Exploring psychological responses to climate change using an existential framework: What hurts, what helps, and implications for mental health services

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A thesis submitted for the degree of Doctorate in Clinical Psychology

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August 2021

We live in the flicker, but darkness was here yesterday

Joseph Conrad, Heart of Darkness

Contents

Abstract

Aims: This project explores psychological responses to climate change – specifically, the nature of the distress caused (what hurts); methods for alleviating distress (what helps); and how clinical services could support people in such distress.

Background: There is a lack of conceptual clarity regarding the nature of distress caused by confrontations with climate change as an abstract or global, and not instantly threatening, phenomenon (distress often labelled 'eco-anxiety'). However, existing literature suggests that existential themes – particularly around identity, life meaning, and ontological insecurity – might be relevant.

Methodology: The project adopted a critical realist epistemology. In-depth, semi-structured interviews were conducted with 15 self-selecting adults. Data was analysed through thematic analysis, which utilised an existential framework in a theory-driven analysis of participants' distress, but a more inductive approach in the analysis of alleviating factors and potential avenues of clinical support.

Results: Participants' expressions of 'what hurts' were conceptualised by 7 themes and 10 subthemes. Climate change was equated with loss and associated with guilt, anger, isolation and chronic uncertainty about what to do, as well with challenges to personal identity and meaning in life. Participants' expressions of 'what helps' were conceptualised by 7 themes and 2 subthemes. It seemed that distress was alleviated principally by engaging purposefully with climate change, often as part of a collective, and in concordance with personal values. 8 themes were developed to conceptualise participants' ideas about how a psychology service might help people distressed by climate change. These centred around support in forming relationships with likeminded people and in engaging in ecologically-protective or nature-based activities.

Conclusions: The existential framework offers an appropriate tool for conceptualising distress about climate change. Eco-psychological theories, highlighting the importance of relationships between humanity and nature, also appear relevant. Implications are discussed for clinical formulation, intervention, and future research.

Introduction

Mission statement: the foundations

In 2009, a joint report by The Lancet and University College London positioned climate change as "the biggest global health threat of the 21st century" (Costello et al., 2009, p.1693). More than a decade on, the case for this claim appears undiminished. For instance, while records show that COVID-19 was the direct cause of two million global deaths between January 2020 and January 2021 (Kottasová, 2021), it is estimated that over a similar time period – indeed, over any twelve-month time period – air pollution alone will have killed at least seven million people (World Health Organisation, 2018). Meanwhile, global temperatures have now reached their highest average level in 12,000 years (Bova et al., 2021), bringing increased rates of flooding, drought, famine and wildfire to many parts of the world (Banholzer et al., 2014). Disaster, and its immediate risk to life, then lays the foundations for further threats to human health, including intergroup conflict and the spread of disease (Costello et al., 2009), while the emergence of new disease has also been strongly linked to biodiversity loss, human encroachment on natural ecosystems, and the use and abuse of wildlife (Brown, 2004; Murphy, 1998). Whether operating in plain view or as an invisible hand, through the mediating factors of poverty and conflict, it is thus clear that climate change and the general ill-health of the planet constitutes an unfolding disaster for the health of humanity.

As recognition of the health impacts of climate change has grown, so too has the literature with a specific focus on its mental health consequences. This literature will be reviewed and discussed below; and it is to this literature that this thesis seeks to add. Specifically, the thesis uses qualitative interviews to explore the nature of the distress caused by climate change when people are exposed to it less as a crisis in their immediate physical

reality (as in natural disasters), than as a set of beliefs about the current and future state of the world – as an experience of living through, observing, and participating in, a perceived process of global environmental collapse. In doing so, the thesis aims to add conceptual clarity to the notion of 'eco-anxiety'. By exploring what helps people to manage the distress caused by this more subtle kind of climate change exposure, the thesis also seeks to shed light on possibilities for clinical intervention in UK mental health services.

Chapter overview

This introductory chapter begins with a discussion on how the author conceptualises climate change. What is offered is not a straightforward definition, but an overview of climate change's more significant geophysical, biological, and human processes and impacts. This exposition leads into a discussion on the mental health effects of climate change, which for the sake of taxonomic ease are divided into 'immediate' effects, for instance in trauma responses to natural disasters, and 'gradual' effects, as arising from the perception of a more global or subtle decline in the health of the planet. The lack of conceptual clarity concerning mental health effects belonging to this latter category – effects often referred to as 'eco-anxiety' – prompts a systematic review on the mental health implications of exposure to sub-acute climate change phenomena. The systematic review uncovers evidence of mental health effects clustering around both socio-economic pressures and less tangible concerns about life meanings, personal and community identities, and ontological insecurity (or vague feelings of 'wrongness' about life in a destabilised reality). This latter category of concerns is noted to resonate with existential theory. The chapter then sets out an existential framework for mental health, which will be used as the dominant theoretical model in this thesis. The chapter concludes by stating the thesis' research aims, as broadly derived from the systematic review.

What is meant by climate change

The central principle of constructivism is that reality is in the eye of the beholder. In this view, representations of the world are invariably coloured by the personal lenses of the perceiving subject: one's sense of reality depends only partially on events and objects in themselves, and partially again on one's perceptual and conceptual apparatus (Bateson, 1972; Dallos & Draper, 2010).

This paper's conceptualisation of climate change is best viewed in these constructivist terms, as a reflection of – and as inseparable from – the author's concern for the subject matter. This is to say that the issue of climate change 'carries', for the author, a lot of information, not all of which may be uncontroversial or universally accessible. For instance, there may be people for whom climate change carries little more information than the idea of warmer summers, and while such an equation might be construed as rather restricted in its analysis, it could nevertheless be conceived, from one level of abstraction, as an accurate interpretation of reality. Conversely, this paper's conceptualisation of climate change could stand accused of being too all-encompassing, of including factors which belong more appropriately to discussions of politics or zoology. In this sense, climate change is here conceptualised in not only constructivist but also systemic terms (Bateson, 1972), as an interaction between geophysical, ecological, and socio-economic variables.

The (basic) geophysics of climate change

As with anything conceptualised in systemic terms, there is no clear place to begin in elucidating the mechanisms of climate change. However, one useful starting point may be

with the concept of global warming, and the finding that average temperatures across the world have increased by 1°C since the Industrial Revolution (Intergovernmental Panel on Climate Change, 2018), and in Arctic regions by 3.5°C since the early 1900s (Soreide et al., 2016). Overall, these increases have not only reversed a long-term trend for global cooling but taken temperatures to their highest average level in 12,000 years (Bova et al., 2021).

That global warming is a result of human activities is the overwhelming scientific consensus (Oreskes, 2004). In particular, it is known that activities in agriculture, energy production, and transport lead to the emission of greenhouse gasses (especially carbon dioxide and methane), which share an ability to absorb heat energy that would otherwise reflect out into space. Higher atmospheric concentrations of these gasses thus amplify a so-called greenhouse effect, whereby ever-greater proportions of solar radiation become trapped in the earth's atmosphere, causing ever-higher temperatures (Schneider, 1989).

At this juncture, the geophysical processes of climate change make connection with socio-economic issues. In particular, there is an oft-cited tension between the need to curb greenhouse gas emissions and the need both to improve standards of living in lower-income countries (Holtz-Eakin & Selden, 1992) and to maintain freedoms and profit in higher-income countries (Becken, 2007; Van den Hove et al., 2002). It is possible, though by no means certain, that green technologies could provide a route out of this quandary, a way to decouple economic growth from environmental ruin (Antal & Van Den Bergh, 2017). However it is also possible that the world of zero-carbon flights and zero-methane meats will arrive too late or not at all. In any case, it is projected that, without a 45% reduction in carbon dioxide emissions by 2030, global warming will exceed 1.5°C of pre-industrial levels by 2052 (IPCC, 2018).

Increases to average air temperatures mean changing patterns to land and sea. Perhaps most notably, it is estimated that the earth has lost over 28 trillion tonnes of ice coverage since 1994 (Slater et al., 2021), and that this has contributed to a global sea level rise of 7cm in the last 25 years (Nerem et al., 2018). A further rise of anywhere between 30cm and 1.2m is expected by 2100 (Kopp et al., 2014). For thousands of low-lying islands, such an eventuality will lead to full submersion or, at least, regular 'overwash events', in which large waves during storm conditions flood the land with salinized water (Storlazzi et al., 2018). Indeed, even less acutely vulnerable areas – and many of the world's most populated cities – may soon face chronic flooding (Hallegatte et al., 2011), particularly in view of the fact that increasing sea temperatures also means an increasing frequency and intensity of storms (Trenberth, 2011).

A second notable effect of global warming concerns drought and desertification. At the most basic level, it is evident that higher temperatures mean an increasing risk of drought (Trenberth et al., 2014). This trend has drastic implications for human health and prosperity, most notably in heightened levels of food and water insecurity in northern Africa and the Middle East (Gleik, 2014). Moreover, where drought is chronic, its effects can rapidly multiply, threatening not only human health but the long-term sustainability of wider ecological systems (Allen et al., 2010). Ultimately, frequent droughts (especially in combination with over-intensive agricultural practices) pave the way to desertification, a process by which the basic life-sustaining properties of an area of land suffer lasting degradation, making agriculture impracticable (Le Houérou, 1996). With 1.5 billion people dependent on land that is currently in the process of desertification, and 12 million hectares of productive soil lost to this process each year (United Nations, n.d.), the implications of desertification for global food security are potentially catastrophic.

Deforestation is a further pivotal aspect of climate change. Although most deforestation remains a human activity attributable to logging or agricultural expansion (Alroy, 2017), there is also evidence that climate change is leading to more 'natural' changes to forest ecosystems. These changes largely relate to increases in forest fires in the context of drought and rising air temperatures (Flannigan et al., 2006), though assaults from insect swarms and pathogens, which themselves occur more frequently in times of warm weather, have also been implicated (Anderegg et al., 2015). Overall, it is estimated that 26 million hectares of forest is lost globally each year, and that, despite a UN resolution to end all deforestation by 2030, the annual rate of forest loss in fact increased by 43% between 2014 and 2018 (Harvey, 2019).

Global deforestation is particularly concerning in light of the world's reliance on plants, and especially forests, for the extraction and storage of atmospheric carbon dioxide (Bala et al., 2007). It is estimated that vegetation absorbs around a quarter of all carbon dioxide emissions from human activities, and that total, global deforestation would release more than 3 trillion tonnes of carbon into the atmosphere (Milman, 2018). For this reason, deforestation can be positioned as both a consequence and cause of global warming, with increasing temperatures leading, through processes described above, to the destruction of forests, and this in turn leading to higher levels of atmospheric carbon dioxide and higher global temperatures.

A similar pattern plays out through other climate feedback mechanisms. For instance, reduced snow and ice coverage is known to reduce the reflection back into space of the sun's electromagnetic waves (Thackeray & Fletcher, 2016); while warmer seas mean more water vapour, a potent greenhouse gas (Ingram, 2010). Feedback mechanisms thus introduce a troubling circularity to the geophysics of climate change. The concern that follows is of 'runaway climate change' (Goldblatt & Watson, 2012), a point beyond which the natural

momentum of a warming planet would render futile even net-zero greenhouse gas emissions from human activity.

The geophysical meets the ecological

The combined effect of climate change's geophysical trends is a global threat to natural ecosystems. Deforestation provides a vivid illustration of this threat. Tropical forests, for instance, are estimated to support two-thirds of the world's biodiversity (Giam, 2017), and to have receded globally by 5% between 2000 and 2010 (Alroy, 2017). Degradation to these habitats has had a particularly adverse impact on arthropod populations (Gibson et al., 2011), which, while initially local in scale, has cascaded up regional food-chains and accelerated global species extinction (Ceballos et al., 2017). Similar loss of biodiversity has been observed in marine species, in the context of unsustainable fishing practices (Jackson et al., 2001), warming waters (Richardson & Schoeman, 2019), pollution (Kime, 1995), and oceanic absorption of atmospheric carbon dioxide (Baumann et al., 2012).

Globally, these combined effects have been projected to place 20-30% of all plant and animal species at risk of extinction by the year 2100 (Peake & Smith, 2009). Existing data suggests that this extinction process is already well underway, with one index establishing an average 68% decline in animal populations (across 20,811 monitored populations) between 1970 and 2016 (WWF, 2020). Data such as this offers support to the claim that we are living through Earth's sixth mass extinction (Ceballos et al., 2015).

The human dimension

The ultimate extent of climate change's impact on humanity is a question of degree. In the event of global warming reaching 1.5°C above pre-industrial levels, the IPCC (2018) has projected a diversity of risks to health, security and prosperity, especially in dryland, small island, and impoverished regions. However, should temperatures exceed 2°C above pre-industrial levels, it is projected that the numbers affected will be greater by hundreds of million, most notably in a further 100% increase in the proportion of people living with water scarcity. The general trend is thus that the greater the level of global warming, and the lower the level of adaptation, the higher the risk to human populations.

Indeed, even current levels of global warming have, in some parts of the world, already had a significant effect on human health and security. Perhaps most obviously, extreme weather-related events, including storms, floods and wildfires, are occurring at increasing frequency and intensity as a result of rising temperatures and sea levels (Banholzer et al., 2014; Williams et al., 2019). The sudden impact of these events can be devastating. For instance, in 2020 alone, more than 30 people were killed and thousands forced to evacuate by record-breaking wildfires in California (McGrath, 2020), while floods in Sudan (Slawson, 2020), Vietnam (Hollingsworth, 2020) and Indonesia (John, 2020) – each described as the worst in decades – killed hundreds and destroyed hundreds of thousands of homes.

Perhaps more damaging, though, are the effects not of extreme weather events but of chronic shifts in average conditions. The global trend is towards warmer temperatures and more irregular rainfall (Met Office, n.d.), with predictably adverse implications for water scarcity and agricultural productivity (Mancosu et al., 2015). The human consequences of these processes are distributed in an iniquitous manner. In places characterised by a temperate climate and greater purchasing power, they have contributed, so far, to little more than an increase in food prices (Stevanović et al., 2016). In already vulnerable contexts like East

Africa, however, they have meant drought, famine and potentially millions of deaths (Carty, 2017).

Whether as an escape from extreme weather events or adverse average conditions, mass-migration represents (and will increasingly represent) a necessary adaptation to climate change (Berlemann & Steinhardt, 2017). In Bangladesh alone, chronic flooding and loss of land is expected to result in 25 million climate refugees (Arcanjo, 2018). Global projections, meanwhile, have estimated that population displacement as a result of climate change may rise to the hundreds of million (Myers, 2002). While no single set of factors is likely to explain displacement on this scale – with violence, economic crises and a straightforward desire for a better life all contributing to varying degrees (Zickgraf, 2019) – climate change may prove the pivotal influence, operating not only through environmental mechanisms but through its aggravation of social and economic hardship.

There is evidence that migration on a large scale has a destabilising effect on social and international relations. Notably, in an analysis of environmentally induced mass-migrations in the twentieth century, Reuveny (2007) found that 19 of 38 episodes resulted in significant conflict, spanning from riots and civil unrest to ethno-religious violence and even inter-state war over scarce resources. These findings paint a worrying picture of the future, as zones of scarcity grow ever larger and people are forced to move to survive.

A synthesis: What is meant by climate change

The phrase ‘climate change’ is expected to do a lot of work in this thesis, capturing in two words the sum total of the above exposition. I will attempt to condense and recapitulate. By climate change, then, is meant the following:

- Geophysical processes, including the greenhouse effect and global warming, and their attendant climate feedback mechanisms
- The changes to land and sea that perpetuate and result from these geophysical processes – including deforestation, desertification, and rising sea levels
- The consequent processes of ecosystem collapse and global mass-extinction
- The human impacts of all the above, most notably in exposure to natural disasters, the increased risk of food and water scarcity, the necessity for migration and the prospect of conflict over diminishing resources.

The next section turns to the effects of these mechanisms – of, as this thesis defines it, climate change – on mental health.

Climate change and mental health

As a guiding structure, this discussion divides the mental health effects of climate change into immediate effects – those that arise from physical and potentially life-threatening confrontations with climate change – and gradual effects – those that arise from confrontations with climate change that are primarily theoretical. This latter category may include encounters with climate change either as an abstract global phenomenon or as a local but non-life-threatening phenomenon. It should be noted, however, that while there is some empirical justification for this distinction (many people in the UK, for instance, encounter climate change on a purely theoretical level), it is artificial: often, distress may arise from a combination of gradual and immediate effects, as in the theoretical or symbolic significance attached to an isolated episode of flooding.

