support:	0.59	0.08	

Random Effect		**Variance**	**SD**	**Correlation**
Participant	*Intercept*	1.56	1.25	0.59
Domain	*Intercept*	0.31	0.56	
	Slope	0.04	1.20	

3.4.3 Exploratory Analysis

Assessing participants' perceptions of the emissions savings associated with various behavioural shifts showed that they mainly rated behaviours as moderate to high impact, with little differentiation between different behaviours (e.g., recycling vs. reducing air travel). This stands in contrast to the actual impacts of these behavioural shifts, as displayed in Table 16, based on Wynes & Nicholas (2017) and Wynes et al. (2020). Individuals rated installing solar panels/renewables as the most impactful action to address climate change and washing laundry in cold water and no littering as the least impactful.

Table 16: Mean Perceived Impact Ratings: *Participants rated impact of each action on a scale between 1 and 7. Behaviours shown in descending order from highest to lowest perceived impact.*

Behaviour	Perceived Impact (Mean)	Actual Impact	Source
Installing solar panels/renewables	5.25	Moderate	*Wynes & Nicholas (2017)*
Living car free	5.08	High	*Wynes & Nicholas (2017)*
Less air travel	5.09	High	*Wynes & Nicholas (2017)*
Conserving water	4.99	Low	*Wynes & Nicholas (2017)*
Reducing food waste	4.98	Moderate	*Wynes et al. (2020)*
Recycling	4.89	Moderate	*Wynes et al. (2020)*
Keeping electronic products	4.64	*No data*	*However, see: Singh & Ogunseitan (2022)*
Buy only local food	4.61	Low	*Wynes et al. (2020)*
Eating a plant-based diet	4.54	High	*Wynes & Nicholas (2017)*
Reducing clothing consumption	4.51	Moderate	*Wynes & Nicholas (2017)*
Wash laundry in cold water	4.30	Moderate	*Wynes et al. (2020)*
No littering	4.21	Low	*Wynes et al. (2020)*

We explored whether participants' perceptions of the impact of a behavioural shift predicted their likelihood of engaging in this shift or their support for policy for such a shift, conducting similar mixed effects models as described above with Impact ratings set as the fixed effect. Only the impact behaviours that corresponded with the 7 'Take the Jump' behavioural shifts were used in the analysis (e.g., living car free, less air travel, keeping electronic products, reducing clothing consumption, eating a plant-based diet). We found that higher impact ratings of domain-specific behaviours significantly predict an increased likelihood of voluntarily shifting behaviour and supporting policy to shift behaviour in everyone, which is in line with the correlations shown in Table 11 above (see Table 17 for Voluntary change and Table 18 for Policy support).

Table 17: Model Output**:** Impact Ratings and Voluntary Likelihood

Fixed Effect	**Estimate**	***SE***		**Significance Test**
Intercept	1.43	0.27		
				<0.001
Impact Rating	0.42	0.02		
Random Effect		**Variance**	**SD**	
Participant	*Intercept*	0.97	0.98	
Domain	*Intercept*	0.42	0.65	

Table 18: Model Output**:** Impact Ratings and Policy Support

Fixed Effect	**Estimate**	***SE***		**Significance Test**
Intercept	1.42	0.22		
				<0.001
Impact Rating	0.30	0.02		
Random Effect		**Variance**	**SD**	
Participant	*Intercept*	1.34	1.16	
Domain	*Intercept*	0.27	0.52	

3.4.4 Qualitative Findings

Table 19 provides an overview of the themes and subthemes generated via our thematic analysis of participants' responses to the four open-ended question.

Table 19: Outline of Themes and Subthemes

Theme		Summary
Theme 1: The importance of personal choice	**Subtheme 1.1** *Desire to "Set own limits"*	Participants emphasised the importance of personal choice when making climate change decisions and felt that individuals should be able to set their own "limits" in regard to shifting their behaviour. Personal circumstances and the availability of suitable infrastructure to support decisions was additionally highlighted.
	Subtheme 1.2 *Opposed to government regulation.*	Personal choice and preference for voluntary action was emphasised through participants highly critical accounts of government regulation. Participants particularly rejected the government "controlling" their decisions and felt that their freedom would be considerably impeded.
Theme 2: High-Carbon Lifestyles Increase Happiness	**Subtheme 2.1** *Perceived decrease in quality of life*	The degree to which participants perceived that shifting their behaviour would decrease the quality of their life. This was often attributed to feeling as though they are "sacrificing" their happiness, enjoyment, or convenience.
	Subtheme 2.2. *Comparison to others*	Participants particularly viewed the possibility of voluntarily shifting their behaviour particularly as a "sacrifice" when they compared themselves to others who they believed would continue to engage in high-carbon lifestyles. At times, individuals criticised policy via the idea that they also could not rely on the government and/or elites to comply with the changes imposed.

3.4.4.1 **Theme 1:** The importance of personal choice

Our quantitative finding that participants preferred voluntary action over policy was mirrored in our analysis of participants' open-ended responses. Here, most participants' preference for voluntary action was highlighted through the value they placed on personal choice within climate change decision-making. Two subthemes are presented below, followed by supporting quotes in tables.

3.4.4.1.1 **Subtheme 1.1:** *Desire to "Set own limits".*

Many participants expressed their desire to set their own limits regarding the extent that they would change their behaviour to address climate change. As such, individuals seemingly voiced their preference for voluntary action in that it would allow them the opportunity to shift their behaviour in line with their personal lifestyles and desires. Often, individuals felt that the shifts proposed were "too extreme", "unreasonable" or "restrictive", and sometimes led them to express their own preferred version of such shifts (e.g., one flight every year instead of three years). Many individuals indeed appeared to favour the behaviours that would have least impact on their life and that voluntary action would allow them to adapt their behaviour to their personal willingness to "sacrifice". At times, voluntary action seemed preferred as it would allow individuals to *not* shift their behaviour. Some participants emphasised that they would not accept any changes to their general lifestyles and communicated feeling entitled to spend their incomes how they desired.