Immediate effects

An essentially biopsychosocial analysis by Berry and colleagues (2010) has described three interacting pathways by which 'immediate' encounters with climate change might affect mental health: a 'psychological' pathway, as seen in trauma responses to natural disasters; a 'social' pathway, operating through community or economic adversity; and a 'biological' pathway, operating through increasing rates of physical health problems. The framework contains scope for interaction between processes at the community and physical health levels, for instance where the economic impacts of climate change contribute to societal increases in physical morbidity. Though not explicitly stated by the framework, interactions between all three pathways – the biological, the psychological, and the social – might also be expected, for instance where psychological traumas are experienced in a context of community-level processes (migration or civil unrest) and physical health problems (water or food-insecurity). Thus presented, the framework may be viewed as consistent with the diathesis-stress model (Zuckerman, 1999), in that a population's vulnerability to generic 'mental health difficulties' is projected to increase in proportion to the degree of stress (biological, social or psychological) that the population is exposed.

The empirical landscape is broadly consistent with Berry and colleagues' (2010) and Zuckerman's (1999) frameworks as tools for understanding the mental health effects of immediate encounters with climate change. For instance, a significant body of literature has accumulated on trauma responses to natural disasters, with one systematic review establishing community prevalence rates, in the two years after disaster, of between 3.7% and 60% (Neria et al., 2008). It seems likely, from the wider literature on trauma responses, that this variability might be explained by factors including the severity of the original incident and the availability of support in its aftermath (Brewin & Holmes, 2003). Beyond trauma responses, a review by North and Pfefferbaum (2013) identified that 11-38% of people

presenting at community assistance shelters in the aftermath of natural disasters exhibited signs of clinically significant distress, including adjustment disorder, bereavement, major depression, or a substance misuse disorder. As with the findings relating to trauma, it is not possible to identity in what proportions these forms of distress were caused by, exacerbated by, or indeed predated the natural disaster. However the satellite picture, as predicted by Berry and colleagues (2010) and Zuckerman (1999), appears relatively straightforward: where there is disaster, distress will follow.

A similar (and similarly familiar) picture emerges when considering the effects of more chronic physical exposure to climate change. Water- and food-insecurity offer good examples of this process, with both, unsurprisingly, found to exert a negative impact on mental health. Mushavi and colleagues (2020), for instance, found a strong association between water-insecurity and depressive symptoms in a sample of 1,776 Ugandan adults and, in qualitative data, a sense of lives dominated by the stress of attaining water. Similarly, Tallman (2019) has found strong associations in Peruvian communities between water insecurity and stress, depression, and somatic symptoms. A systematic review on food insecurity, meanwhile, has identified mental health effects coalescing around three themes: food insecurity as acute psychological suffering (in feelings of desperation or despair); food insecurity as a stressful or shameful experience; and food insecurity as an embodied experience characterised by tension, weakness and headaches (Weaver & Hadley, 2009). In a quantitative analysis in the same paper, all cited studies reported an association between food insecurity and at least one measure of common mental disorders.

Again, therefore, it seems that Berry and colleagues' (2010) framework offers a good way of conceptualising the mental health effects of water- and food-insecurity, with experiences of psychological distress arising through a combination of socio-economic and physiological adversity. In this sense, it might be thought that the immediate effects of

climate change present familiar challenges for mental health practitioners and researchers. Though the root cause may be different, there exists already a substantial body of literature on the processes of trauma, the strain of poverty, and the overlap between physical and emotional wellbeing. The task, as Hayes and colleagues (2018) have noted, is merely one of connecting isolated climatic incidents and their psychological sequalae to the loaded dice of climate change, which makes such incidents both more likely and more severe.

Gradual effects: The question of eco-anxiety

Perhaps less understood are the mental health effects of more gradual climate change exposure. By 'gradual', it should be recalled, is meant a form of exposure that does not pose a short-term threat to human life or security, and which is instead experienced as more of an anticipated or background phenomenon – something that is happening 'over there', 'in the future', or even 'here and now but without dire consequences'. This excludes from the frame all acute natural disasters, such as hurricanes and flooding, and also all sub-acute natural disasters, principally drought, in circumstances where the affected community lacks the resources to prevent the slide into famine or dangerous water-scarcity. Gradual effects are, rather, conceptualised as those that are observed from a position of physical safety – whether directly in slow-burning changes to one's local environment, or through media coverage of changes in the wider world. In this way, the issue of gradual effects may be thought especially relevant to the UK (and European) context, where exposure to climate change has so far been predominantly in the realm of ideas rather than physical reality.

Psychological distress arising from these more subtle experiences of climate change is often referred to as eco- or climate anxiety (hereafter this paper will use eco-anxiety). There appears to be some media interest in this phenomenon, observable in the steady flow of

articles featuring interviews with self-identified eco-anxiety sufferers and commentary from mental health workers (Fawbert, 2019; Ro, 2019, Taylor & Murray, 2020). Large-scale survey data offers support to this media interest. For instance, 51% of respondents to an American Psychological Association (2018) survey listed climate change as a source of stress, while a 2016 survey across four European countries indicated that 7-13% of people were 'extremely worried' about climate change (Steentjes et al., 2017).

What is less clear, however, is whether attitudes of this kind constitute a clinically significant problem. Verplanken and Roy (2013), for instance, found that, among their sample of 132 participants (predominantly European students), habitual worry about the environment was predictive of pro-environmental attitudes and not of psychopathology. A similar finding has been reported by Berry and Peel (2015), whose community-level study of rural Australians uncovered no relationship between worry about climate change and psychiatric morbidity. Such findings are consistent with the position that eco-anxiety, as a response to a very real threat, may be more adaptive than pathological, a route towards constructive action (Rouf & Wainwright, 2020). It may also be, though, that something of potential significance is lost when eco-anxiety is reduced to the experience of 'worry' and when distress is reduced to 'psychopathology' or 'psychiatric morbidity'. A more nuanced relationship may exist between gradual climate change exposure and individual wellbeing.

In a potential step towards this more nuanced understanding, Clayton and Karazsia (2020) have developed and validated a measure of eco-anxiety. Factor analysis of this measure indicated the existence of four subscales, two of which were thought by the authors to offer the most direct measurement of eco-anxiety. These two subscales were: cognitive-emotional impairment (measuring the extent to which climate change occupies or interferes with day-to-day thought processes and affective experiences); and functional impairment (measuring the extent to which climate change obstructs activities at work or with friends and

family). Across Clayton and Karazsia's (2020) validation studies, an average of 18% of participants' subscale scores indicated that they 'sometimes', 'often', or 'almost always' experienced cognitive-emotional impairment as a result of climate change, and an average of 26.5% of participants' subscale scores indicated that they 'sometimes', 'often', or 'almost always' experienced functional impairment. While the self-selection of participants for the study may have biased the sample towards people more emotionally engaged than average with climate change, these findings would appear to contradict those of Verplanken and Roy (2013) and Berry and Peel (2015), in suggesting the potential pertinence of eco-anxiety to more general wellbeing. Further research will be necessary to substantiate Clayton and Karazsia's (2020) findings.

However, it seems likely that this further research would be benefitted by greater conceptual clarity about what the experience of eco-anxiety is supposed to be. Most conceptual analyses of eco-anxiety overlap in positioning it as a response to climate change as a global but indirect threat – that is, to a generalised and non-specific sense of ecological collapse, rather than to any particular site of damage or loss (Albrecht, 2011; Clayton, 2020; Hayes et al., 2018; Panu, 2020; Pihkala, 2018). There is considerably less clarity and consensus, though, when it comes to the question of what it means, subjectively, to experience eco-anxiety. Hayes and colleagues (2018), for instance, have characterised eco-anxiety as including feelings of loss and frustration, while Panu (2020) has described it as a form of helplessness in the face of an unpredictable and uncontrollable danger. Clayton's (2020) analysis, meanwhile, has referenced feelings of uncertainty for the future, as well as a sense of disrupted place-based attachments, for instance in the case of people whose home environments are transformed by changing weather patterns. At this juncture, eco-anxiety can be seen to blur into (or else to incorporate) the concept of solastalgia, the feeling of distress arising from environmental damage to cherished places (Albrecht et al., 2007). It is partly

because of this conceptual overlap that eco-anxiety has also attracted analyses of a more existential nature (Clayton & Karazsia, 2020; Pihkala, 2018; van Kessel, 2020). Common threads to the existential analyses emphasise the association between climate change and death, the threat of climate change to one's 'symbolic immortality' (that is, on one's legacy through children or a continuing culture), and beyond this on the potential for climate change to evoke feelings of ontological insecurity, a vague but troubling sense that something has gone wrong in the natural order of the world.

Overall, the clearest area of consensus, in the analysis of eco-anxiety as a subjective experience, would appear to be on the breadth of possible meanings contained within the term. A systematic review was therefore conducted, in an initial attempt to add conceptual and phenomenological clarity to the experience of distress arising from encounters with gradual climate change. The focus of the systematic review was on the uncovering and exploration of potentially relevant themes, with a view to guiding future research.

Systematic review

Search protocol

Articles from CINAHL Complete, GreenFILE, MEDLINE, PsychARTICLES, and PsychINFO were searched from 1st January 1989 to 1st January 2019. The search was limited to articles published after 1988 as the UN's Intergovernmental Panel on Climate Change was formed that year, indicating an appropriate point from which to start assessing climate change's mental health impacts. The database search was constructed with the following terms:

1. Climate change OR global warming OR climate crisis

2. Mental health OR mental illness OR mental disorder OR psychiatric illness OR psychiatric disorder OR mental wellbeing OR mental well-being OR eco-anxiety OR climate anxiety OR psychological distress

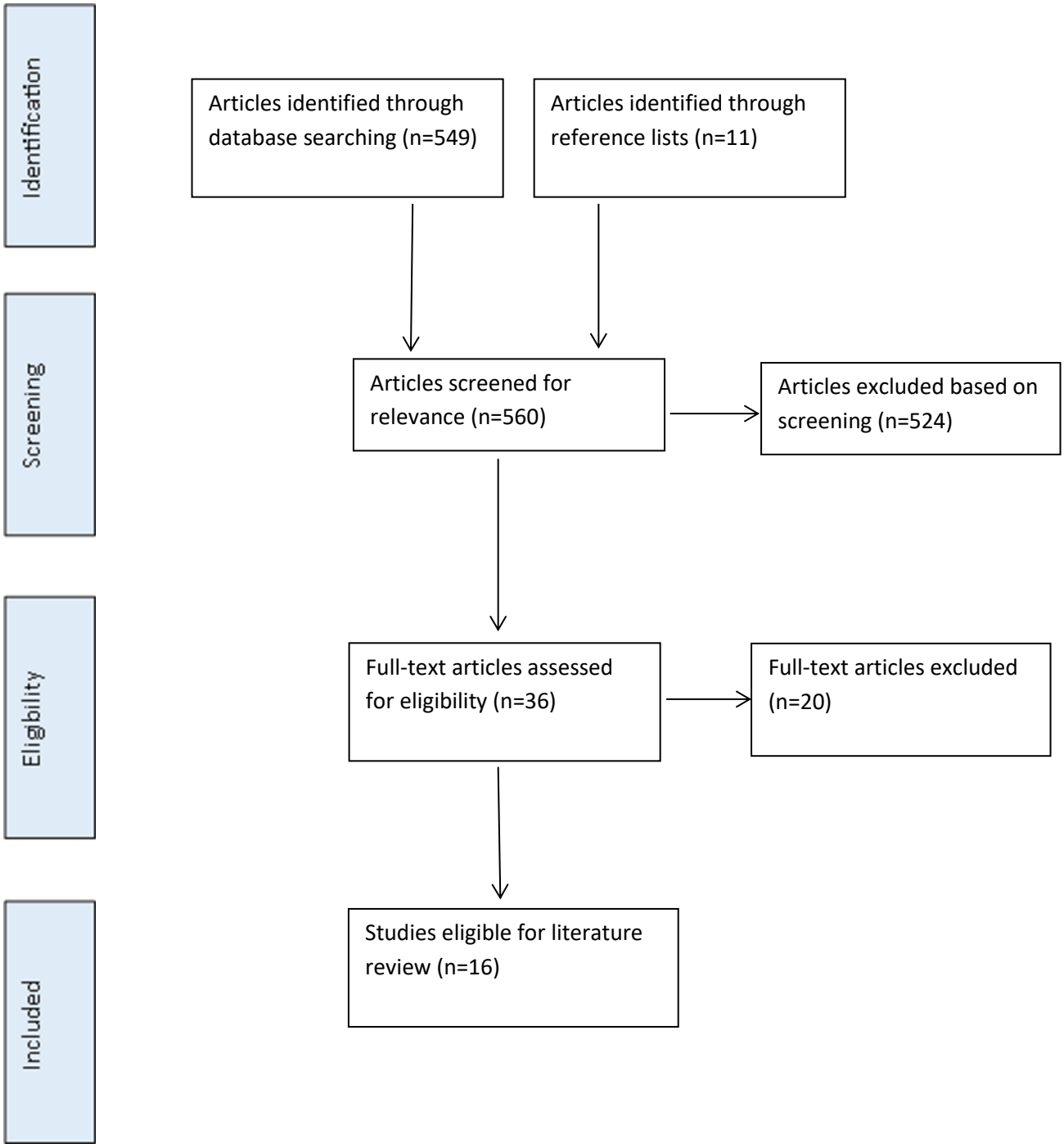
3. #1 AND #2

It was deemed appropriate that only qualitative papers would be eligible for inclusion, due to the importance of interpretation to the question of what qualifies as climate change exposure. For instance, some studies have presented large-scale quantitative data on the effects of temperature change on mental health (e.g. Basu et al., 2018), and while such studies will have relevant implications for the mental health effects of climate change, these effects might equally be illustrative of ordinary seasonal changes in weather. It was thus felt that it is only through individual interpretation (as accessible through qualitative research) that an exposure to meteorological variables is translated into an exposure to climate change.

The search was restricted to peer-reviewed articles published in English. It returned 549 results after the removal of duplicates. Based on a review of titles and abstracts, 25 of these articles were reviewed in detail for their potential relevance. Of these, 18 were removed from the process, 12 on the basis that they did not report qualitative primary research, and in 6 cases for their insufficient relevance to the review question. The reference lists of the 7 remaining articles were then searched for further studies. An additional 11 studies were identified in this way as potentially relevant, 9 of which were deemed appropriate for inclusion in the review. One of the two discarded papers was insufficiently focussed on climate change and the other did not report on primary research. See Figure 1 for a flowchart of the study selection process.

Figure 1.

Flowchart of study selection



Quality assessment

The remaining 16 studies underwent an assessment of quality using the Critical Skills Appraisal Programme qualitative research checklist (CASP; Critical Appraisal Skills Programme, 2018), the outcome of which is displayed in Table 1. The CASP checklist contains no official threshold above which a paper may be deemed eligible for inclusion in a systematic review, but instead serves as a framework for considering the quality of different areas of a study. For the purposes of this review, however, the combination of an insufficiently rigorous analysis and the absence of any clear or detailed statement of findings was considered terminal. On this basis, papers by Anderson (2008), Anderson (2009), Asugeni and colleagues (2015), and McNamara and Westoby (2011) were excluded from the review. Though providing a clear statement of their research findings, papers by Rigby and colleagues (2011) and Kabir (2018) were also excluded from the review based on concerns about both the data collection and data analysis processes. Of the remaining studies, the most common shortcomings concerned an apparent lack of consideration for ethical issues and a similar lack of consideration for how the relationship between researcher and participants may have affected results. Working on the principle that absence of evidence does not constitute evidence of absence, these shortcomings were not considered terminal.

Table 1.

Assessment of study quality based on CASP checklist

Study	Was there a clear statement of the aims of the research?	Is a qualitative methodology appropriate?	Was the research design appropriate to address the aims of the research?	Was the recruitment strategy appropriate to the aims of the research?	Was the data collected in a way that addressed the research issue?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?
Anderson, 2008	No	Yes	No	No	No	Yes	No evidence	No	No
Anderson, 2009	No	Yes	No	Yes	Yes	No evidence	No evidence	No	No
Asugeni et al., 2015	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Durkalec et al., 2015	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ellis & Albrecht, 2017	Yes	Yes	Yes	Yes	Yes	No evidence	Yes	Yes	Yes

Table 1 cont.

Assessment of study quality based on CASP checklist

Study	Was there a clear statement of the aims of the research?	Is a qualitative methodology appropriate?	Was the research design appropriate to address the aims of the research?	Was the recruitment strategy appropriate to the aims of the research?	Was the data collected in a way that addressed the research issue?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?
Kabir, 2018	Yes	Yes	No	Yes	No	No evidence	No evidence	No	Yes
McNamara & Westoby, 2011	Yes	Yes	Yes	Yes	Yes	No evidence	No evidence	No	No
MacDonald et al., 2013	Yes	Yes	Yes	Yes	Yes	No evidence	Yes	Yes	Yes
MacDonald et al., 2015	Yes	Yes	Yes	Yes	Yes	Yes	No evidence	Yes	Yes
Polain et al., 2011	Yes	Yes	Yes	Yes	Yes	No evidence	No evidence	No	Yes
Rigby et al., 2011	Yes	Yes	Yes	No	No	No evidence	No evidence	No	Yes

Table 1 cont.

Assessment of study quality based on CASP checklist

Study	Was there a clear statement of the aims of the research?	Is a qualitative methodology appropriate?	Was the research design appropriate to address the aims of the research?	Was the recruitment strategy appropriate to the aims of the research?	Was the data collected in a way that addressed the research issue?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?
Sartore et al., 2008	Yes	Yes	Yes	Yes	Yes	No evidence	Yes	Yes	Yes
Tschakert et al., 2013	Yes	Yes	Yes	Yes	Yes	Yes	No evidence	No	Yes
Willox et al., 2012	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Willox et al., 2013	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Willox et al., 2013b	No	Yes	Yes	Yes	Yes	Yes	No evidence	Yes	Yes

Data extraction and synthesis

Included studies were deemed appropriate for meta-synthesis. This process followed the methodology of Noblit and Hare (1988), and specifically the practice of 'reciprocal translations', wherein themes that arise across multiple studies, but which appear to refer to a comparable phenomenon, are clustered together to form new and broader themes.

The first step in this process involved the extraction of qualitative data into tables (as seen, for example, in Table 2). Extraction tables were designed to present the key concepts arising from each individual study, and thus permitted the ready comparison of all data under review. Themes were then translated into terms that could appropriately unify conceptually comparable ideas arising in the different studies. For instance, the 'loss to part of self' theme uncovered by Willox and colleagues (2012; see Table 2) was translated into the broader theme of 'challenge to personal identity'. This enabled the theme to also capture the experiences of Australian farmers (Ellis and Albrecht, 2017), who felt not so much that a part of their life had been lost as that their self-concept as a 'good farmer' was being continually threatened by harsh conditions. As may be seen from this example, the process of reciprocally translating studies' themes was a somewhat idiosyncratic process, relying not only on multiple iterative revisions, but also on a fair amount of subjective judgement in the parting and splicing of various key concepts.

Subjective judgement was especially warranted in view of the multifaceted nature of many of the concepts expressed in the primary research studies. To take a further example from Willox and colleagues (2012; Table 2), the concept of 'disrupted lifestyles' could be seen as operating on at least two levels – one pertaining to the fact of the sample being more restricted in their activities in the context of lost sea-ice; but the other pertaining to a more cultural concern around the loss of traditional practices and knowledge. Each of these levels could, in turn, then be seen to interact with other key concepts – in the sense of a diminishing

connection to the land; and in the feeling of having lost a part of one's identity (the part tethered to cultural practices).

Table 2.

Data extraction table for Willox et al., 2012

Citation	Willox et al., 2012
Purpose	To examine connections between climate change, a changing sense of place, and health in an Inuit context.
Setting	Rigolet, Nunatsiavut, Canada
Sample	72 in-depth interviews;112 questionnaires
Method of data collection	Narrative analysis of interviews and descriptive analysis of questionnaires
Key Concepts	
Changing sense of place	Uncanny sense of unfamiliarity, of home no longer feeling like home
Diminishing connection to place	Compromise of felt sense of innate Inuit connection to land
Disrupted lifestyles	Traditional Inuit activities and diet made impossible by changing ice conditions
Loss of healing space	Changing ice conditions reduce scope for time in cherished outdoor places
Loss to part of self	A part of life – going out on the ice – has gone

Theory	Importance of place-based identities: Inuit are not just from this place but also *of* this place

Results

In view of the potential for legitimate divergences from the extraction and synthesis outcomes of this review, Table 3 should be read as a merely indicative depiction of the distribution of key themes. It presents not a conclusive overview of factors relevant to psychological distress in the context of gradual climate change, but one interpretation and arrangement of the kinds of experiences that people may be expected to have. It is also worth underlining that the results operate at a minimum of two stages removed from the actual experiences of study participants, with primary data filtered through the lenses of the primary researchers, and primary researchers' interpretations then filtered through the lens of the reviewer. Thus, it would be impossible for the review – or its constituent studies – to depict people's experiences in perfect purity or totality. For instance, while only two studies (Macdonald et al., 2013; 2015) were construed as making reference to participants grappling with a sense of climate change as a form of unfairness or injustice, it seems doubtful that this experience was not, in reality, shared across multiple samples.

A strength of the review was its ability to establish commonalities of experience among diverse populations, exposed to geophysical changes ranging from drought and desertification to loss of sea-ice and biodiversity. One commonality stemmed from the effect of climate change on people's access to material resources (financial or otherwise). This stress was acutely felt by the samples of Australian farmers, whose livelihoods were threatened by drought (Sartore et al., 2008; Polain et al., 2011), but also by migrants and

those they left behind in Ghana (Tschakert et al., 2013), where resource scarcity pushed many to leave their homes, and to in so doing create an ever more impoverished home community.

In both the Australian and the Ghanaian cases, stress on resources fed into concerns about personal identity. For the farmers, fears about the long-term viability of their business led to self-critical thoughts of being a 'bad farmer' (Ellis & Albrecht, 2017) and a sense of having failed in their community and ancestral identity (Polain et al., 2011). For those left behind in rural Ghana, the stress on resources appeared to threaten people's identities as people, with dwindling water sources forcing human and animal to drink side by side (Tschakert et al., 2013).

Threats to identity were also a common theme among the review's Inuit samples. This experience was mostly expressed in relation to a loss of personal self-esteem, which came in the context of disrupted traditional practices (Willox et al., 2013b) and an attendant sense of previously prized expertise becoming increasingly redundant (MacDonald et al., 2013; Willox et al., 2013).

For some, this dynamic seemed to threaten not only personal but community identity, in the feeling that Inuit communities were defined by – and derived cultural meaning from – a relationship to the land that was now in jeopardy (Durkalec et al., 2015; MacDonald et al., 2013; Willox et al., 2012; Willox et al., 2013). A similar sense of diminishing connection to the physical environment was reported by some Australian farmers (Ellis & Albrecht, 2017), in relation to their reduced ability to anticipate seasonal weather patterns. This tied in with farmers' reports of obsessively checking weather forecasts due to worry about drought and crop failure. The farmers also expressed concern about the chronicity of these effects – a belief that one good season could not undo the damage already done. This bleak outlook on the future was explicitly mentioned by a number of samples (MacDonald et al., 2013;

Macdonald et al., 2015; Sartore et al., 2008; Willox et al., 2013), though presumably common to most if not all.

The most widely distributed theme identified in this review pertained to the felt experience of changes in the physical environment. For drought-stricken samples, this manifested in a reluctance to go outside (Sartore et al., 2008) as well as a more visceral reaction to the dirty and dying landscape (Ellis & Albrecht, 2017). In Ghana, there were similar responses to soil degradation, destructive winds and irregular rainfall (Tschakert et al., 2013), while Inuit samples experienced a combination of practical concerns around changing sea-ice patterns (MacDonald et al., 2013; Durkalec et al., 2015) and feelings of loss for their 'proper' winter (Willox et al., 2013). For many samples, changes to the physical environment also entailed the loss of a healing or spiritually replenishing space (Durkalec et al., 2015; Tschakert et al., 2013; Willox et al., 2012; Willox et al., 2013; Willox et al., 2013b).

Distressing changes to the social environment were also described in many samples, particularly when outward migration fuelled a community's downward spiral into economic hardship and social desolation (Polain et al., 2011; Tschakert et al., 2013). In other samples, community changes were strongly related to lifestyle changes, where traditional practices were replaced by increases in drug and alcohol use (Macdonald et al., 2015; Willox et al., 2013b) or where a decline in old ways of life contributed to feelings of "homesickness for a home not left" (Tschakert et al., 2013, p.20).

Table 3.

Distribution of themes across included studies

Study	Unfairness /helplessness	Challenge to identity	Community change	Physical landscape change	Lifestyle changes	Loss of healing space	Knowledge of place	Worry and 'checking' behaviours	Future seems bleak	Stressed resources
Durkalec et al., 2015				*		*	*			
Ellis & Albrecht, 2017		*		*			*	*	*	
MacDonald et al., 2013	*	*		*	*		*		*	
MacDonald et al., 2015	*				*				*	
Polain et al., 2011		*	*							*

Table 3 cont.

Distribution of themes across included studies

Study	Unfairness /helplessness	Challenge to identity	Community change	Physical landscape change	Lifestyle changes	Loss of healing space	Knowledge of place	Worry and 'checking' behaviours	Future seems bleak	Stressed resources
Sartore et al., 2008				*					*	*
Tschakert et al., 2013		*	*	*	*	*				*
Willox et al., 2012		*		*	*	*	*			
Willox et al., 2013		*		*	*	*	*		*	
Willox et al., 2013b		*			*	*				

Discussion

This review offers insight into psychological responses to encounters with gradual climate change. Notably, none of the studies were conducted in the UK, with no samples exposed to climate change as merely a set of concerns for the future or the world generally. It is possible that this reflected a shortcoming of the search process, and that qualitive studies of this phenomenon do exist. However no such studies are known to the author. Instead, in this review, all studies offered insight into experiences of gradual and non-life-threatening (but certainly way-of-life-threatening) changes to the local environment. For this reason, the applicability of the review's findings to the UK context may be limited.

Limited applicability might certainly be expected in respect to the finding of a concrete dimension to the distress caused by climate change. Distress of this kind was manifest in concerns about finances or access to resources, and in lifestyle changes in the context of a physical and social environment that could no longer sustain old modes of living. It seemed that these changes could come accompanied by perceptions of community decline and diminishing opportunities for younger generations. There was also evidence of distress flowing directly from observed changes in the physical environment, especially in a loss of healing or recreational natural spaces. Taken together, these concrete effects – arising essentially from physical environmental changes, strained resources, and changing behavioural patterns – would seem particular to places already suffering clear (albeit non-life-threatening) effects of climate change, with presumably limited relevance to the UK.

Beyond these more concrete considerations, however, the review also uncovered evidence of effects operating on a more abstract level, in the realms of personal and social meanings and identity. A further aspect of this more abstract set of responses would seem to relate, as suggested by Clayton (2020), to an experience of vague unease or ontological insecurity in the context of change to the once familiar. Though seldom explicitly mentioned

in the primary research studies, this finding resonates with the concept of solastalgia (Albrecht, 2007). In this way, solastalgia may be viewed as a 'higher-order' theme arising from this review, and as occurring where the facts of social, environmental and lifestyle changes exist in tension with personally or socially constructed ideas about what home is and how it ought to be. Particularly in societies characterised by a strong sense of collective identity, it seems that feelings of solastalgia could also blend into crises of identity and meaning. In the Inuit samples reviewed here, for instance, it seemed that a breakdown of traditional practices, and an increasing disconnect between present realities and cultural heritage, led to a questioning of what it means to be Inuit in a world without ice.

It is at this juncture – on questions of identity, life meanings, and ontological insecurity – that the distress caused by subtle exposure to climate change evokes an existential dimension. An existential framework, as derived principally from Yalom (1980), will be mapped out in the section below. At this point, it is sufficient to note that these existential experiences may contain more direct relevance to the UK context than the more concrete experiences of strained resources and physical environmental changes.

Conclusion and future directions

This review of the literature has highlighted two interconnected channels through which exposure to gradual climate change appears to impact wellbeing. Broadly speaking, the first of these channels concerns the concrete effects of climate change on access to resources and outside spaces, and the related impacts of this on individual and community prosperity. Beyond this, however, there also appears to be a more existential dimension to people's interactions with gradual climate change. This existential dimension was observed to include concerns about personal and social meanings and identity, as well a sense of ontological

insecurity from the experience of life in a destabilised reality. This existential dimension may offer an appropriate framework for the conceptualisation of the distress caused by gradual exposure to climate change in the UK. The review also indicates a lack of qualitive research on experiences of gradual climate change in the UK.

The existential framework of mental health

The above systematic review uncovered evidence of an existential dimension to mental health responses to climate change. This was noted in the experience of threats to life meanings, challenges to personal and community identities, and in feelings of ontological insecurity in the context of a destabilised life-world. This next section may offer some clarification (if needed) as to why these experiences were designated as existential. The section's explicit focus, however, is on the construction of an existential framework, which will serve as the dominant theoretical framework in this thesis. The section begins with a (startlingly) brief introduction to existentialism.

The existential outlook

Existentialism can be thought of as a loose collection of ideas and attitudes about human life. Though perhaps most intimately associated with the works of Sartre, Camus, and Heidegger, it could be said that existentialism arises (or 'happens') whenever a person contemplates human life purely on its own terms – and especially without recourse to either religious prescriptions or scientific reductions (Crowell, 2017). Instead, existentialism assumes as its starting point the lived experience of human subjectivity, the experience of living, as a thinking and feeling and self-aware being, in a universe fundamentally indifferent to one's existence. Although existential thought runs in many different directions, it is from this central point – of inexplicable, temporary, and often harsh existence – that all currents

flow. It is a project that ponders: who are we? what should we do? and what is the point in all this anyway?

Constructing an existential framework

The existential framework in mental health assumes that psychological distress can often be conceptualised with reference to existentialism's core concerns. These concerns can be conscious and self-evident – as in the case of a person seeking help for death anxiety – or unconscious and in need of some level of psychodynamic interpretation – as in the case of a person whose obsessive hoarding acts as a defence against the anxiety of letting go and a hidden anxiety about death. Although there is no definitive map of the theoretical terrain constituent of existential psychotherapy, there are a number of core and recurrent themes, many of which were explored comprehensively by Yalom (1980). The following paragraphs sketch out an existential framework, as understood and utilised by this thesis, comprising of Yalom's ultimate concerns of death, freedom/responsibility, isolation, and meaning, and the added concern of personal identity.

Death

The first existential theme, and perhaps the most obvious, is death – the basic discord between our desire for continuing life and the awareness of our impending, permanent non-existence (Yalom, 1980; Yalom, 2008). It is the position of the existential framework that terror of death – and efforts to deny death – are ubiquitous and uniquely powerful forces in human life (Becker, 1973; Yalom, 1980). At its purest, terror of death is not a terror about dying, but about the absolute loss of death itself, the moment when everything stops. It is a deep and primitive dread, and one that is defended against frantically, by avoiding reminders

(in other losses or endings), by belief in an ultimate rescuer or (implicitly) in one's own specialness, and by commitment to ideology or institutions (Becker, 1973). However, it is also a terror that, according to the existential framework, is capable of motivating a more urgent engagement with life. Truly grasping the finitude of being, Heidegger (1927/1962, p.435) writes, "snatches one back from… comfortableness, shirking, and taking things lightly". In this way, a desire for legacy or 'symbolic immortalisation' often leads us to what we value.

Freedom/responsibility

Perhaps less self-evident than dread of death is the existential concern of ultimate freedom/responsibility. The position of the existential framework is that, in response to the presenting conditions of life, people have a dizzying degree of freedom to constitute their own reality (Becker, 1973; Sartre, 1938/2000; Spinelli, 1997; Yalom, 1980). At the extreme, it could be said that there is no reality, other than that constructed by the subject. Contained within the concern of ultimate freedom is the related concern of ultimate responsibility: we are, in the existential view, responsible not only for our actions but also for our failures to act; not only for what was, but for what might have been. Ultimately (and however much we might seek them to ease anxiety), there are no grand designs, no external structures, on which to displace responsibility. A sense of existential guilt can flow from this position – guilt from our ultimate authorship of our (in)actions, and also from our unused life, as in a vague regret about not doing more. In this way, Yalom (1980) has argued that existential guilt can be a useful prompt to constructive action.

Isolation

Isolation, as understood by the existential framework (Yalom, 1980; May, 1983/1994), must be distinguished from interpersonal isolation. In the interpersonal sense,

isolation can be viewed as broadly synonymous with loneliness; it refers to a physical or social inability to connect to other people. In existential terms, however, isolation refers to the more fundamental sense of 'separateness' that exists between internal reality (in here) and external reality (out there); it refers to the impossibility of ever fully connecting with another being, to the unbridgeable gap between subjective worlds. In this way, as May (1983/1994, p.118) has written, existential isolation can be viewed as a form of chronic "alienation" from the social and even the natural world. While experiences of interpersonal isolation might certainly contribute to experiences of existential isolation, it is the position of the existential framework that, however close one feels to another person, one must ultimately face life alone.