Notably, setting personal limits was also discussed in consideration of personal circumstances, where participants felt that shifts should be in line with individuals' abilities, financial capability, work, and family obligations. Hence, most participants stressed the need for available infrastructure to support individuals in their decisions. Through discussing concepts such as "pick and choose which measures to adopt", a very gradual approach, or being able to disengage from behavioural change whenever they want, participants showed no awareness that these behaviours may reflect excessive overconsumption of energy and contribute significantly to the climate emergency.

Table 20: Subtheme 1.1 Supporting Quotes

Voluntary preferred over policy	P19 It would just be because I decide to do so, which is better than the government forcing this on me. P31 I don't like the idea of doing this through a policy framework, I like these concepts through the lens of personal choice
Desire to set own limits	P325 I would feel happy to voluntarily adopt these measures. I would feel a degree of freedom in doing so, rather than being told to do so. I can pick and choose which measures to adopt. P471 The lifestyle impacts of adopting those measures in their entirety could be too harsh. Moving towards them is more achievable.
Support of voluntary action as a means to not shift behaviour	P352 If I was doing it voluntarily it would be fine, as it is my own choice and I can stop whenever I want.
Extremity of proposed shifts	P425 The proposed restrictions are simply too much. P476 It would be extremely difficult and I just do not think anyone could make these adjustments as they are so extreme.
Acceptance dependent on how much it impacts their lives	P510 It must be at no cost to me. P390 I would do more recycling or something that doesn’t impact my lifestyle. P259 I might feel better about the environment, but it would make my life less happy and much more difficult to live so I wouldn't be willing to do a lot of it. I'd be happy to amend something that is less personal like get solar panels etc.

The need to account for personal circumstances	P132 I think these measures are harsh and do not consider everyone's circumstances. The policies may affect certain people very negatively and threaten their livelihood. P13 I think people have different priorities so whilst one person wouldn't mind being limited on travel, for others like myself it is a priority. P458 I feel it would be fundamentally wrong to impose such measures. People and society are very complex as are individual's lives. There can be no one-size-fits-all solution.
The need for infrastructure to support their decisions	P350 I think this would be amazing, as long as the relevant changes are put into place to support this, i.e. manufacturers build phones that last 7 years, government introduce nationalised car shares across the entire country. We need to make it easy for people to make these changes. P492 I would be happy if the policies were put in place but some support also has to be given, many households can’t afford a healthy vegan diet. Cheap meat is often the easiest way for people to take calories on. Public transport and cycling paths would need to be improved and not shared with bus lanes!

3.4.4.1.2 **Subtheme 1.2:** *Opposed to government regulation.*

Mirroring their preference of voluntary action, participants voiced highly critical accounts on the role of the government in regulating behavioural shifts. Specifically, they felt that policy would significantly impede their freedom and pose a direct threat to their right of personal choice. Participants, at times, described scenarios in which this policy was introduced as "draconian", "dictatorship" and too "nanny state", therefore highlighting their significant opposition of such government control. Indeed, some participants directly brought the role of the government into question by expressing their aversion to governments "interference". Notably, individuals also reflected on the fairness of such shifts, where they felt the government should be focusing on the emissions they themselves are responsible for, again not acknowledging that the emissions from their own lifestyles may be exceptionally high as well. Participants referenced the concept of personal freedom without reflecting on the fact that not everyone in society may have the freedom associated with high resources, and that resource overuse by some inevitably limits the freedom of others.

Table 21: Subtheme 1.2 Supporting Quotes

Opposition to policy imposed by the government	P277 This would be unfair and the government cannot impose those policies because that's against freedom and would affect negatively my livelihood.
	P399 I would be very unhappy. Life is all about making personal choices. By the government doing this, it's a control issue and I really oppose that.
Impedes personal freedom of choice	P326 It would make me feel quite restricted and encroaching on my free will and ability to make decisions for myself.
	P90 I would feel like my freedom of choice had been violated. It would feel like the government was interfering too much in our lives.
Feeling controlled	P35 Controlled and limited by a nanny state impeding personal choice and freedom.

	P76 I would feel like my choices and independence is taken away from me. P182 It would feel like a violation. We should be encouraged to make greener choices, but it should not be controlled for us. We live in a free society.
Questioning government authority to make these decisions	P45 I do not believe the government should be able to take these choices away from civilians. P144 It would make me feel that we lived in a dictatorship. I don't believe that the government should be able to control people's actions to this extent.
Shifting responsibility away from the individual consumer	P6 The focus should be on the government to change manufacturing processes to address green issues at the source as opposed to individuals making huge changes to their lives which effectively make no difference. P154 I think it’s misplaced focus on changing individual behaviour when companies are creating huge issues

3.4.4.2 Theme 2: High-Carbon Lifestyles Increases Happiness.

When presented with the behavioural shifts from both a voluntary and policy standpoint, many participants emphasised their aversion to changing their lifestyles due to many of the behaviours listed being a part of the happiness or wellbeing. Two subthemes are presented below, followed by supporting quotes in tables.