Meaning(lessness)

The existential framework invokes a basic tension between the human need for a life characterised by purpose, goals, or meaning, and the apparent absence of any cosmic, meaning-conferring context to existence (Yalom, 1980). The existential framework holds that feelings of futility can follow from this tension: if there is no ultimate reason for life, then what is the point of anything at all, still less the day-to-day business of any one person? That we carry blandly on (working, eating, going to the shops) may even acquire an air of absurdity: over and over, we push our boulder to the top of the hill (Camus, 1942). The existential framework holds, however, that the solution to this problem is to be found in the subjective nature of meaning; it is, as Frankl (1959/2004) found in surviving the holocaust, there to be constructed in even the most terrible circumstances. Indeed, in Frankl's (1964/2010) view, humans are moved by an innate drive to find purpose in life – a 'will to meaning' – with life satisfaction highly contingent on this will being fulfilled. Frankl (1973) has also suggested three broad ways to fulfil the will to meaning: by giving to life (through

our works); by taking from life (in our experiences of goodness and beauty); and by bearing, resolutely, the fates one cannot change.

Identity

The existential framework's final concern centres around personal identity. The existential perspective is that identity cannot be reduced to psychological abstractions such as drives, instincts, or mechanisms, nor to social realities such as one's (intersectional) gender, race, or sexuality, but is instead the internal centre (or narrative voice) which relates to any and all of these constructions: it refers to the prior and fundamental 'I am' experience of existing, as a self-aware entity, in a particular time and space (May, 1983/1994). Spinelli (1997; 2015) has adopted the term 'self-construct' to refer to the way in which this prior and fundamental 'I am' makes sense of their relation to the world, essentially through a form of narrative identity, the story we tell ourselves about who we are. Though the self-construct may operate as an effective defence against deeper identity crises (the question of what it even means to be a self), the existential framework holds that an ineffective or inflexible self-construct can give rise to internal conflicts or feelings of uncertainty about where one fits into the world (Koole et al., 2006; van Bruggen et al., 2017).

The existential framework: a synthesis and analysis

The existential framework, as conceived by this thesis, thus pertains to issues of death, freedom/responsibility, isolation, meaning or meaninglessness, and identity. It should be said, however, that the existential framework makes no pretence about offering a definitive perspective on psychological distress. It is, as Yalom (1980, p.26) wrote, a "system of explanation", a single albeit extensive paradigm.

The framework is also open to both internal and external critique. In particular, there is debate as to how to reconcile the concept of existential isolation with humans' innately relational tendencies (Bretherton, 1985). For Yalom (1980), relationality occurs in a context of fundamental isolation; for Spinelli (2015), isolation occurs in a context of fundamental relationality. For the purposes of our framework, no verdict is necessary on this debate: it is necessary only that experiences of existential isolation – of detachment, alienation, an unbridgeable gulf – are accepted as an occasional feature of life. More broadly, it might be contested that the existential framework, taken as a whole, rests on debatable and socio-historically specific assumptions of atomised and self-determining individuality. Again, though, it is worth returning to Yalom's (1980) position that the existential framework offers not a taxonomy of universal truth but a tool for understanding. Any limits on its applicability do not imply its redundancy.

As an aside, it is also worth noting that there exists a (slowly) growing body of literature on the effectiveness of existentially-oriented therapies. For instance, one meta-analysis has found that, relative to controls, participants across five studies engaging in existential therapy reported a greater sense of meaning in life post intervention (Vos et al., 2015). Another small study, from an NHS secondary care mental health service, has found that patients engaging in existential-phenomenological therapy achieved comparable reductions in distress to those engaging in CBT (Stephenson & Hale, 2020). Meanwhile, a six-session existential intervention, with a focus on the development in patients of selfhood and meaning, has been found to have a large effect on distress-reduction in NHS primary care services, with low relapse rates at one-year follow-up (Rayner & Vitali, 2015). Findings such as these are important in demonstrating that, despite a possible tension between the philosophical underpinnings of existential therapy and quantitative measures of symptomatic

change (Yalom, 1980), the effects of existential therapies are in fact compatible with the evidence-based paradigm of the modern NHS.

Research aims and questions

The above systematic review found that gradual exposure to climate change may prompt existential anxieties around issues of identity, meaning and ontological instability. This thesis therefore seeks to deepen understanding of how exposure to gradual climate change begets psychological distress, by applying an existential framework to the analysis of research interviews. Doing so will also address a gap in the literature, in exploring the ways in which concerns about climate change manifest in a context (the UK) where its impacts might be expected to exist predominantly at the level of ideas and meanings. The thesis thus aims to go some way towards clarifying the concept of eco-anxiety.

The thesis' first research aim is therefore to explore 'what hurts' in confrontations with climate change. Specifically, the thesis aims:

- To explore the content of people's concerns about climate change
- To explore the impact of these concerns on general well-being
- To apply an existential framework to the exploration and analysis of these issues

In an effort to translate theory into practice, the thesis also seeks to identify methods (whether therapeutic or self-help) for supporting people with concerns about climate change. Interviews will therefore be oriented towards the following additional aims:

- To explore 'what helps' in managing concerns or distress about climate change
- To consider how psychological services might best support people experiencing distress related to concerns about climate change

Methods

Chapter overview

This chapter lays out the methodology of the research component of the thesis. It begins by justifying its critical realist epistemological position in relation to positivist and social constructionist epistemologies. It then offers a reflective commentary on the evolution of the project, followed by a reflexive statement, before describing the design, sample, materials, procedure, and analysis of the study, which may be broadly characterised as utilising a thematic analysis on the semi-structured interviews of 15 self-selecting participants. The chapter concludes with reflections on ethical considerations relevant to the study.

Epistemological foundations

This thesis assumes a critical realist epistemological position. The justification for this position, as well as its implications for how the study's findings ought to be read, will be discussed below. To provide some conceptual context, however, this section begins with a more general overview of the history and philosophy of not just critical realism but the two other dominant epistemological positions in social sciences research – positivism and social constructionism (Alvesson & Skoldberg, 2009). The rationale for this more general overview is that the critical realist position of this thesis is best understood in terms not just of what it assumes in itself, but also in terms of how it relates to other epistemologies.

Positivism

The first epistemological paradigm to consider is positivism. Positivism holds that knowledge is derived from and advanced through the objective measurement of phenomena existing 'out in the world' (Park et al., 2020). Research within this paradigm assumes a passive and unidirectional relationship between observer and observed, with knowledge arising from the direct perception of empirical or sense data. Historically, the positivist belief that nothing, in principle, is beyond measurement and quantification constituted a reason for great optimism in the "progress of civilisation" (Comte, 1822/1998, p.9), an Enlightenment signal of social, political and epistemic upheaval, in which the "feudal and theological system" (p.10) of medieval Europe was displaced by commitment to the "sciences of observation" (p.11).

The positivist position was critiqued and refined by Popper's theory of critical rationalism (1959/2002). According to Popper's view, knowledge is inherently tentative and conjectural, but may be updated to more accurately correspond to reality (or at least to shed light on more difficult problems) through a rigorous process of experimentation and falsification. The general principle is that theories can never be conclusively 'proved' through scientific experiments but can be disproved or falsified through the reproducible finding of a refutational effect. Theories may then be either discarded or refined to incorporate this finding, leading to a gradual advancement of understanding. This process can be seen to underpin null-hypothesis testing, a method which (theoretically) tests the starting assumption of there being no effect or relationship between studied variables (Wilkinson, 2013).

When operationalised in this Popperian way, there is an undeniable modesty to the positivist position. However, the paradigm remains vulnerable to several fundamental criticisms, perhaps especially in the social sciences. Most importantly, positivism's emphasis on quantifiable measurement typically necessitates the abstraction of complex phenomena into discrete variables, which may constitute an oversimplification of social reality. Beyond

this, it is questionable to what extent positivism's assumption of passive and disinterested researchers, following the data in the exclusive interests of scientific progress, is borne out in the context of real-world institutions. Moreover, even in the absence of implicit or explicit bias, the statistical methods commonly used to explore experimental results are not beyond question, especially where findings hinge on statistical significance testing and its inherent vulnerability to chance. For these reasons, positivism in the social sciences has been conceived as in a reproducibility crisis, in concern that a large number (even over a half) of published research findings might be false (Ioannidis, 2005).

Social constructionism

A second epistemological paradigm – social constructionism – may be conceived as operating on the opposite pole to positivism. According to the social constructionist, the reality we experience is irreducible from shared cultural meanings, with facts about the world not so much waiting to be discovered as being continually constructed through social consensus (Berger & Luckmann, 1966). The apparently unassailable facts of existence are, in this view, really just patterns of activity, transformed by habit from 'the things we do' to the 'the way things are' – reality. Knowledge, in this view, is inherently interpretative, and the act of interpretation inseparable from each individual's socio-cultural universe. Far from examining independently-existing phenomena 'out in the world', the social constructionist holds that the social sciences study only the way things happen to be, in a given socio-historical context, and to the current appearances of the researcher, in their own dynamic relationship with the researched. In this way, the task becomes not to establish facts, but to generate meaning and understanding.

Perhaps above all in this endeavour, the social constructionist wrestles with language as the primary tool for understanding and yet the primary source of all misunderstanding. Indeed, according to Derrida (Lawlor, 2019), no single and universal meanings can be derived from language. Instead, meaning is to be found, to name a few considerations, in words and their relation to one another; in what was consciously and unconsciously intended by these words; and in the social, historical and psychological context to their expression. Borges (1962/2000) has provided a neat (albeit probably satirical) exposition of this position, in his story of a 20th century author who recreates, word for word, the 17th century *Don Quixote* and, because of his different social context, is construed as having created an entirely new work of genius. The words of the new *Don Quixote* are identical, and yet their combined effect, in a different context, is to create new layers of meaning.

There are a number of implications of applying a social constructionist epistemology to social sciences research. Chiefly, because of its rejection of contextless truth, a social constructionist position entails a modesty about its own practices. What is sought is not a final account of reality, but a particular perspective on the world, shaped by the context in which it is formed (Burr, 2015). This orientation particularly lends itself to qualitative research, with its focus on interpersonal interactions and the exploration of how people make sense of themselves and the world around them. However, again because of its rejection of contextless truth, findings generated from a social constructivist position might be considered rather self-limited. That is, findings will – by their own admission – be non-generalisable (Lincoln & Guba, 1985): they represent the perspective of a particular researcher, operating from a particular position, exploring the dynamics of a particular situation. Taking this logic to the extreme, it is tempting to wonder whether work from a social constructionist perspective even meets the criteria for what is meant (in the socially constructed sense) by the word ‘research’.

Critical realism

The third epistemological position in social sciences research, often portrayed as a compromise position between the poles of positivism and social constructionism, is critical realism.

Broadly speaking, critical realism entails the view that while research is inevitably shaped by social factors, it is nevertheless capable of identifying and explaining mechanisms that exist independent of their observation. The critical realist position is most strongly associated with the work of Bhaskar (2008). In Bhaskar's philosophy, there are two dimensions of knowledge in science – 'antecedently established knowledge', which provides an assumed framework for the generation of new knowledge; and beyond this a dimension of independently-existing structures and mechanisms. For Bhaskar, the first dimension originates in a social activity which both designates certain kinds of experience as relevant to science and establishes the circumstances in which this relevance is to hold. For instance, in psychology, a positivist might designate observable, measurable behaviour as the phenomenon of relevance to their scientific endeavour, and the circumstances of a laboratory experiment the appropriate context in which to generate further knowledge. Such a position, however, would be deeply entangled with antecedent assumptions of an essentially social nature (the sense that 'this is how psychology works'), with any knowledge so derived therefore an inescapably social product.

Though social in its production, however, the critical realist position is that scientific knowledge can equate to 'truth', where it uncovers an explanatory law which operates independent of its observation. Moreover, while the expression of such laws must be done through language, they are held by the critical realist to not depend on language for their

existence. Examples of laws, in this critical realist sense, are not hard to find in the natural sciences – objects fall because of gravity; we see them fall because of light: both laws operate irrespective of human understanding. Thus, through the social activity of science, constructed on the antecedent knowledge of scientific language, practices and institutions, it is possible to establish knowledge of (independently-existing) natural laws.

Whether laws of this kind exist in social science, however, might be thought an open question. For the positivist they do; for the social constructionist they do not. For Bhaskar (1979/2005), the answer hinges on the assumption that society's existence is explanatorily prior to social behaviour – that is, on a view of people's actions reflecting the powers and pressures of the society in which they live. To the degree that this assumption holds, the critical realist position is that there are rules (laws to be uncovered) in the human world, just as there are in the natural world. One important difference, however, is that, in the case of the social sciences, humans are an aspect of, and agent in, the world they seek to explain, a part of their own subject matter (Bhaskar, 1979/2005). For this reason, critical realism advocates that particular note is taken of how research questions, methods and conclusions are shaped by the researcher's subjectivity.

The critical realism of this thesis

This thesis adopts a critical realist epistemology. It assumes, fundamentally, that there is an independently-existing reality (in this case, to people's concerns about climate change and their methods of alleviating distress), but that any research endeavour will inevitably offer only an approximation of this reality, in a process both informed and constrained by the values and antecedent knowledge of the researcher.

Both the form and the content of the research can be viewed as illustrative of this critical realist consideration. For instance, the notion that new knowledge can be developed by analysing interviews may be considered a socially contingent assumption: it is a particular practice, within a particular research paradigm, with its own set of rules and internal logic. Meanwhile, as discussed in the Introduction chapter, the research's conceptualisation of climate change is to some extent contestable and certainly grounded in the researcher's own appraisals. Indeed, stepping back further, the assumption that questions even needed to be asked about people's concerns about climate change might itself be considered to reflect more the researcher's values and socialisation than any fact about the necessary direction of science. Employing an existential framework to the analysis of people's concerns then entailed a further imposition of values to the research process, in a style recommended by other critical realist qualitative research (Fletcher, 2017) but antithetical to the positivist assumption of unfiltered assessment and measurement.

Beyond all these considerations, though, the thesis holds that it was possible for the research to shed light on very real mechanisms by which concerns about climate change affect emotional wellbeing, and very real mechanisms by which people alleviate related distress. While another researcher, approaching the same question with the same tools, would certainly be expected to arrive at findings which differ from the findings presented below, this hypothetical difference is thought to represent not two different truths, as in social constructionism, but two different approximations of a shared underlying truth, as in critical realism.

Summary

This section outlined three dominant epistemological positions in social sciences research. The epistemological position of the thesis was characterised as critical realist, in its conviction that qualitative interviews could generate an approximation of an independently-existing set of mechanisms by which climate change causes distress and by which people alleviate this distress. It was acknowledged that the approximation of underlying reality will have been both informed and constrained by the dynamics of semi-structured interviews, the guiding and filtering effect of the existential theoretical framework, and the researcher's prior beliefs and values.

Evolution of the project

There were a couple of notable turns in the development of this project. Initially, the author intended to conduct the research in two phases. In phase one, a larger sample of participants (at least 30) would have been required to complete a survey on the degree of their concerns about climate change and a questionnaire measuring existential anxiety (the Existential Concerns Questionnaire; van Bruggen et al., 2017). The purpose of this phase of the research was twofold: firstly to explore a possible correlation between concerns about climate change and existential anxiety; and secondly as a means of selecting participants with high levels of existential anxiety and climate change concerns for qualitative interviews.

This plan was changed for a few reasons. Perhaps most significantly, the thought grew that there was a troubling circularity to the proposal. Recruiting people with high levels of existential anxiety and concerns about climate change, only to find (probably) that one set of experiences tapped into the other, seemed a bit too much like starting with an answer rather than a question. At the same time (spring 2020), the coronavirus pandemic had started to take hold, and it seemed, for a period of a couple of months, like people could think and

talk of nothing else. It was notable, however, from general observations of the public mood, that people's responses to the pandemic were not only suggestive of existential anxiety but also seemed to bear some resemblance to common responses to climate change (denial, dread, a sense of familiar ground giving way).

A new research proposal was therefore developed, to both ease concerns about methodological circularity and account for the new reality. The plan was to proceed straight to interview with participants who self-identified as concerned about what were conceptualised as 'extreme risks': climate change, pandemics, and (for good measure) nuclear war. A review of the respective literatures on each of the extreme risks suggested, as with the systematic review above, that applying an existential framework to people's concerns might be appropriate and revealing. There was no concern about the need for a questionnaire to identify participants who were sufficiently worried by extreme risks because, at this point, everybody was. Participants could instead self-select, with the removal of the questionnaire also allowing for a more covert analysis: existential anxieties, should they emerge, could do so without being explicitly prompted.

However, recruiting participants to discuss extreme risks (see Appendix 1 for poster) proved a slow process. It was by now the end of summer, and the pandemic was in a lull. Moreover, it was apparent that the few people who did volunteer were most interested by far in talking about climate change. This was confirmed in an initial three interviews. Indeed, while an attempt was made to weave concerns about other extreme risks into discussion, it became clear that this was a too unwieldy ambition, which also threatened the depth of exploration on the primary issue participants wanted to discuss.

Ethical approval was therefore sought and granted to restrict the focus of the project to concerns about climate change, with appropriate adaptations made to recruitment materials

and strategy (see Appendices). It was agreed that this adaptation did not invalidate the interviews conducted officially about extreme risks, merely the non-consideration of any data pertaining to pandemics or nuclear war.

Reflexive statement

In-keeping with the critical realist epistemology of the research, it is important to acknowledge the impact of researcher bias, values, and personality on the processes and outcomes of a study (Bhaskar, 1979/2005). A reflexive statement – a process of self-reflection, of turning the analytic gaze inwards (Shaw, 2010) – is commonly recommended as one means of making explicit (or attempting to make explicit) this perhaps otherwise murky interplay between research phenomena and their investigator (Lambert, Jomeen, & McSherry, 2010; Primeau, 2003). As would seem fitting, this statement will be offered in the first-person.

It will be clear from the thesis so far that the decision to conduct research on emotional responses to climate change did not arrive from nowhere, but rather from my own investment in the issue. I feel guilty about climate change – both for my complicity in the problem, my participation in the global chains of consumption, and for the life-decisions that will likely limit my ability to help. What if, instead of pursuing clinical psychology, I had been an engineer, or a conservationist, or something else that might facilitate substantial, positive, ecological change? This thesis, in this sense, was perhaps above all an attempt to bring my actual life into line with these hypothetical, alternative lives – to ease my guilt at my current direction.

I feel not only guilty but angry and deeply sad about climate change – the loss, the waste, the thoughtless ploughing ever on. Holidays, in particular, used to provoke these feelings. Can I interest you, perchance, in the opportunity to be part of a flotilla of motorised boats, chasing a whale around a bay? How about an afternoon trampling over the island's last remaining strip of reef? The planes, the traffic, the plastic; the casual devastation and my own, wavering, entitlement: the horror; the horror. Beyond this, and perhaps relatedly, I also feel that the greatest tragedy is not that we cannot arrest climate change, but that we really, truly, *could*, if only it were treated with the proper degree of urgency. It is from this emotional maelstrom – guilt, anger, sadness, connecting, sometimes, with a vacillating hope and misanthropy – that this thesis was born. And it is with reference to this internal world that my analysis of reality – my attempt to approximate the truth of people's distress about climate change – must be considered.

The use of an existential analytic framework may be viewed as a similar extension of my own internal world. I am reminded of James' (1890) rather depressing analysis that there exists a "happy moment" (p.401) for acquiring knowledge – that "ideas gained by men [and women] before they are twenty-five are practically the only ideas they shall have in their lives" (p.402); that it is with these ideas (and only with these ideas) that we "never lose entirely our sense of being at home" (p.402). It seems almost certain that, had I not completed a philosophy degree upon leaving school, and then tempered my transition to psychology with heavy doses of Becker (1973), Yalom (1980), and Frankl (1959/2004), I would not have thought to conceptualise distress about climate change in existential terms. The study results, in this sense, are an undeniably personal product, a contingency not only of (my co-construction of) the study's data, and of (my reading of) the existing empirical landscape, but of my past ten years of university education. I should also extend apologies to the reader who,

having not suffered the performative poignancy of an existential late-adolescence, finds themselves traversing unhomely terrain in this thesis.

Research processes

Design

The papers included in the systematic review employed qualitative research methods. Though the exact qualitative method varied (along with the rigour of analysis) from focus groups and case studies to in-depth individual interviews, the studies all shared a receptivity to the diverse experiences of their participants. The breadth of the studies' findings seem likely to have been beyond the reach of quantitative methodologies.

Given its similar conceptual orientation to the reviewed studies, a similar qualitative study design seemed suitable for this research. Though a focus group may have proved a useful methodology, Kidd and Parshall (2000) have suggested that a combination of high emotional stakes (as might be expected when discussing climate change) and an inexperienced group moderator (as the author would have been) risks exerting a deleterious effect on the quality and number of ideas generated. The potential is also noted, in focus groups, for more vocal members to dominate, or for data to emerge as a result of social consensus-seeking (Dilshad & Latif, 2013). It was therefore decided that individual interviews would offer the best opportunity to explore the experiences of every participant in maximum breadth and depth.

It was decided that interviews would be semi-structured to ensure that important areas were covered with every participant, while also leaving room for significant individuality in

the course and content of discussions. The interview schedule was refined as the interviews progressed, as described in the Materials section below.

Sample

The research used a general population sample. This decision reflected the assumption that concerns about climate change are relatively common in all walks of life, as reflected in a YouGov survey from August 2019, which showed the environment behind only health, crime, and leaving the European Union in a poll of voters' priority issues (YouGov, 2019). As an additional possible benefit of using a population rather than clinical sample, it seemed likely that interviews conducted with people without reference to – and beyond the framing of – any notion of 'patient status' might yield conversations less diluted by participants' pre-existing conceptualisations of their distress (for example in psychiatric diagnoses or psychological formulations).

It was decided that 15 participants would constitute an adequate sample for qualitative interviews. This decision was based on Guest and colleagues' (2006) finding that 88% of their total number of codes had been created after the analysis of 12 of 60 interviews, with mostly non-substantive new codes created thereafter. Thus, in the interests of thoroughness this thesis sought to conduct 15 qualitative interviews, albeit in the expectation that new themes would be developed infrequently, if at all, from the final three interviews.

Participants were recruited as described in the Procedure section below. Each participant was assigned a pseudonym, the first letter of which corresponded to their position in the chronology of the interviews (so that the first interview was with Annie, the second with Benjamin, and so on). As discussed in the Procedure section, participants were largely

recruited through the social media of environmentalist groups. This was not a necessary inclusion criterion, merely an expediency of the recruitment process and shortcut for finding people with suitable levels of emotional engagement. The effect of this recruitment process was that a large proportion of the sample had some experience of environmental activism or protest. However, there was considerable variation in degrees of activism: for many in the sample it was a feature of their current life, for a few a feature of their past, for others a more tentative engagement or even an entirely notional support. Participant pseudonyms and (obscured) details are shown in Table 4, presented by interview order. Detailed demographic information is omitted to preserve anonymity. Participants' occupations are given in the broad sense of the word. For instance, for Benjamin and Natasha, it seemed that their roles as parents were really their most significant and relevant 'occupations' when it came to reflecting on climate change. As can be seen, the sample skews towards younger, female participants. Limitations and strengths of the sample are described in the Discussion chapter.

Table 4

Participant information

Pseudonym	Gender	Age range	Occupation	Interview duration
Annie	F	35-50	Therapist	1:01:17
Benjamin	M	35-50	Father and activist	53:08
Caitlyn	F	18-25	Student and activist	51:17
Delia	F	65+	Retiree, poet and activist	52:59
Efa	F	18-25	Student and activist	49:24
Felicity	F	18-25	Student and activist	46:50
Gabrielle	F	18-25	Post-graduate student	48:04

Hannah	F	25-30	Graduate and activist	53:48
Izzy	F	18-25	Student and activist	44:00
Jennifer	F	35-50	Renewable energy worker	49:24
Katrina	F	35-50	Wildlife conservationist	58:23
Luke	M	25-35	Sustainable agriculturalist	46:00
Michael	M	25-35	Graduate and activist	57:41
Natasha	F	35-50	Mother and former activist	57:53
Oscar	M	18-25	Student and activist	50:34

Materials

Interviews were conducted over Zoom, with recordings saved on the researcher's university Zoom account. Conducting the interviews by video call not only ensured compliance with social distancing guidelines in the pandemic, but also removed considerations of physical distance as a restriction on participation.

The only other material required for the interviews was the semi-structured interview schedule (see Appendix 5). This was refined as the interviews progressed, but was only ever used as a guiding structure, a starting point for exploratory conversation, rather than a list of questions to be answered. In this way, conversations sometimes led up and down the interview schedule, with focus lingering on one particular area where it was felt fruitful, and if necessary at the expense of time spent on other areas where there was less to discuss. Questions were added to the interview schedule based on the content of prior interviews. For instance, a pilot interviewee (not included in the results) reported feeling better able to connect to the emotional content of their concerns about climate change when asked to conjure a particular image that they associated with climate change. On another early

occasion, a participant spontaneously mentioned a history of seeking professional therapeutic support for their concerns about climate change, again suggesting that this might be a useful point of enquiry, as had until that point not been considered. In this way, prompts were added to the interview schedule, without drastic changes to its overall structure.

The main structure of the interview schedule underwent one significant change, which reflected the sharpening of the research focus from three different 'extreme risks' to just climate change. In the original schedule, the interview began by offering participants a choice about which of pandemics, nuclear war and climate change they most wanted to discuss (all chose climate change). There was then a need, if and when discussions on climate change reached an appropriate conclusion, for the interview to be almost restarted, with the participant choosing a second extreme risk to discuss (this time more briefly). After three interviews (not including the pilot), it became apparent that this was a too unwieldy process that risked doing insufficient justice to the depth of participants' experiences in relation to climate change. The expectation was therefore dropped that pandemics and nuclear war might also be discussed. This change was then concretised in the stated scope of the project and the attendant recruitment materials and ethics documentation. The interview schedule was subsequently adapted to remove the option for participants to discuss pandemics or nuclear war, with an introductory spiel that focussed exclusively on climate change.

The structure of the interview schedule was oriented towards the exploration of three research aims. The first of these was the question of 'what hurts' when reflecting on climate change. Prompts for this research question were designed to elicit thoughts and feelings about personal exposures, future scenarios and how an awareness of climate change affects day-to-day functioning. The second aim was to explore 'what helps' to manage or moderate concerns about climate change, with prompts designed to support exploration of sources of

comfort and wellbeing. The third aim was to explore how psychology services might support people who present with concerns about climate change.

While it was considered necessary to cover all three research aims in each interview, discussions were approached in an exploratory spirit, with priority given to the following of a participant's stream of ideas rather than adherence to the schedule.

Procedure

Recruitment was conducted on social media using the project flyer (Appendix 2). In order to reach a large audience of potentially interested people, the researcher sent messages to the Facebook and Twitter accounts of relevant groups, asking for permission to post the flyer on their page. Initially, when the intention was to discuss 'extreme risks', the researcher approached Campaign for Nuclear Disarmament and other anti-war groups, as well as environmentalist organisations, such as Extinction Rebellion. After the project restricted its focus to climate change, the recruitment strategy shifted accordingly, by solely contacting environmentalist organisations. It was noteworthy that, up until this time, the only expressions of interest had come via this environmentalist route anyway, and that after restricting the research focus and circulating an updated flyer, recruitment accelerated. Recruitment also operated through word of mouth, with a couple of participants volunteering after hearing about the project from a friend. Recruitment operated on a rolling basis, with interviews conducted with initial participants while other participants continued to come forwards.

Prospective participants were required to send an email to the researcher to express interest in the project, and were then sent a participant information sheet and consent form.

Following return of the consent form, and after any queries were clarified, arrangements were made to meet for interview, which in all cases happened over Zoom. Each interview lasted between 44 minutes and just over an hour, and used the interview schedule as a flexible guiding framework. The researcher transcribed two of the interviews in order to get a good feel for the data and reflect on interview technique and structure. Most significantly, this process contributed to the decision to concentrate focus on climate change, while also informing the selection and use of prompts to facilitate a deeper and more flowing discussion. Due to time constraints, all other interviews were sent to a professional transcriptionist.

Analysis

The researcher conducted a reflexive thematic analysis, as described by Braun and Clarke (2006; 2020), to analyse the 15 transcripts. This method of analysis was chosen for its flexibility, its suitability for the sample size, and its emphasis on the identification of patterns across the whole dataset, as opposed to within any individual interview. Thematic analysis, in contrast to, for example, grounded theory and interpretative phenomenological analysis (Charmaz, 1996; Eatough & Smith, 2017), also permits a top-down or theory-driven approach to theme development, as was necessitated by the intention of applying an existential framework to people's concerns about climate change. It did, however, feel necessary to avoid 'analytic foreclosure' (Connelly & Peltzer 2016) in applying this framework: where seemingly important data had no clear relevance to existential theory, themes were developed more inductively. Existential ideas thus became a guiding but not a limiting analytic framework.

A more inductive analytic process was also favoured when approaching the second and third research aims – to explore what helped participants to manage distress about

climate change, and to consider how services might best respond to people presenting with such concerns. Although it is conceded that a methodological purist may well object to this shift in analytic emphasis (from predominantly theory-driven to predominantly inductive), it is thought that a shift in the research aims offered the necessary justification. As discussed in the Introduction chapter, the nature of people's distress about climate change is currently lacking conceptual clarity. Exploring this distress through an application of a particular (empirically indicated) theoretical framework thus offered an important step towards making sense of an as-yet ill-defined set of experiences. As in the case of clinical formulation, it offered a way to explain and give meaning and shape to otherwise disparate elements of distress. In contrast, the tasks of exploring what helps people to manage distress about climate change, and what kind of support (often by extension) services might offer, seemed to be less a matter of establishing conceptual clarity than of generating ideas about practically useful interventions. Moreover, the decision to apply an existential framework to participants' distress about climate change was grounded in and flowed from the above literature review, while there was no equivalent indication that this or any other theoretical framework would contain particular relevance to the question of what helps in managing distress about climate change.

Beyond considerations of inductive or theory-driven analytic practices, Braun and Clarke (2006) also describe the need to decide whether analysis will occur primarily at the semantic level, with a focus on the explicit meanings of participants' words, or at the latent level, by incorporating considerations of underlying ideas and inferences. The nature of this research seemed to require at least some analysis at the latent level. The existential framework is, after all, a theory of the unconscious (Yalom, 1980), or at least of the not-currently-in-consciousness (Spinelli, 1997; 2015). It therefore followed that the research would need to be sensitive to the exploration of ideas beneath the surface of literal

expression, whether through further questions in interviews or by interpretation in analysis. It should be noted, however, that an openness to latent interpretation did not preclude taking words at face value. It merely signified the expectation that depths of meaning can be contained within a single statement.

Following Braun and Clarke (2006), data analysis was a recursive process, requiring repeated movements back and forth between the different stages described below, until the reporting of established themes. Analysis began with the repeated reading of participant transcripts, which were also checked against original audio recordings. This first step led to initial notetaking about possible codes. Initial codes were then generated based on elements of the data that appeared relevant to the researcher, with codes subsequently collated into meaningful groups after the full dataset had been worked through.

It was at this stage that analysis for the first research aim – to explore what hurts when contemplating climate change – made direct, theory-driven use of the existential framework. This is to say that the existential concerns – of death, freedom/responsibility, isolation, identity, and meaninglessness (see Introduction chapter) – were used as initial, superordinate concepts around which relevant codes could cluster. In most cases, as will be seen in the Results section, these existential concerns were indeed found to do a good job of capturing and conveying participants' expressions of hurt relating to climate change. In these cases, therefore, the existential concerns were translated directly into (existential) themes. Subthemes were then created as appropriate to capture related or underpinning expressions of hurt, for instance where the general experience of meaninglessness (theme) seemed to come informed by a cluster of more specific experiences around a loss of investment in the future (subtheme).

In one case, however, on the existential concern of death, it was felt that the weight of participants' explicit expressions justified an inverting of the usual interplay between (explicitly existential) theme and (non-explicitly existential) subtheme. References to death were instead conceptualised as one (sub-thematic) aspect of a more general and superordinate set of expressions around loss. This was, from a theoretical perspective, a contestable move. Yalom (1980), for instance, would perhaps maintain that all experiences of loss represent a kind of mini-death, painful not only in themselves but in their prefiguring of our ultimate fate – the loss of everything in death. From this perspective, in the current analysis, it may have been more appropriate to keep death as theme and loss as subtheme. However, it was felt that participants in fact described a significant breadth of experience and fear around loss, much of which (for instance, a feared loss of beauty from the world) seemed worth foregrounding in its own right, and not merely for its relevance to death. Put another way, it seemed more faithful to participants' experiences to have loss as theme and death as subtheme, when their expressions of loss were often direct and heartfelt, and the link of these expressions to death more abstract or theoretical.