3.4.4.2.1 Subtheme 2.1: *Perceived decrease in quality of life*

Participants regularly connected high carbon behaviours with happiness, fulfilment, or sense of wellbeing. As a result, the suggestion of altering their behaviours was viewed as something that would decrease the quality of their life and equate to a considerable personal "sacrifice". This was particularly the case for flying to travel to new places or visit family in other parts of the world. Notably, participants reported feeling "deserving" of such lifestyles and emphasised that they work hard to earn a good income and should be afforded the opportunity to spend their money how they desire. Indeed, individuals seemed particularly permitted to engage in high-carbon lifestyles, especially when viewed as something that they have worked toward or been without during the context of the Covid-19 pandemic.

A perceived decrease in quality of life was also linked to the inconvenience that shifting their behaviours may cause them, e.g., the inconvenience of taking public transport or looking for plant-based alternatives. As such, participants responses often centred around an analysis of the potential costs and benefits of shifting their behaviour. Indeed, most felt that the costs of shifting their behaviour would outweigh any potential impact they could have on the planet. Despite many voicing their preference to not shift their behaviours, a few notable participants did suggest that they would tolerate or accept the shifts if it meant ensuring a better future (i.e., environmental benefits outweighing personal costs). It was striking that almost none of the participants considered the costs that they may experience due to not shifting their behaviour and failing to address climate change. Instead, participants primarily contemplated how shifting their behaviour would make them feel in the present.

Table 22: Subtheme 2.1 Supporting Quotes

Enjoyment of high-carbon lifestyles	P59 It's as simple as "I want these things".
	P68 The fact that I wouldn't want to change my behaviour. I want to go on holidays, buy new clothes, have a nice car, have a phone whose battery doesn't die. These things add to my life and make my life better!
	P401 Travel and holidays are such an important part of my life. My favourite pastime and when I'm not travelling shopping is my hobby.
	P18 It would be hard to limit clothes buying as it is an important part of my self-esteem and happiness.
Perceived decrease in quality of life	P349 Adopting the limitations above would make me feel a bit miserable to be honest as they impinge on living an interesting life.
	P76 It would bother me and this would be impacting on my lifestyle and the things I get enjoyment from.
	P196 I can't compromise the quality of my life I'm sorry.
	P144 I would feel very restricted by these decisions and that I wasn't necessarily enjoying or making the most of life.
Shifts described as "sacrifice"	P324 I would feel like I am restricting my lifestyle, why should I impose such limits, a nice thing that we enjoy 2/3 times a year is a holiday. Which I am not willing to sacrifice.
	P454 Asks an individual to give up too much that is important to them personally.
	P311 This would feel like a substantial sacrifice, some measures more so than others.

Deserving of high-carbon lifestyles	P341 I work hard to earn my salary and I'll spend it on however many flights, cars, steak dinners as I'd like. P478 I would absolutely hate this, travel especially - I work hard 5 days a week to earn a decent wage so I can travel and experience new places and cultures. Limiting this would ruin my lifestyle. I also love fashion so it would kill all my hobbies and interests. P101 My standard of living. I have worked hard to achieve this and would not want to take a drop in this. P288 It would not give me the lifestyle I want, and I have worked hard to get the options. P208 Travelling is something I enjoy doing, life is short and after the covid years I'd be unwilling to limit myself.
Inconvenience of behavioural shifts	P276 it would be difficult to adopt these measures and make life even more difficult and cause a great deal of inconvenience.
Personal costs outweighing environmental benefits	P17 I don't feel like it would make a big enough impact by restricting the things I enjoy doing / own. P259 I might feel better about the environment, but it would make my life less happy and much more difficult to live so I wouldn't be willing to do a lot of it. P246 I'm not limiting my life when it won't change things. P30 The idea that my own contribution would make next to no difference would prevent me from inconveniencing my lifestyle in a major way.
Environmental benefits outweighing perceived personal cost	P24 I think I would feel angry at first about some things, like being unable to own a personal vehicle, but actually I would come around once I had seen the positive impacts on the planet. I

	think I would feel better, and change would be easier knowing that everyone around me also had to make the sacrifices.
	P178 I think it would be a necessary evil for this to happen and certainly good for the planet.
	P344 It would be unfair and immoral but for the sake of the planet it may be necessary.
	P268 It'll be a big effort, but worth doing in the long run.
	P312 It would make me restricted, but I would also really see the long-term benefits for the environment and the planet too.

3.4.4.2.2 **Subtheme 2.2:** *Comparison to others*

The perceived "sacrifice" of the actions was reflected on most when it came to individuals not wanting to be the only ones to shift their behaviour. Especially when asked to consider how voluntarily shifting their behaviour would make them feel, participants regularly engaged in a comparison toward others and felt that they would be depriving themselves of things others were able to freely enjoy. While most comparisons were to those in their personal networks, some additionally reflected on the UK as a nation, with individuals questioning why the UK has to be disadvantaged when other countries pollute more and are doing less to address climate change. Hence, the idea of "missing out" was clear and appeared intrinsically linked to their unwillingness to change their behaviour.

Indeed, being unable to rely on others to also engage emerged as the only reason participants observed any benefit of introducing policy, as we had reasoned at the outset of the study. However, some also felt that people would find ways to circumvent any restrictions and alluded to people refusing to participate or finding a way around the rules. Notably, and given the study was situated in the UK, many participants believed with confidence that the government and/or elites would find a way to exempt themselves from the rules. This was again compared to incidences during the Covid-19 pandemic where people felt that they could no longer trust the UK government to comply.

Table 23: Subtheme 2.2 Supporting Quotes

Comparison to others	P365 I rarely fly for holidays. I would agree to one flight (and return!) every three years if others were made to do the same. I have friends who take maybe 12 flights a year.
	P445 I would feel that I am doing something to secure the future for my son although I have hardly flown before the last few years because we didn't have money to take foreign holidays. We have had to watch friends and family do multiple holidays a year abroad for most of my son's childhood and part of me would resent that now we are more financially able to travel I would resent not being able to do so.