A more fundamental divergence from the existential framework, in analysis for the first research aim, was prompted by the development of a cluster of codes which had no straightforward relevance to the existential concerns of death, freedom/responsibility, isolation, identity, and meaninglessness. To accommodate and communicate these findings, a set of themes were developed through an inductive, bottom-up process, leading to the results conveyed in the system miscalibration theme.

Analysis for the second two research aims – concerning what helps people to manage distress about climate change and how services might best support people in such distress – followed an inductive process. After the initial generation of codes, this entailed grouping

codes into conceptually similar clusters and then identifying potential themes and subthemes based on the researcher's perception of relevant points.

All themes were reviewed and redefined in accordance with the principles of internal homogeneity and external heterogeneity – namely, that data within themes should group together meaningfully, and that there should be clear differences between themes. This involved first reviewing the coded data extracts within themes to check that they grouped coherently, and then the development of three thematic maps (one for each research aim) to compare the meanings captured by the different themes and consider the relationships and boundaries between them. Finally, themes were reviewed by thesis supervisors and, following suggested revisions, in some cases renamed. The analytic process was conducted on Microsoft Word. An example of coded data is shown in Appendix 6.

A core assumption of Braun and Clarke's (2006) exposition of thematic analysis pertains to the active role of the researcher in the generation of themes. This consideration accords with the critical realist epistemology of this research – namely, that the orientation of the interview and the interpretation of the data will have been shaped by the perspective of the researcher. It was therefore important that research results were, as above, reviewed by thesis supervisors. Other issues around study credibility are considered in the Discussion chapter.

Ethical considerations

Participants gave informed consent for their participation. All participant data was pseudonymised on completion of interviews (prior to transcription) and securely stored behind password protections. All data will be deleted on completion of the thesis. Additional

copies of audio recordings and transcripts (created in the transcription process) have already been deleted. Participants were rewarded £10 for their involvement in the study; many participants chose to donate this to charity.

Beyond these generic ethical considerations, the qualitative interview phase of this study carried with it the potential for distressing conversations on climate change. This consideration was particularly pertinent in view of the study's intention of recruiting interviewees specifically because of their concerns about climate change. However, it was not within the scope of the interviews to present participants with any distressing information, but rather to discuss their responses to distressing information with which they were already familiar. It was, therefore, anticipated that interviews would have no lasting negative impact on participants, and indeed that many would benefit from the opportunity to discuss their concerns. This expectation appeared to be borne out in the research process, with several participants commenting that it felt good, hopeful, even therapeutic to talk with someone on these issues.

There were, however, a couple of occasions on which interviewees became visibly upset during interviews. Time was taken after all interviews to check-in with participants' mood and, in one case, to signpost a participant towards a local counselling service. It was always necessary to balance the research requirement of exploring negative feelings with the ethical obligation to protect wellbeing. This seemed especially pertinent when participants had already described a tendency to consciously avoid ruminating on climate change. On these occasions, especially, it felt important to not encourage exploration beyond comfortable limits.

Ethical approval was attained from the University of Essex (see Appendices 7, 8, 9). The final ethical approval document reflects the change in the research project, from a focus

on ‘extreme risks’ to a focus on just climate change. Conversations with the course director and ethics officer recommended that this change in the research ought to be formalised in an amendment to the ethics form, but not in an entirely new form, and that any data already collected could be used in the results. The more restricted focus was less demanding on participants, and the few participants recruited to the project pre-adaptation were, in accordance with the status of the project at the time of their recruitment, given the option of choosing which extreme risk they would like to discuss (before all chose climate change).

Results

Chapter overview

This chapter presents research findings from semi-structured interviews with 15 participants, who self-selected for interview on the basis of their concerns about climate change. Results are presented in relation to the project's three research aims: to explore what hurts when contemplating the effects of climate change; to explore what helps to moderate or counteract any difficult feelings provoked; and to consider how mental health services might best respond to a person expressing concerns about climate-related issues.

In generating themes relevant to the first aim (what hurts), an existential framework was employed in an explicitly theory-driven analysis. However, in the process of analysis, it became clear that the existential framework – with its emphasis on themes of death, freedom/responsibility, isolation, meaning and identity – could not easily conceptualise all of the data. In this way, existential themes became a guiding but not a limiting framework, with additional themes developed where necessary. For reasons discussed in the Methods chapter, the process of generating themes for the other two aims (what helps; and implications for services) was more inductive. However, as deemed inevitable by the project's critical realist epistemology, even this more inductive process will certainly have been coloured by the prior assumptions and theoretical orientations of the researcher.

Results are described at the level of overarching themes and their underlying subthemes. Each theme will be discussed individually, beginning with a definition of the theme, and leading into an exposition of evidence from the interviews. Quotations are at times presented as full phrases or sentences, and at other times embedded into the main text where doing so was thought to add fluency to the exposition. Thematic maps for the three

research areas are also presented, in Figures 2, 3 and 4, to depict relationships between themes and subthemes.

What hurts

7 themes and 10 subthemes were developed to conceptualise participants' experiences of psychological distress arising from reflections on climate change.

Loss

At the overarching theme level, loss was defined as the direct experience of – or fears over – negative and potentially irreversible changes to external reality.

For Felicity, loss was felt in relation to a younger brother and his prospect of life in a "completely different world":

"I get scared and worried because he's only eight and I think what sort of world are we leaving for someone like him…. Everything that I do is for the benefit of him, for the next generation. That makes me sad."

Michael expressed similar feelings of sadness about the implications of climate change for "the environment that your children will see and the range of animals and plants that they will be able to… live among".

Fear of loss was seemingly experienced not just from the perspective of humanity, but also from the perspective of nature itself. As Hannah remarked, reflecting on the "intricate impossibility" of a spider's web, a tortoise, and trees:

"All those things are wonderful, and could be repeated for thousands of years more, but it feels like powerful interests are now cutting that short in a really brutal way."

Hannah thus seemed to experience a sense of loss not just for what is lost today, but also for all, in the future, that will be denied the chance to be.

For Katrina, conversely, a sense of loss seemed to be experienced primarily as a concrete fact of local life, as evident in descriptions of how suburban sprawl and diminishing wildlife populations have corroded local natural spaces:

"Over the course of my lifetime I've seen much of what I love just disappear."

Experiences of loss thus appeared to range, both between and within participants, from fear at the prospect of global collapse to continual suffering from incremental changes. If climate change is death by a thousand scratches, then for first-hand witnesses with emotional investment, every scratch hurts.

Death (subtheme)

Participants' experiences of loss sometimes came entangled with references to death. Although it could be argued that all experiences of loss resonate with a more fundamental terror of death (the ultimate loss), this subtheme was developed to capture more explicit allusions to a dead or dying world in the context of climate change.

A couple of participants described a relationship with nature rendered bittersweet by an awareness of climate change. Hannah, for instance, spoke of how this awareness could intrude on moments of enjoyment in nature, with the essential horror of a deeper truth:

*"You have that moment where you're like, 'Oh, everything is wonderful. Wow! I'm experiencing this and it's great,' and then you're like, 'Oh s***, it's dying.'"*

This sentiment was echoed by Oscar, in perceptions of almost an uncanny contrast between superficial appearances, at least in the UK countryside, and the subterranean "world of wounds".

For many participants, climate change conjured images of dead animals and dead places, in "darkness and fires" (Izzy), "visions of space… no greenery, no birds flying in the sky" (Felicity), or of "burning forests" and "blackened dirt" (Natasha). Similarly, Katrina described the experience of waking up in a new suburban home and listening in vain for the sound of birds:

"There was silence…. Waking up in a dead place, it feels almost like you're in some kind of apocalyptic nightmare…. Just the silence, that scares me."

Where before there was life, now there was only empty space. The silence of the birds was, for Katrina, the silence of the grave.

Solastalgia (subtheme)

The solastalgia subtheme was developed to capture experiences of loss pertaining specifically to participants' home environments, in a sense of "homesickness for a home not left" (Tschackert, 2013, p.20).

Solastalgia seemed to be a fairly rare experience in this sample, possibly in reflection of the subtlety (so far) of climate change's physical impacts on the UK. Nevertheless, experiences consistent with solastalgia were described by Katrina, Felicity, and Delia, in

response to physical environmental changes, ranging from the erosion of woodlands and the fading sounds of birds and insects, to the collapse of cliffs and trees into an advancing sea. This seemed to evoke feelings of anger and grief for what was lost:

"When the cliffs fall there are trees that fall with it. It's not just little bits falling away, literally there's a chunk of it that will come down and the trees will come down with it…. I get really angry that eventually in a few years it's going to get further and further in. That we live in a really lovely place and it's just going to get ruined." (Felicity)

"It [the most painful aspect of climate change] *is the fact that the English countryside is not going to be what it has been."* (Delia)

"There used to be lots of little pockets of woodland that I could just walk to and they've gradually eroded, I guess. Oh, the sounds actually…. These species that just have been familiar sounds that you just don't really hear at all…. And the hedgerows – a bonkers amount of hedgerows have gone and all the birdsong along with them…. It just feels traumatic, I don't know how to describe it. Because it just feels like grief and trauma. (Katrina)

So strong were participants' connections to the local environment, that these physical assaults on the land were experienced, to varying extents, as assaults on the self. This seemed to be especially the case for Katrina, who described the local countryside as "an extension of me" and once-loved environments becoming tinged with a "feel of unreality" as the natural world receded around her. Compounding Katrina's grief was the fact that the normal source of comfort from distress – nature – was the very thing under assault. At the extreme, healing spaces were noted to have been not only lost, but transformed into something symbolically and literally toxic:

"There are all these raw sewage leaks into the rivers so now rather than just being able to jump in a river and think, 'Yeah, I'm having a great time,' you have to have a look and check whether you're going to be ill after."

Isolation

In the existential framework, isolation refers not merely to a perception of being socially cut-off from other people, but to a deeper sense of separation between internal and external reality. The isolation theme, at the overarching level, was therefore developed to capture expressions of fundamental disconnection from other people in regard to concerns about climate change.

Several participants spoke of feeling disconnected from other people in their degree of concern about climate change:

"Because it isn't so spoken about so widely, you can feel really alone in it." (Felicity)

"So it's like you're the only person. Sometimes if I'm with friends who aren't involved in trying to rectify this, it feels like they're almost sleepwalking." (Katrina)

"It's like, 'Oh God, why does no-one get it?' So, yeah, I guess it was kind of isolating when you came back from that kind of protest because the people you knew, they just weren't on the same wavelength." (Oscar)

It seemed that feelings of isolation could be especially acute following interactions with friends and relatives – people who, participants felt, really should understand:

"It's just… If I can't even get the people close to me to understand how important this is to me then how am I going to get anybody else to care about it?" (Efa)

"The only thing that gets me down is when my family don't understand it because I'm like, 'God, it's been years! I've been talking about this for years!'" (Hannah)

Emotional responses to these difficulties included frustration, loneliness and ultimately resignation that family will never "really understand… but that's just the way it is" (Jennifer). This sense of an unbridgeable gap between internal realities was vividly illustrated by Natasha's description of two reactions to the image of a lost and injured koala during the 2019 Australian wildfires:

"My son was only four, I think, at the time and he saw it on TV and he was like, 'Oh yeah, look, a cute koala bear!' And it was maybe something about his reaction as well, and the contrasts... And having to swallow it, not being able to share that it was an utterly tragic image. I was like, 'Yeah, koala bear!' knowing so much more..."

This single moment of discord between two lived realities strikes at the core of existential isolation. One person 'in here', another person 'out there', and the basic impossibility of completely bridging the gap.

Challenges in relating (subtheme)

Experiences of existential isolation could come accompanied by more concrete challenges in social relating. This subtheme was developed to capture apparent changes in participants' social behaviour or positioning – as well as their emotional responses to the behaviour and positioning of others – in the context of discordant narratives about climate change.

Several participants spoke about strained interactions in social and family relationships, a "tension that comes through" (Michael) in conversations about holidays or

when ordering food. One participant said that this sometimes led to “arguments with friends” (Jennifer) about the science of climate change, while another said that they had to “take some distance” (Gabrielle) from a few of their friendships because of the tendency for clashes of ideals. It seemed that some participants perceived a need to moderate their own behaviour in social settings, to avoid being “that person that’s always nagging” (Luke), or “this annoying person who would raise the issue all the time” (Gabrielle). Similarly, Jennifer explained that:

“If I’m talking with my family, for example, I can’t say everything that I might want to say about environmental issues because they just will get bored after a while because I’m saying the same things over and over again.”

For some participants, there was a strong sense of frustration at other people’s disengagement from climate change.

“Just a couple of months ago when I said something about that [climate change]*, he said ‘Well we just really need to give people hope now, after the pandemic… we can’t bring anything up.’ And I go like* [pulls face]*! I feel like he’s absolutely nuts!”* (Annie)

“It makes me feel bitter that I change and other people don’t.” (Hannah)

This feeling seemed to be especially acute for Hannah, and also most tinged with sadness, when triggered by close friends or relatives:

“When it gets me down, I think it gets me down in that I think people who love me have a personal responsibility to me, because it’s so important to me, to try and think a little bit about what they’re also up to.”

In this way, it seemed that challenges in relating could give way to feelings approaching loneliness and despair, a sense that, if even loved relatives were unmotivated by climate change, then what hope for the rest of humanity.

Unbelonging (subtheme)

Experiences of existential isolation, and of related challenges in social relating, seemed to sometimes come associated with a set of perceptions around being different from other people – cut-off from a majority mentality – in regard to concerns about climate change. An unbelonging subtheme was developed to capture these expressions.

Gabrielle spoke of feeling "a bit ashamed sometimes that I want to be or I am so involved [in activism]", because of the fear that there exists, in the public perception, a "negative aura about someone who thinks about the climate crisis". Efa spoke in similar terms about people viewing environmental groups "like they're cults". For Efa and Catherine, it seemed that the feeling of being different, for engaging with climate change, could be traced to experiences at school:

"So if I used to see rubbish on the floor, I remember I'd pick it up in secret because I didn't want anyone to see me picking it up, like, 'Ugh, what are you doing? What do you give a crap for?' So I remember being really secretive of caring about the environment." (Efa)

"People would always be making fun of the litter picking group at our school. They were like the nerds or whatever so everyone would be taking the piss." (Catherine)

Negative media coverage or public responses to climate protests were described, by Katrina, as another trigger for feelings of unbelonging, in a sense of being vilified or "pushed to the fringes" by an indifferent or hostile society.

It seemed that feelings of unbelonging were also evident when Benjamin spoke of a tendency to see himself, at times, from a more socially normative perspective:

"But also, even saying it to you, do I sound like a bit of a conspiracy theorist loon kind of thing? So there's still this sense of being made to conform to what society expects me to think." (Benjamin)

Illustrated here, as well as in Gabrielle's comparable description of moderating behaviour "because of what other people might think", is the sense of an instinctually more radical leaning restrained by the perceived norms of wider society.

Identity

At the overarching level, the identity theme was developed to capture the impacts of climate change on participants' self-constructs – on their sense of who they are, what they do, and what they stand for or represent.

For Catherine, imagining a world without climate change was impossible, "because it's such a part of me now" and "most of my life is thinking about it". Similarly, Hannah commented that she struggled to imagine "what sort of life I would live" in the absence of climate change and the struggle against it. For better or worse, concerns about climate change were thus positioned as a core part of personal identity.

However, for this reason, a lack of progress in fighting climate change was described by Efa as detrimental to self-worth, with free-floating despair at the trajectory of the crisis narrativised as a personal failing:

"It does lead to you… feeling really just crappy about yourself because you're not doing anything because you don't think it's going to make a difference. So it's just like loss of confidence, self-worth, kind of thing."

A further threat to personal identity was described by Katrina, in the context of perceived vilification in the media for her environmental activism:

"I identify as somebody who is caring and loving and wanting good things for people. So then to have all these labels attributed to you, yeah…. What I see as my identity and what other people see as who I am just doesn't marry up."

The ache of modernism (subtheme)

Issues of identity were described not only in terms of what climate change meant for personal self-constructs, but also on a more societal or cultural level, in terms of its wider significance for what it means to be human. The ache of modernism subtheme (named following Hardy, 1891/1988, p.129) was developed to capture experiences of modern – and predominantly Western – life as essentially synthetic, and detached from deeper connections to self, community and planet. This subtheme was thus conceptualised as linking the identity and isolation themes.

Delia spoke of living in a sanitised reality, divorced from "the real challenges of staying alive" and a natural world that we "sit and watch…on telly". In a similar way, Felicity described a fear that, through the continual erosion of natural spaces, human life could become reduced to "sitting in front of a screen all day" and staying "indoors in concrete jungles".

For Annie, there was a sense of humanity having become disconnected from "deeper parts of ourselves, whether it's wisdom, whether it might be inner peace… and emotions", in an overly rationalistic and scientific pursuit of material progress. Annie contrasted this mode of living to the lives of "Indigenous people":

"They lived with nature and they lived with the deeper self in a totally different way."

Benjamin spoke, in a similar vein, about the capitalist paradox of being at once enmeshed in a "convoluted" system (demanding work, consumption, accumulation) and an atomised individual "disconnected from anything that doesn't generate income". For Benjamin, there was a feeling of tragedy attached to children's socialisation into this system, a sense of a healthier and more authentic existence being purposely precluded by the demands of big capital:

"It's just really tragic… We were all born as totally innocent children and we've conditioned each other through these social constructs to be disconnected from nature in order that capitalism can thrive."

In this way, the ache of modernism was positioned almost as an assault on the self, in the sense of identities trampled by capital and comfort – and by the concomitant alienation from (and destruction of) both nature and community.

Meaning(lessness)

Climate change appeared capable of evoking a reduced (or at least a changed) sense of meaning in life. This theme was developed, at the overarching level, to capture feelings of pointlessness or futility in relation to climate change.

For many participants, efforts to productively engage with climate change (whether in activism or lifestyle changes) were sometimes darkened by feelings of futility, in moments where the scale of the problem came into view:

"I try not to do nothing but I also think it's almost all entirely pointless." (Natasha)

"It then makes you aware of how inconsequential you are and how little impact you can have." (Benjamin)

"Maybe I should just be one of those people who don't care and just take my car and go on my daily life and not think about it. Because is it taking up too much of my mental space? Is it worth it?" (Gabrielle)

"It's just like feeling that you can't really do anything because the problems are so big. And then what's the point in doing anything at all because if it's not going to make a difference what's the point in my trying?" (Efa)

In an apparent generalisation of thoughts about climate change to other areas of life, Efa said that the plausibility of catastrophic climate change could, at times, lead to the view that even leaving the house "just seems pointless". Izzy spoke, in similar terms, about how "the small things in my life feel very pointless" next to concerns about climate change.

For other participants, a sense of futility was connected most intimately to political activism, and particularly to the contrast between the moments of optimism and empowerment that it could bring, and the subsequent realisation of minimal change.

"At the time I'd feel really empowered, but then afterwards it would make my mood sink even deeper because it's like, look at all these individuals that are out on the streets that really care and yet we still can't make any change." (Izzy)

"It can feel like your efforts are utterly futile and you're putting other aspects of your life on the line for something that's hopeless." (Katrina)

Two participants also offered some reflections on the impact of climate change, not just on feelings of personal futility, but on the more general meaningfulness of human

existence. For Felicity, a world without thriving natural habitats was envisaged as grey and uninteresting:

"What would be the point in seeing anything…? What would be the point if it's just a world full of humans?"

For Natasha, meanwhile, climate change prompted thoughts about the loss of historical and global societies – and ultimately the fear of losing their own:

"There are so many cultures lost already, languages, lost stories, aren't there? Those should have been passed on and they've just… cultures completely obliterated. It's tragic, it's horrible."

Though quoted here as evidence of the potential for climate change to reduce meaning in life, Natasha's connection between climate change and the obliteration of culture may also be considered pertinent to the loss theme. The decision to link Natasha's fears primarily to meaninglessness is embedded in the theoretical position that the sense of participating in a continuing culture is a vital source of meaning in life. This link, however, also contains relevance to the death subtheme, as will be explored in the Discussion chapter.

Futurelessness (subtheme)

A futurelessness subtheme was developed to capture expressions of reduced motivation for, or investment in, the imagined future, because of climate change. Such experiences were thought to entail a loss of meaning from life in the present.

For a couple of participants, career-planning was particularly liable to prompt feelings of futurelessness:

"If you don't think that there's going to be a future then you're just like, 'Well, why am I applying to jobs?'" (Catherine)

"When I'm thinking about careers as well, I'm thinking, 'Oh, well I'm going to find a job, but then the world's kind of coming to an end'. I feel like that sounds really dramatic, but it does feel like, 'what's all this for?'" (Izzy)

For Natasha, a sense of futurelessness was felt most keenly in relation to posterity, and the belief that, because of climate change, "I don't think I'm going to get to be much of an ancestor". This belief seemed to reduce Natasha's sense of meaning in parenthood, because of the reduced potential for values and memories "to be passed down" the generations.

Absurdity (subtheme)

An absurdity subtheme was developed to capture responses to climate change that seemed to relate to the basic weirdness of life carrying on, in all its banality, while on another plain of reality the earth teeters towards catastrophe. Such expressions were felt to entail a confrontation with meaninglessness, insofar as they reveal a discord between subjectively meaningful day-to-day experiences, and their deeper, planetary context in which all seems trivial.

Annie seemed to describe a feeling of absurdity hitting late at night:

"I was lying there thinking, 'there are so many things happening – we can't just be sleeping… How can people be sleeping!?'"

In a similar way, Annie spoke of the "heaviness" of routine, the need to "go around and do my business", while at the same time carrying an awareness of climate change. This sense of a discord between day-to-day existence and the expectation of impending disaster was also expressed by Benjamin:

"It's a really interesting dichotomy – how we just go about our daily business, including me. If I really do think this is coming and it's going to happen, how do I get up in the morning, how do I face that? How do I go to work? How am I not dedicating every single aspect of my life? Why did I have children?"

For Natasha, it seemed that feelings of absurdity found expression in a commitment to simply "live as though" they did not believe in catastrophic climate change. Such a posture allowed Natasha to successfully navigate day-to-day reality, even in the presence of preconscious dread.

Freedom/responsibility

A freedom/responsibility theme was developed to capture expressions of uncertainty about what to do to help combat climate change, along with this uncertainty's attendant feelings of guilt and self-doubt.

Concerns of freedom/responsibility often arose from a sense of personal duty and a view, as expressed by Benjamin, that "once you know, you can't not try" (Benjamin).

"For me, it incites almost a sense of duty." (Luke)

"I don't think I want to 'take' responsibility; I think I feel I have it." (Hannah)

Concerns of freedom/responsibility were fuelled by a perceived lack of external authority on climate change, the realisation that each had to author their own actions in combatting the problem. Catherine, for instance, spoke about the quashed fantasy of benevolent and potent authority figures: "I definitely thought that all the adults in the world were trying to make things better", but now "I just look at them and they're just so incompetent". Relatedly, Jennifer spoke about the desire for "concrete steps" or for the government to institute "some kind of carbon accounting or carbon rationing… something that was applied systematically" to help combat climate change.

In these conditions – of a felt sense of personal responsibility, and a perception of no externally-enshrined direction of travel – participants described an experience of being "lost" (Gabrielle), "paralysed" (Hannah), or in "turmoil" (Michael) as to what to do to help combat climate change. Often, there was a sense of "having so many things that you could do", but no way of knowing "what's actually best" (Felicity), while remaining realistic within the "requirements of being alive and taking responsibility for yourself" (Hannah). Felicity mentioned the contribution of social media to these uncertainties, because of the "temptation to get involved with everything".

For a couple of participants, the dilemma of what to do was exacerbated by uncertainty about the effectiveness of their personal actions, in doubts about "whether anything you're doing has any impact" (Michael) and the lack of any "concrete experience of… action making a difference" (Jennifer). It seemed that, for a couple of participants, concerns about not maximising one's positive contribution could lead to frustration or self-criticism:

"It's frustration but not just with other people, also a bit with myself. I'm a bit self-critical about what I'm doing and being able to do more." (Jennifer)

"You feel like everyone is always doing so much more than what you are which is hard. You always feel like you should be doing more." (Felicity)

The dilemma of what to do was described by many participants as exerting a considerable influence on fundamental life-decisions. A couple of younger participants spoke of conflicted feelings about the prospect of having children:

"As a woman it's very worrying for me because you think about children and whether you want to bring people into the world." (Hannah)

"Is it worth having children…? Will they have the life that we're having now or will they live in a conflict within society?... Should we do that to them?" (Gabrielle)

Other participants discussed past or planned career changes – whether to avoid industries deemed to be particularly complicit in climate change, or in search of work that might be constructive in combating the problem:

"There are so many things I couldn't do. Like I wanted to quit business school; I found it really hard to stay, to participate." (Gabrielle)

"I think that I want a more hands-on career now…. When the climate crisis does hit and people are really struggling, they're going to need counsellors, nurses. So it's really making me rethink my purpose and what I can do if anything to be helpful." (Izzy)

Concerns about climate change were also described as colouring everyday decisions and actions:

"I feel so bad, this afternoon I have to drive to work… I cannot get there in any other way, you know, and I'm aware of it when I'm driving." (Annie)

"I can't really participate in lots of events or trips. I'm thinking more and more about the way I fly, the way I travel, what we buy in supermarkets." (Gabrielle)

"While it's nice to have a break from the hard-core vegan food, it begins to niggle on your mind." (Oscar)

"I live alone so my flat is just for me. So as an individual my outputs are higher than they possibly would be if I was in a family." (Jennifer)

Lurking behind these everyday dilemmas, it seems reasonable to infer a tendency towards guilt. This sense of guilt was labelled explicitly by a couple of participants. At the global level, Michael spoke about the guilt of living "in a world where you know that you're probably contributing to the suffering of others and the suffering of future generations". At the local level, the observation of declining wildlife populations was described by Delia as triggering not only a sense of loss, but more acutely a horror at "what I had done".

A tendency to regret past actions was also evident in a couple of participants, who questioned what made them "just continue doing" (Annie) their previous, less environmentally friendly activities, and whether different decisions might have led them to be "an activist earlier" and in this way to "have achieved more" (Delia). Benjamin, meanwhile, spoke of the regular recurrence of guilt across multiple areas of life:

"Guilt, for example, when I'm doing stuff with Extinction Rebellion, guilt that I'm not doing stuff with my family; guilt when I was doing stuff with my family that I'm not doing more for Extinction Rebellion…. You know, guilt that, with two young children, what their future is going to be like. Guilt that am I spending too much time thinking about this stuff…"

As illustrated here, concerns about climate change are perhaps best conceptualised as providing the content (along with some additional ignition) for concerns around freedom,

responsibility and guilt. As with all the existential themes discussed so far, however, it is worth remembering that these feelings are a fundamental source of anxiety and conflict in life, not a unique product of concerns about climate change (Yalom, 1980).

Critical moment (subtheme)

Underpinning participants' sense of responsibility to combat climate change was, in many cases, a conviction in the importance of the current moment. Expressions of this conviction were collected under a critical moment subtheme, which was conceptualised as linking the freedom/responsibility theme to the meaning theme. On the level of emotional experience, this subtheme may be construed as perhaps the sole psychological benefit of climate change, with participants describing how a belief in the urgency of the problem could lead to an enhanced sense of personal responsibility and meaning in life.

The sense of a critical moment was evoked by a couple of participants in reflections on their climate activism:

"What can be more purposeful than fighting for every single thing you love?" (Katrina)

"If we lose this battle then there's no going back and that is pretty important." (Efa)

Similarly, Michael commented that an awareness of climate change led to "an acknowledgement of greater responsibility for how you live your life", with otherwise innocuous decisions (for instance about what to eat or wear) garnering significance from their environmental ramifications. Hannah, meanwhile, after reflecting on whether engaging with climate change was worth the emotional costs, arrived at the thought that life without this investment would be stripped of interest and meaning:

*"I don't know what sort of life I would live, to be honest, in which I was like, 'F*** it all.' I'm not going to be that excited by going shopping or whatever."*

In this way, participants conveyed a sense in which, though the scale of the problem might overwhelm, the stakes of ordinary existence were raised by climate change.

System miscalibration

Moving away from themes grounded in the existential framework, all participants also discussed concerns about climate change that seemed to arise from its psycho-political dimensions. At the overarching theme level, it was felt that what was described here was a sense of system miscalibration, the feeling of being locked, as a society, in a status-quo oriented towards so many wrong priorities. Though participants had many interesting things to say on the political mechanisms behind this problem, the focus of this thesis necessitates that we skip ahead to the subtheme level, and the psychological responses to this miscalibrated system. These responses were conceptualised in terms of political injustice and species guilt.

Political injustice (subtheme)

This subtheme was developed to capture expressions of frustration or anger at those in positions of political influence, and personal feelings of powerlessness or helplessness to effect positive change.

Frustration and anger was directed at international governments, for their perceived ineptitude or cynicism, and the media, for being insufficiently challenging of the status-quo:

"I'm just like, 'When are they going to do something? When is there going to be an equivalent of a lockdown but for the climate crisis?'" (Catherine)

"Every time I see a segment on climate change on the news, for me, it's really hypocritical and I get really mad because we should be talking about it way more often." (Gabrielle)

"I'm angry because sometimes I just think about how nothing is being done about it. Or like Donald Trump blaming the Californian wildfires on anarchists and it's like 'Argh!' (Oscar)

The correlate of participants' anger at the perceived sites of power seemed to be a tendency towards personal feelings of powerlessness. Katrina, for instance, spoke of there being "greater forces" than the climate-protection movement, while other participants agreed that "there's nothing I can do" (Annie) or "very little I can actually do" (Natasha) to effect meaningful change. Similarly, Izzy described feelings of "anger [about] the powerlessness I feel as an individual", specifically in reference to campaigns against "glazed over" corporations who sought to develop a fracking plant in Izzy's home area.

For a few participants, experiences of powerlessness appeared to prompt thoughts of giving up, a self-protective logic in which, if caring is futile, then maybe better not to care:

"What's the point? I don't know, maybe we should fly around the world and burn more than our fair share of aeroplane fuel while we still can." (Natasha)

"But then you just think, 'Maybe just leave it.' You almost get to the point where you're like, 'Maybe I'll just get a hot tub and start ordering luxury chocolates online and just live that sort of life.'" (Hannah)

Though a vivid illustration of feelings of powerlessness, such a fundamental change in orientation towards the world was not suggested to be an imminent prospect. What was described by Hannah, however, was a reappraisal of activism as a "sort of self-indulgence" or a mere "distraction", a way to self-insulate from despair but without much hope of radical change. The perception of powerlessness had turned politics into therapy.

Perhaps above all, participants expressed a sense of political injustice in relation to the effects of climate change on less-developed nations, with the basic "unfairness of the situation" (Gabrielle) constituting a violation of many participants' sense of justice.

"I feel the whole issue of climate change is so deeply unfair and that the people that have done least to cause the impacts are the ones that are suffering the most." (Jennifer)

"It incites a sense of anger, actually, that's one of the initial emotions that comes up. Yeah, just anger at the injustice, avoidable injustice, that is being created for people." (Luke)

"I feel a sense of anxiety that we're going to completely fail all of these millions of people." (Michael)

Species guilt (subtheme)

The species guilt subtheme was developed to capture feelings of guilt or despair at human nature in the context of climate change. In this way, the species guilt subtheme may be conceptualised as linking the psycho-political concerns relevant to the system miscalibration theme, to the existential concerns of the identity theme.

Benjamin spoke, at the general level, about feeling "tragically, profoundly sad that humans find ways to treat each other and the Earth so negatively". For Michael, this feeling was especially acute in relation to the destruction of nature:

"The stuff that really, really upsets me when I read about it often is the natural environment stuff…. I just feel like, God, this is awful, what are we doing to the world?"

Similarly, Delia expressed sadness at the thought that, so unwilling did people seem to compromise on consumption and comfort, most would probably "rather just, you know, die in the natural process of ecological collapse". Also conveyed, by Hannah, was the sheer senselessness and waste of humanity's inability to change course:

"The intricate impossibility of life is something we're all… not we're all, but powerful people are throwing away for short-term game which is so vacuous anyway…. For that fleeting social convention establishment way-it-isness, they're compromising all this amazing stuff."

Annie, meanwhile, emphasised not only the senselessness but the "greed" and selfishness of humanity, recalling a debate, among "estate agents in Florida", about whether there is time to squeeze "one more boom in before it's all gone [underwater]". It seemed that Annie's awareness of people's selfish dispositions had been heightened by observations, during the pandemic, of people not washing their hands at the gym, prompting the thought that, "when you can't even do this…, there's no way we're going to manage [with climate change]". In questioning "How do these people work? Why is this so difficult?", Annie hinted at the potential for shades of misanthropy to connect to concerns about climate change.

Intense emotional experience

This final theme was developed to capture the depth and intensity of the emotional experiences provoked by climate change.