Not wanting to be the only one to make "sacrifices"	P58 Like I was making an effort, but I would feel resentful if everyone around me continued as normal. P236 I just wouldn't do it am afraid I would feel resentful and sceptical that others would adopt the same mindset. P32 If I would make these sacrifices, I would expect there to be a universal effort where on mass the same and similar sacrifices were made. P307 If everyone had to do it then I would feel better about doing it. the population of the UK is around 67 million, so every person adopting these policies would lead to a change.
Feeling like an outsider	P2 I would like to adopt these measures! I would enjoy this. However, we exist in a system that values capitalism and so I feel I'd be an outsider.
Feeling like you are "missing out"	P307 it would make me feel like I was missing out compared to everyone else. The amount of benefit that I alone would make by doing these would be so small that it would not be worth the sacrifice. P407 I would understand the importance of it and feel like I was making the right and fair choices, although I would feel upset that I would feel limited compared to my peers – i.e., not able to travel as much or buy as many clothes etc. P24 I think it would give me a sense of achievement to know that I had done something in an attempt to make a difference to the world. I do also think it would be very difficult, as those around me would not make similar choices and I would envy their indulgences.
Global comparison	P237 Impact on the quality of my life and the belief that this would be a country specific measure that others would not follow and therefore it would not make a difference.

	P491 Unless you get all the countries in the world to do the same then you are hurting yourself for no benefit.
Voluntary as less effective than policy	P56 I think it should be a choice that people can make for themselves. But also, I'm not sure how much good we can do without policies like this. Change needs to happen.
Government and/or elite would not follow restrictions.	P266 I think that this wouldn't apply to the rich. They would still be able to do what they wanted. P318 It would feel extremely controlling because we know those in charge wouldn't follow the same rules, and would find some way to get around them. P407 As long as everyone did it and they made sure politicians and extremely wealthy people also had to adhere to these rules, I wouldn't mind it. P425 If the way that the current leadership party behaved during Covid is anything to go by, they would not allow themselves to be restricted from doing what they want regardless of policy.

3.5 Discussion

3.5.1 Summary of findings

This study examined the likelihood that a sample of individuals with high SES in the UK would support policy and engage in voluntary action to reduce lifestyle-related emissions for addressing climate change. Specifically, we explored whether perceptions of the behaviour of others in their social network would influence their acceptance of behavioural shifts aiming to reduce their consumption-based emissions. Contrary to our hypotheses, we found no meaningful association between descriptive norms and support of policy, nor between descriptive norms and the likelihood of voluntarily shifting behaviour. Despite acceptance of shifts being overall very limited, we found that participants preferred the idea of voluntarily shifting their behaviour compared to the possibility of policy that would apply to everyone. A preference for voluntary action over policy was also mirrored within our qualitative analysis of responses to open-ended questions. Here, participants attributed great value to personal choice and seemed resistant to accept shifts due to the desire to not diminish their current quality of life. Therefore, our results signal that acceptance of measures to address climate change, especially when the behavioural implications of doing so are clear, is very limited within this sample of individuals with high SES in the UK. Exploratory analyses revealed that perceptions of the impacts of specific individual actions for emission reduction strongly predicted both the likelihood of voluntary action and policy support. However, participants showed low "carbon numeracy", as they overestimated the impact of actions such as recycling and underestimated the impact of high-carbon activities like air travel.

3.5.2 Theoretical Implications

In exploring the perceptions and policy support of individuals with high SES in a high-income country, we add to the existing literature examining their role in addressing climate change as consumers. Notably, participants believed that others in their social network engaged more in high-carbon lifestyle behaviour than they themselves own across all behavioural domains. Although we were unable to support previous research identifying the causal effect of descriptive norms on behaviour (Doherty & Webler, 2016; Sherman et al., 2021), we did find a notable correlation between descriptive norms and behaviour that mirrors the existing literature (Cialdini & Jacobson., 2021). In consideration of this relationship, our findings offer an insight into the societal context for which participants' perspectives are constructed and shaped. In other words, resistance to the behavioural shifts proposed within this study may more generally occur due to the shifts representing too much of a deviation from what people in a high-income context consider

and experience to be a normal and necessary lifestyle. So, regardless of whether the behaviours were presented to them from a policy or voluntary standpoint, the behavioural changes themselves may simply appear as too extreme or unreasonable within their perceptions of the status quo. Hence, support for each was extremely limited and often met with resistance and resentment.

Through our analysis of participants' qualitative responses, participants could be seen to justify their resistance to shifting their behaviour by conflating "wants" with their perceptions of "needs". Building on Jackson and Papathanapoulou (2008) analysis of luxury lifestyles, our findings indeed reinforce the idea that the pursuit of luxury or material lifestyles has become a "locked in" pattern of consumption. Especially in high income nations such as the UK, the bounds of need satisfaction from energy usage seem to have become skewed (Brand-Correa & Steinberger, 2017) and amplified by situational cues, such as the media and advertising, that promote high-carbon lifestyles as both desirable and "deserved" (Cohen et al., 2021; Hartman et al., 2022). Thus, our results suggest that behavioural plasticity is low and kept low by the capitalist values that support inaction (Seto et al., 2016). To aid in the transition to lower-carbon lifestyles, a better understanding of the boundaries of one's desires and needs, especially in consideration of individuals' diverse personal circumstances, is required. Indeed, future research may benefit from assessing these boundaries in comparison to individuals with lower SES to contextualise participants' perspectives within the wider society. It is through this comparison that we can examine different expectations for what equates to "enough" (Fawcett & Darby, 2019) and gain an understanding of what is needed for individuals with high SES to live a satisfied *and* sustainable life.

In extension of participants viewing their lifestyles as normal within their social networks, we can also connect our findings to existing "discourse of climate delay" (Lamb et al., 2020). Complimenting recent research by Cass et al. (2023) which showed the tendency for high energy users to justify their lifestyles through defensive discursive strategies, individuals in this study also indicated a level of entitlement that corresponded with their resistance toward shifting their behaviours. Similar to the focus groups described by Cass et al. (2023), participants sometimes described feeling deserving of their high-carbon lifestyles due to their "hard-earned" incomes that they felt inclined to spend without limitation. Individuals notably failed to acknowledge those with low SES who also work hard, but for lower salaries that do not afford the same lifestyle opportunities. Indeed, individuals regularly failed to identify the unusualness of their position or behaviour at

both a global *and* societal level (Chatterton et al., 2016; Galvin & Sunnika-Blank et al., 2018). For instance, many participants suggested that flying and car usage was necessary and unreasonable to live without. Yet, in a typical year, over 50% of the population in the UK do not fly at all (Buchs & Mattoli, 2021) and 30% of households do not own a car (Brand et al., 2013). Hence, participants maintain societally maladaptive perceptions of the status quo that fail to generalise toward others. As such, focusing the direction of descriptive norms toward wellbeing, rather than consumption, may showcase existing, and fulfilling, lower-carbon lifestyles (Wang et al., 2021), and may help orient social norms towards sufficiency and wellbeing rather than overconsumption (Vogel et al., 2021). Future research may explore whether such a shift in norms could facilitate a public discourse that interrogates the growth imperative of current Western economies and considers social and ecological benefits of post-growth or wellbeing-oriented economies (Hickel et al., 2021; McCartney et al., 2023; Raworth, 2017).

Acceptance of behavioural shifts was extremely low for both policy and voluntary scenarios. Yet, our findings do indicate a slight preference for voluntary action that ran contrary to our initial predictions. Our qualitative analysis specifically suggested that such preferences stemmed from a desire for personal choice, in which participants strongly felt that the government should have no say in impeding. Although this somewhat contradicts research that suggests individuals look to others to help regulate their behaviours through policy (Kukowski et al., 2023) our findings do align with research that suggests individuals do not support policy that is seen to impede personal freedom (Drews & Van Den Bergh, 2015). This may be especially relevant considering that the shifts presented in this study represent those that would require direct behavioural change, and participants seemed to want to avoid any change at all. Therefore, our findings may be representative of the perceptions individuals hold towards policy when they are confronted with the reality of what this could look like for their own behaviour.

Notably, our study focused on individuals with high SES, which contrasts with most previous research but represents those that require a greater shift from their current lifestyles to reduce emissions to sustainable levels. Indeed, when participants in this study favoured voluntary action, analysis of open-ended responses indicated that such preferences may often be a means to avoid acting at all, and that participants implicitly expected that they would be able to maintain their current lifestyles. At most, they seemed willing to consider a “gradual approach” or “picking and choosing” actions – a strategy which will no longer suffice to produce the radical emission reductions needed across

sectors to avert climate breakdown (Ripple et al., 2023). Hence, our findings may be indicative of how far individuals are truly willing to go to support climate change when it requires them to change their behaviour, suggesting that tailored strategies, including education, may be needed to achieve lifestyle-related emission reductions among this demographic group. Furthermore, participants' perceptions of shifting their behaviour seemed particularly limited by their view of inadequate structural conditions to support their action (e.g., lack of suitable travel infrastructure or alternatives). Therefore, increasing individuals' willingness to shift their behaviour, while also providing support through the improvement of infrastructure, may help increase individuals' belief that they are capable of reducing their high-carbon behaviours.

Our findings can be viewed through the lens of the COM-B model of behavioural change that can help to predict behaviour within societal transformations (Mitchie et al., 2011). This model states that one's personal *capability,* physical and social *opportunity,* and driving forces of *motivation* align to determine *behaviour*. Our results suggest that, despite sometimes having the opportunity to shift their behaviour, participants in this current study lack the psychological capability to restrict their high-carbon lifestyles. Furthermore, participants are often unable to realise how their own or others wellbeing or livelihoods could be threatened by climate change and hence may lack sufficient motivation to significantly alter their behaviour. This appears to be exacerbated by their enjoyment of their current lifestyles that adversely drives the pursuit of high-carbon behaviours. For individuals with high SES to understand and accept the benefits of a low-carbon lifestyles, interventions should focus on aligning their social and financial opportunities with increased perceptions of personal capability (Berthold et al., 2023). From a critical realist perspective, it may indeed be of importance to encourage individuals to consider their disproportionate environmental impact and provide them with personalised information to understand why shifting high-carbon behaviours is of such importance. This in combination with creating "social imaginaries" for low-carbon wellbeing futures (Stoddard et al., 2021) and prioritising policy interventions and investment changes to the conditions and context they exist within, may provide effective ways to increase their capability and opportunity to succeed.

3.5.3 Practical Implications

A rapid transition to low-carbon lifestyles is needed to mitigate climate change, especially in high-income nations (Schanes et al., 2016). Yet, participants in the current study demonstrated a high level of reluctance toward shifting their behaviours away from

their current high-carbon habits. Lower-carbon lifestyles may indeed appear to harbour an initially high social cost (Wang et al., 2021). However, taking steps toward these actions now has the potential to rapidly cut emissions and achieve global climate targets (Pettifor et al., 2023). This is especially the case for individuals with high SES, whose consumer-based emissions disproportionally contribute to the climate crisis (*Climate Equality: A planet for the 99%* - Oxfam, 2023; Ivanova et al., 2015; Oswald et al., 2020). Thus, engaging in profound and direct steps may still help to limit some of the longer-term impacts of climate change (Barrett et al., 2022; Capstick et al., 2014), such as the social, health and economic insecurity that can threaten livelihoods and make addressing climate change even more challenging in the future (Goldstein et al., 2020; Maibach et al., 2021b).

Our findings suggest that to shift the high-carbon lifestyles of individuals with high SES, a focus should be placed on perceptions of wellbeing alongside achieving sustainable transitions. Indeed, achieving individual behaviour change in conjunction with maintaining or enhancing quality of life appears essential to secure public acceptance. However, it is important that achieving wellbeing occurs concurrently with attempts to satisfy the wellbeing for all within planetary boundaries, rather than only the wellbeing of a privileged few – and this is fundamentally dependent on curbing the effects of climate change (O'Neill et al., 2018; Vogel et al., 2021). Therefore, it is of value to critically interrogate how the baseline of needs and desires that provide a decent life relates to the surplus of energy use that high SES individuals claim as "needs" (Wadud et al., 2022). Achieving this requires an understanding of the context that shapes high-carbon behaviours; for instance, does car dependency always exist to fulfil genuine needs, or simply satisfy perceptions of convenience or ease (Baltruszewicz et al., 2023)? Indeed, evaluating the purpose of high-carbon behaviours (i.e., flights and car usage) may play an important part in designing policy that promotes an equal and fair baseline of energy usage. Thus, prioritising sufficiency alongside satisfying what is needed for a good quality of life is essential to ensure social justice to enhance the wellbeing of everyone (Bärnthaler & Gough, 2023; O'Neill et al., 2018; Wiedmann et al., 2020).

Given that individuals with high SES tend to already have high well-being and life satisfaction (Baltruszewicz et al., 2023), it may be difficult to persuade them to see the benefits of sufficiency – especially within their personal social networks. Instead, appealing to non-materialistic values (alongside advocating for sufficiency) may bolster intrinsic wellbeing and eudaemonic happiness (Isham et al., 2022). For instance, positioning individuals with high SES as leaders and role models within climate mitigation

can be a means in which to alternatively signal their status in a more productive way (Westlake, 2017). Furthermore, reward may be gained in an intergenerational context by appealing to individuals' desires to leave a positive legacy and secure a promising life for future generations (Hurlstone et al., 2020; Syropoulous et al., 2023). Therefore, looking beyond materialistic pursuits may offer a pathway whereby limiting consumption-based emissions is more accepted and fulfilling, not only for individuals with high SES, but for all within the boundaries of the living planet (Raworth, 2017).

Alongside finding avenues to address climate change voluntarily, social legitimacy of climate policies must be strengthened to ensure democratic values are upheld (Nightingale, 2017). Indeed, opposition to policy within this study seems particularly biased by recent events concerning the Covid-19 pandemic that has reduced trust in the UK government to implement effective and fair legislation. Therefore, stronger communication and transparency from the government is needed to present the reality and urgency of climate change to the public. It is important that information is also conveyed via other reliable sources, such as health practitioners and organisations (Maibach et al., 2021) and places of education (Latter & Capstick, 2021). Furthermore, limits to advertising and marketing can help dismantle the promotion of the desirability of high-carbon lifestyles (Isham et al., 2022). Together, these strategies can help reinforce government messaging and deliver alternative perspectives to frame the importance of addressing climate change across different domains.

Public acceptability of policy may also appear more favourable when individuals can be involved in implementation (Di Gregorio et al., 2019). For instance, climate citizen's assemblies that seek to combine public opinion with actionable change have been shown to bolster public acceptance (Boswell et al., 2022). This may also help strengthen communication between citizens and decision-makers so that personal circumstances can be expressed and accommodated for (Willis et al., 2022). This may be especially effective to supplement the voices of those with high SES who currently have unique and privileged access to decision-makers with a more diverse representation of citizen stakeholders (see Nielsen et al., 2021). In addition, to ensure that the voice of the public can successfully play a role in achieving climate targets, education on climate change needs to continue and strengthen so that the publics' objectives align with the need to reduce unfavourable consumption practices (Árnadóttir et al., 2021). Indeed, regarding our carbon numeracy measure, our results showed that participants were often unable to differentiate between behaviours that have significantly more impact than others. For individuals to have the

greatest contribution to the emission reductions through behaviour change and design of policy, they need to be aware of where their own and others' efforts should be optimally placed.

3.5.4 Limitations and Future Directions

We are aware that the behavioural shifts used within this study are those that may be perceived as initially costly and extreme within the context of individuals' current lifestyles. Indeed, our results showed that the perceived extremity or reasonableness of the shifts often underlined participants' resistance to adopting each measure. It is therefore unclear to what extent individuals with high SES are reluctant to reduce high-carbon behaviours at all, or if a less extreme version of the shifts would garner more acceptance. Future studies may benefit from examining the limits on high-carbon behaviours which participants themselves would deem acceptable, e.g., the minimum number of flights they consider "necessary" within three years. Furthermore, most of the behaviours used in this study are those that use bans/pushes rather than incentives/pulls, while previous research has shown that individuals may favour the latter (Swim & Geiger, 2021). Hence, a comparison to a version of the shifts that offer incentives may also be beneficial to consider in future work, along with other measures such as progressive taxation (e.g., frequent flyer levies; Büchs & Mattioli, 2022).

In addition to the perceived extremity of the shifts proposed, we also recognise that suitable infrastructure would often be required to support the scenarios listed within this study. Some participants did in fact question the feasibility of the measures listed regarding not only suitable infrastructure but how they (if implemented via policy) would be enforced. Considerations of the feasibility of introducing these measures may have influenced participant responses in ways that we cannot account for in the current study.

Lastly, it is also of value to reiterate that the inclusion of only high SES in this current study, and not also a sample of lower SES individuals, limits the conclusions that can be concretely drawn from the data. Indeed, a comparison to individuals who consider themselves to be of a lower SES would provide a more reliable account of how high SES individuals differ or relate to other members of society, and for example to determine whether the effects of social norms would be stronger among lower SES groups, or whether they would have a stronger preference for policy over individual change. Therefore, future research may benefit from conducting this comparison to assist current interpretations and provide more targeted insights across SES groups.

3.6 Conclusion

Shifting the high-carbon lifestyles of individuals with high SES is an opportunity for effective climate mitigation and achieving climate justice, by working toward more equitable levels of energy use across social groups. However, our study shows that individuals with high SES are reluctant to addressing climate change when it requires a direct change in their personal behaviours or lifestyles. Moving toward lower-carbon lifestyles requires individuals to be aware of how their actions both disproportionally contribute to the climate crisis and how alternative approaches to wellbeing and a high quality of life are achievable with less energy use. Highlighting sufficiency and wellbeing within consumption, rather than social norms around increases in consumption, may offer a pathway for emissions to be reduced and achieve a fairer and more equal future for society that operates within planetary boundaries.

4. Chapter 4: General Conclusion

The research presented in this body of work offers an insight into the role of individuals with high SES to address climate change and the context that shapes their engagement. Paper 1 begins with an explorative look into the attitudes and perceptions that individuals with high SES hold toward climate change. A tendency for individuals to see themselves as consumers was highlighted, often with participants shifting responsibility to others in society to take the lead and direct mitigation efforts. Indeed, participants in Paper 1 signalled limited agency to address climate change beyond the average consumer and appeared reliant on policy to shift and support their environmental decision-making. However, our choice to focus directly on the consumer role in Paper 2 revealed a greater insight into how far they would be willing to go to reduce their consumption-based emissions, especially when it requires a direct change in their behaviour or lifestyles. According to our findings, participants indicated a significant reluctance to shift their behaviour voluntarily and even more pointedly rejected the idea of policy that would legislate this for everyone. Presented as a whole, our findings signify that efforts are required to encourage individuals to look beyond their role as an average consumer and see the impact that their actions can have for both causing climate change and mitigating its impact globally.

The evidence gathered within this thesis therefore makes an important contribution to understanding the position that individuals with high SES hold to address climate change across their various social roles. The scope of opportunities provided within this account were indeed intended to showcase the potential of individuals with high SES to play an important and necessary role within societal transitions. Yet, this research is of value in that it bridges the gap between researchers views of their capabilities (see Nielsen et al., 2021), with where individuals with high SES actually perceive personal opportunity to engage. So, where others have provided evidence of the disproportionate emission levels that individuals with high SES have (Bruckner et al., 2022; Chancel et al., 2022; Ivanova et al., 2018), this body of research reveals the pathways that individuals themselves see to reduce emissions. In completion of each paper, I explore not only the pathways that they personally see through identifying as a consumer, but also advocate for the avenues I, and others (Garnett & Balmford, 2022; Nielsen et al., 2021), have argued can be found within their various personal *and* professional societal roles.

Across both papers, the actions that individuals with high SES consider both themselves and others to be capable of within climate mitigation are thus revealed. In Paper 1, I looked to whether individuals could identify areas to address climate change beyond their role as a consumer and found that such responsibilities were instead placed on others (such as the government). Indeed, participants perceived limited personal opportunity and capability to address climate change, starkly contrasting the opportunities that they identified in others to engage in transformative action. Notably, participants appeared to recognise the importance of leadership and role-models in their assessment of the government's role within climate mitigation (i.e., participants desire for the government to take the lead and set an example for others to follow) yet failed to see how their personal positions (e.g., managers, business owners and directors) could be of similar value for others. Through discussion of the findings, I called for individuals to consider the roles within climate mitigation that their efforts can be most successfully and impactfully placed, especially those that traverse the everyday consumer and enable others to find equal opportunity to act.

However, the importance of addressing the consumption-based opportunities that individuals with high SES hold to reduce their personal emissions was also highlighted in completion of a second study. Hence, the focus for Paper 2 lay in where participants in Paper 1 saw the most potential to combat climate change, i.e., as consumers. Where individuals in Paper 1 noted a desire for policy to help regulate and support their climate action, evidence from Paper 2 suggests a high level of resistance toward doing so when it required a direct change in their behaviour or lifestyles. This was especially the case when their high-carbon lifestyle behaviours (e.g., frequent flying and car usage) were seen to be desirable, deserved and too much of a sacrifice to go without. Indeed, it is possible that participants in Paper 1 shifted responsibility onto the government to introduce policy without fully considering what this may mean for their personal behaviour. However, when policy scenarios were presented more explicitly in Paper 2, participants particularly resisted those that had the biggest behavioural implications. To encourage the uptake of lower-carbon lifestyles within individuals with high SES, I suggested that efforts are required to maximise perceptions of wellbeing *alongside* the pursuit of sufficiency - an avenue that evidence in Paper 1 suggests is both possible and encouraging towards further climate action.

In sum, harnessing the roles and opportunities that increased social and financial resources afford indeed has the potential to push the boundaries of where an individual can

personally contribute to climate change mitigation. By persuading individuals with high SES to utilise their decision-making capabilities and status within social environments, individuals can become a part of the systemic change they themselves advocate is needed within climate mitigation; equally creating space for others with less wealth to act to evade the impacts of climate change that they are simultaneously most vulnerable to and least responsible for. Thus, acknowledging where one can best place their efforts within climate mitigation can aid in the transition to a more synergistic and sustainable way of living that satisfies the needs of all within planetary boundaries.

Appendices

Appendix A: Chapter 1: Qualitative Survey Questions:

1. **Climate Change Beliefs:**
    a. In your opinion, what action(s) needs to be taken to address the issue of climate change? Please explain your views.
    b. Who in society do you believe can engage in these actions? Please tell us about any individuals or groups or kinds of people who you think can take action, and explain why you think they can do so.

2. **Personal Climate Change Involvement:**
    a. Where do you feel that you as an individual can contribute to preventing further climate change, and how would you do it? Please tell us about any kinds of actions, domains, behaviours, areas of your life, etc. where you feel you can have an impact.
    b. Please explain what motivates you to take action against climate change, and why do you feel this way?
    c. In your personal experience, what helps you engage in behaviours to address climate change?
    d. In your personal experience, what hinders you from engaging in ways to address climate change?

3. **Work-Related Climate Change Involvement**

Are you currently in paid employment or have been in the last 2 years?
(Participants will be directed to different questions depending on their answer to the above question)
If their answer is yes…
We are also interested to gain a greater understanding of how individuals address the issue of climate change within the workplace. Therefore, we will now ask you a series of questions relating to your current or most recent occupation:

    a. Can you please tell us about your role in your current or most recent occupation?
    b. In your current or most recent occupation, what opportunities do you see to address climate change? For example, this may be through your decision-making abilities within your organisation, or through capacity for policy development or implementation.

If their answer is no…

a. In your personal, social and/or family life, what opportunities do you see to address climate change?

4. Impactful Behaviours

a. If you forget for a moment about personal constraints and preferences that may affect you – what would you consider to be the most impactful thing that you could do to combat climate change? So independent of whether you feel like doing it or not, what would have the most impact?

b. What do you feel keeps you from engaging in that behaviour? Please remember that there are no right or wrong answers, and describe your views as openly as you can or feel comfortable doing. We're very much interested in your personal experiences and perceptions!

5. Experiences of Taking Action.

a. Please describe a specific time in which you took action against climate change. What was your experience of engaging in that behaviour and how did it make you feel?

b. Please describe a specific time in which you did not take action against climate change when others did. What was your experience and how did it make you feel?

Appendix B: Chapter 2: Survey Questions

	Perceptions of own behaviour [Numerical]	**Perceptions of other's behaviour [Numerical]**	**Support of policy [7 Point Likert Scale]**	**Willingness to Voluntarily Shift [7 Point Likert Scale]**
Flights	How many flights have you taken **in the last three years**?	On average, how many flights do you think that others in your social network have taken **in the last three years?**	To what degree would you support policy that limits everyone's air travel to a maximum of **one flight every three years**?	How likely would you voluntarily shift your air travel to a maximum of **one flight every three years**?
Clothing	On average, how many new items of clothing do you buy **in a year**?	On average, how many new items of clothing do you think others in your social network buy **in a year?**	To what degree would you support policy that shifts everyone's amount of clothes they buy to a maximum of **three new items per year**?	How likely would you voluntarily shift the amount of clothes you buy to a maximum of **three new pieces per year**?
Phones	How **many years** do you keep your phone?	On average, how many years do you think that others in your social network keep their phones?	To what degree would you support policy that shifts everyone to keep their phones for **at least 7 years?**	How likely would you voluntarily shift to keeping your phone for **at least 7 years**?
Meat	On average, how many times **in a day** do you consume meat?	On average, how many times **in a day** do you think others in your social network consume meat?	To what degree would you support policy that shifts everyone to a nutritionally adequate **meat-free** diet?	How likely would you voluntarily shift to a nutritionally adequate **meat-free diet?**
Dairy	On average, how many times in a day do you consume dairy?	On average, how many times **in a day** do you think others in your social network consume dairy?	To what degree would you support policy that shifts everyone to a nutritionally adequate **dairy-free** diet?	How likely would you voluntarily shift to a nutritionally adequate **dairy-free diet?**
Vehicles	How many personal vehicles do you own?	On average, how many personal vehicles do you think others in your social network own?	To what degree would you support policy that shifts everyone to no longer owning **a personal vehicle**, unless absolutely necessary?	How likely is it that you would voluntarily shift to no longer owning a **personal vehicle**, unless absolutely necessary?

Life shift	From the substantial lifestyle shifts listed below, how many have you done to reduce carbon emissions? (numerical choice) • *Shift to a green energy supplier* • *Shift your pension to a green investor* • *Shift to an ethical or green bank* • *Install energy efficiency measures in your home* • *Decarbonising your home (eg: heat pump or solar panels)* • *Other - If so, please describe the nature of this lifestyle shift and when this was?*	From the substantial lifestyle shifts listed below, how many do you think others in your social network have done to reduce their carbon emissions? (numerical choice) • *Changing to a green energy supplier* • *Changing pension to a green investor* • *Using ethical and green banks* • *Install energy efficiency measures* • *Decarbonising home (eg: heat pump or solar panels)* • *Other*	To what degree would you support policy that makes it a requirement for everyone to make at least one substantial shift a year to reduce their carbon emissions (*e.g., changing to a green energy supplier, changing your pension to a green investor, using ethical and green banks, install energy efficiency measures)?*	How likely is it that you would voluntarily make at least one substantial shift to reduce your carbon emissions per year (*e.g., changing to a green energy supplier, changing your pension to a green investor, using ethical and green banks, install energy efficiency measures)?*

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