Several participants spoke about the compounding effect of concerns about climate change on other social or emotional difficulties. For instance, Catherine described how, in past periods of anxiety, "personal things, big things, small things" could "all just turn into one big mass of worry":

"Whenever I would start overthinking it would start small, it would be, 'Oh my God, I didn't do my homework,' and it would just escalate and escalate, I was like, 'Oh, the world is going to end as well."

Similarly, Izzy spoke about how thoughts could easily turn, in times of low mood, to the idea that "it's not like the future's going to be easy anyway", while Michael recalled being "very emotionally affected" by climate change, during a period in life when generally feeling "very down".

Some participants described somatic responses to thoughts about climate change, in "this twist in my belly" (Gabrielle) or a "sinking feeling… [that] just doesn't go away" (Catherine). Izzy mentioned that thinking about "the climate crisis keeps me awake a lot", while Felicity said that they have sometimes "lost a whole day" because of "getting so wrapped up" in reading news stories about climate change.

For a couple of participants, an intellectual engagement with climate change seemed to have brought them to the threshold of a devastating emotional realisation, apparent in fleeting feelings almost of vertigo:

*"Oh f*** that goes a long way down.'"* (Michael)

"There's a part of me that really wants to open up and really be exposed to the horror of it all but there's also the part that is like, 'If you do that you're going to emotionally collapse.' (Benjamin)

For other participants, this threshold appeared to have already been crossed, with one describing a recent period of "about a month, when I was just in a state of fear so great that I couldn't really function properly" (Delia). Part of the difficulty, in participants prone to responses of this intensity, appeared to be the ubiquity of potential triggers:

"Walking around past really busy roads you're constantly reminded of it." (Oscar)

"I'll see something that I know is causing harm and I'll just start crying. So just seeing the amount of traffic on the roads and things like that, I'll just walk along crying." (Katrina)

On a couple of occasions, the potential for overwhelming emotions of this kind became evident in the here-and-now of the interview, for instance when Hannah reflected on a recent moment of emotional realisation during a walk in the woods:

"Sorry, I'm getting upset. I'm just trying to breathe so I don't cry." (Hannah)

Beside these clear peaks of emotional intensity, concerns about climate change also seemed to exert a more subtle but enduring effect on participants' emotional wellbeing. Participants described "living with [concerns about climate change] all the time in one way or another" (Annie), and said that "it's always at the back of your mind" (Efa), like a "weight on you… [that] you can't get rid of" (Catherine). Many participants said that they tended to consciously avoid thinking about climate change as a form of self-protection. However, as illustrated by Natasha's memory of an image from the Australian wildfires, repressed feelings were also liable to return in full intensity:

*"I mostly just block it out. You know what got me? That f***ing koala bear. You know the koala bear I mean?... I cried and cried and cried. I don't know why that particular koala bear, of all the dying things in the world, but that one got me."*

Perhaps evident, here, is the relative ease with which awareness of climate change, as an abstract whole, can be repressed. The enormity of the whole, however, may be brought home by the singular, as it was for Natasha, whose identification with the "pain" and "loneliness" of a koala offered a momentary means of connection to climate change, and all of the suffering it entails.

Summary and thematic map

Figure 2 depicts conceptual links between overarching themes (in bold) and their subthemes. The existential themes are positioned across the middle of the diagram to reflect their central place in the analysis. All of their negatively valenced subthemes are positioned below the existential themes. The single positively valenced subtheme – the critical moment subtheme – is positioned above its associated theme(s). The system miscalibration theme and its associated subthemes are positioned away from the existential themes to reflect their deviation from the core analytic framework. The overall picture is of concerns about climate change contributing, through the existential mechanisms of loss, isolation, identity, meaning and freedom, as well as through the more psycho-political feelings associated with system miscalibration, to (intense) experiences of psychological distress.

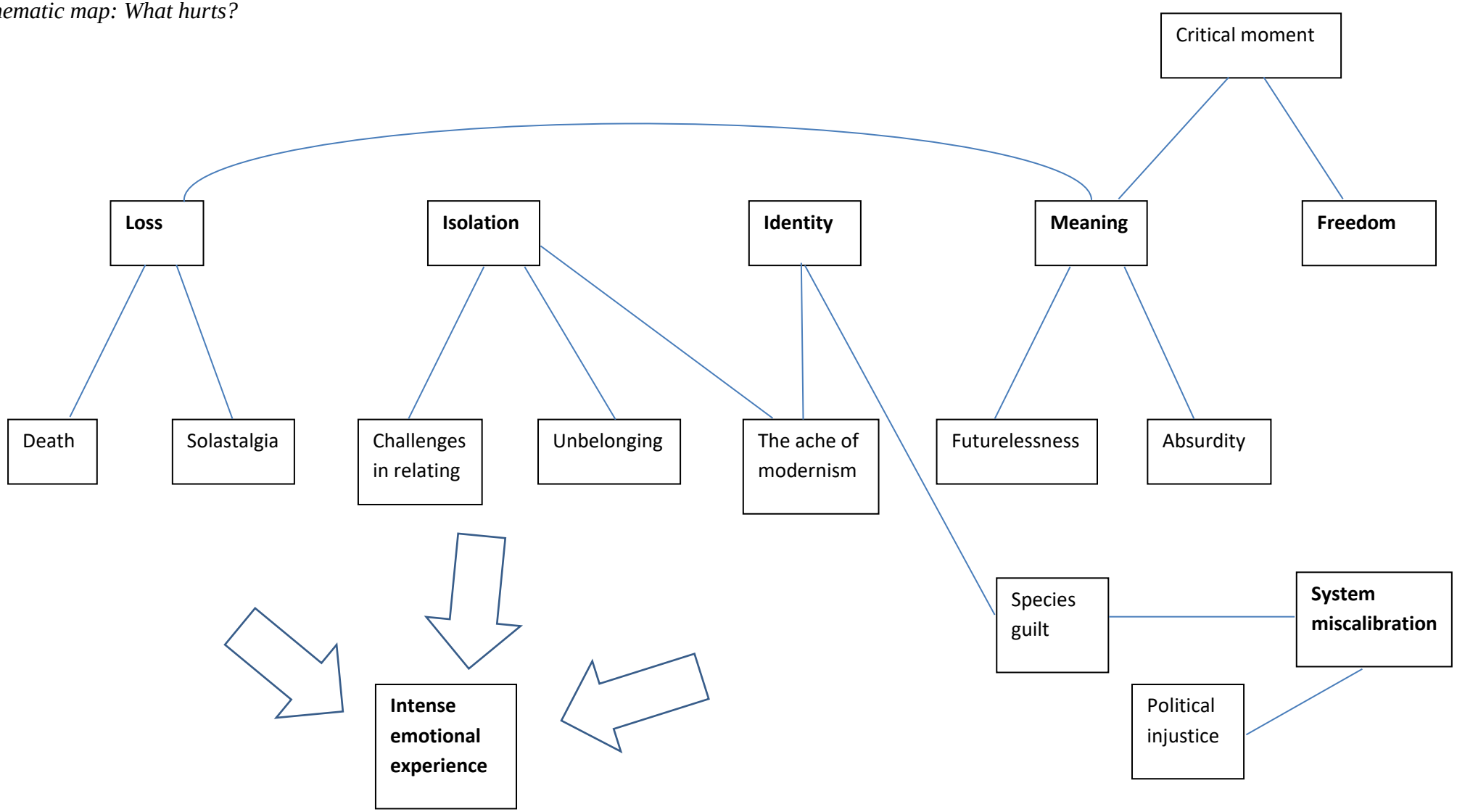
Three subthemes are conceptualised, in Figure 2, as linking overarching themes. The sense of species guilt – of despair over humanity's treatment of the world – was felt to both represent an affective dimension to concerns about miscalibrated political systems, and to

contribute to a sense of unease about one's identity (as a human). Similarly, the ache of modernism subtheme was thought to link the identity and isolation themes, in view of its characterisation of the human experience as one of synthetic disconnection from nature and community. Meanwhile, the sense of a critical moment – the idea that climate change makes now a time of enhanced personal responsibility – was felt to underpin much of the guilt and anxiety inherent to the freedom/responsibility theme, while also in fact contributing to a greater sense of meaning in life.

A link is also postulated, in Figure 2, between the loss and meaning themes. This link is a reflection of the finding that, for many participants, climate change reduced meaning in life precisely because of its relation to loss – and in particular the loss of beauty and nature from the world, and the threatened loss of entire cultures or civilisations.

Figure 2.

Thematic map: What hurts?



What helps

Although many participants expressed that what would really help their concerns about climate change is an effective international response, all participants also discussed personally moderating factors or sources of comfort. These were conceptualised through the development of 7 themes and 2 subthemes.

Purposeful engagement

Engaging purposefully with climate change, in an attempt to limit its impacts, was described as a source of wellbeing and comfort. Expressions to this effect, whether relating to individual lifestyle changes or political actions, were conceptualised under this theme.

All participants described the positive emotional effect of engaging with climate change in a purposeful way. At the most general level, the psychological benefits of this engagement seemed to be derived, as Michael commented, from "contributing in some way that is vaguely helpful" to global efforts to combat climate change. Action of this kind, as Delia reflected, could facilitate a transition away "from a state of sheer panic" and towards a "more constructive" mindset.

Outlets for purposeful engagement varied considerably within the sample. It was felt that there was a sufficient depth of experience relating to political activism for it to warrant its own subtheme (below), while several participants spoke about feelings of satisfaction arising from small steps, taken in their personal lives, towards living more sustainably.

"Cooking vegan really helps me as well. It makes me feel like I'm actively doing something every day." (Efa)

"As long as you feel like you are doing what feels to you about what you can do, under the circumstances, maybe it just helps assuage some of that guilt as well." (Michael)

"It is satisfying to feel like you're making a very tiny difference because it's better than nothing. Yeah, I'd say it's not the be all and end all but it can give you a sense of pride." (Oscar)

Satisfaction from lifestyle changes was described by Efa as particularly beneficial when accompanied by a sense of "slowly converting" friends or family to greater levels environmental consciousness. Similarly, Michael commented:

"If can see that you've even just moved someone's opinion a little bit, I think I can find that quite heartening."

For Delia, the satisfaction of converting people to a more sustainable way of living was experienced at the socio-political level, in her campaign, through the writing and dissemination of poetry, for a move away from aspirations of perpetual economic growth. Here, a simultaneous psychological benefit seemed to arise from the catharsis of self-expression in "the brevity and the power" of the poem.

Other forms of purposeful engagement, experienced by participants as good for wellbeing, included academic work, litter-picking, shopping with sustainable businesses, and a job in renewable energy:

"*My main thing is my job, in that I do a job that I feel at least has some kind of bearing on the matter, on the issues. So, yeah, getting renewable energy consented is part of the solution, I think. So I feel like I'm working on part of the solution."* (Jennifer)

"I do a lot of litter picking now and you go back the next day and all the litter is back, but it still feels very productive and cathartic to go and pick stuff up." (Catherine)

"I did my thesis, my dissertation, on food waste to try to bring together the hospitality industry and climate change…. It just made me feel good." (Gabrielle)

"Supporting sustainable businesses, like I'm pretty sure there's a zero-waste shop that's opened up where I live…. That's going to make me feel better." (Efa)

Luke, meanwhile, described the psychological benefits of running his own market garden, which ranged from "pride" at its effects on the health of the soil, to optimism at the potential ripple effects of his local practice:

"I see it as almost trying to set an example or to demonstrate a potential solution that is very doable."

Psychological benefits derived from purposeful engagement were described as to some extent dependent on faith in – and evidence for – positive outcomes in external reality:

"I don't think it [the poetry campaign] *would have been as therapeutic if it was just for my own benefit."* (Delia)

"When you're starting to see the results of some of the actions you're doing, it's not gratifying, that's not the word, it's just a relief. Like, 'Oh, we've done something that worked.'" (Gabrielle)

"It's something that is quite… you can see the progress that you're making. Throughout the year things develop, they change – like you plant a seed, you nurse those seedlings through to maturity, you harvest the fruit and then you eat it, you recycle whatever waste there is and make it into compost to reintegrate it into the system." (Luke)

Activism as purposeful engagement (subtheme)

Experiences of purposeful engagement through political activism were captured in this subtheme. Benefits of activism pertaining specifically to the sense of community provided by activism were collected in another separate theme (below), to reflect a further depth of experience relating to the positive effects of entering a collective.

Izzy commented on a "sense of purpose" derived from activism, while Gabrielle spoke in similar terms about the virtues of "putting your energy into something specific" through activism, rather than living with free-floating anger. For Hannah, such an effect seemed to have been relevant historically ("I was just like, 'Right, great, do the activism, do the activism'"), prior to the development of her current perception of activism as a defence against uncertainty.

Another benefit of activism, described by Gabrielle, seemed to be found in the contrast between the high level of autonomy, within activism, to "choose your role" and the constraints in usual systems of work "where people put you in a place and that's what you have to do". In similar terms, Hannah described activism as an opportunity for romantic self-definition:

"It's something that people are doing ideologically, as a self-identity creation… in an image of rebellion."

A further intrapsychic benefit of activism appeared to relate to it providing a "kind of rush" (Catherine), especially in moments of civil disobedience. This sense of excitement, flowing from the rare combination of moral conviction and thrilling transgression, was described by Efa:

"It's an amazing feeling. It's like a mix of excitement, adrenaline, feeling a little bit naughty because you're doing something you're not supposed to and there's police around. It

just feels like you know when you're a kid and you do something you're not supposed to do and it feels amazing."

Participants also described feelings of hope arising from activism, a sense that "together we can actually do something about this" (Efa), or that "there's a better way of doing things" (Benjamin):

"Seeing how many people showed up and how many people were willing to do civil disobedience, it gave me a real sense of, 'Right, I'm not alone in this. There are people willing to make sacrifice for these changes.'" (Katrina)

Feelings of hope and positivity seemed especially pronounced following episodes of activism that made a substantial mark. Oscar, for instance, described the excitement of knowing that actions would "be on the news", while Katrina spoke of the "empowering moment" of driving parliament to declare a climate emergency in 2019.

Strength from collective

This theme was developed to capture expressions of strength and solace arising from the experience of engaging with climate change as part of a collective. For the purposes of this theme, a collective was defined as any union of likeminded people, whether family and friends, activism communities, or even, on a more abstract level, whole societies.

Joining in an activism community seemed to provide many participants with an antidote to feelings of isolation and unbelonging:

"It just really felt really homely and warm and it was just really comforting to know that there's other people like me." (Efa)

"Yeah, engaging with others, the activism was actively helpful for mental health." (Natasha)

"Even if it's not societal change I also think that it has given me an opportunity to connect with people in a really meaningful way." (Benjamin)

"It was a bit like if you were going to a gig or something, seeing a band or whatever, you know that everyone there has got the same interests as you. So, yeah, it was a sense of community about it." (Oscar)

"Being linked to XR was emotionally helpful because I didn't feel totally isolated." (Delia)

"I was just going there to just not feel alone in my worries." (Gabrielle)

"I keep going along to these groups and engaging in activism is because, it sounds selfish, but it has a positive effect on my mental health. Just feeling like you're not an individual in this wider crisis." (Izzy)

"When I got to that Heading for Extinction talk it's like actually there are other people that are panicking about this, I'm not the only person that's seeing this, I'm not the only person that's looking into this and I'm not alone in wanting to make this change." (Katrina)

Through spaces for "togetherness" (Catherine) and mutual understanding, activism communities thus seemed to provide some participants with a sense of togetherness that was hard to find elsewhere.

Benefits of the collective were experienced not solely in relation to activism communities. Participants also conveyed the benefits of relationships with friends or family

members who share a similar perspective on climate change. For Michael, part of the benefit of these relationships was the sense of "mutual acceptance" and of a "safe space", away from the need to explain "why I'm environmentally aware or why these things are bothering me". Similarly, Felicity described the "reaffirming" effect, in moments of doubt, of knowing "you've got your mum in your corner", and Jennifer spoke of how having a friend with "similar views and similar concerns" enabled empathetic conversations, without social pressures to discuss other topics.

Two participants also described feelings of solace in knowing that concerns about climate change have become increasingly mainstream in the wider societal collective:

"I do get some sort of sense of comfort from the fact that people are talking about it in a mainstream way now. Both the personal sense of comfort that I'm no longer an outsider… but also a sense of comfort that hopefully some sort of action can be taken." (Benjamin)

"I have felt a lot better since it's become more of a mainstream thing. Knowing that there are people that you can talk to who feel the same." (Catherine)

Facing reality

This theme was developed to conceptualise the psychological benefits of attempting to fully feel the gravity of climate change. While such attempts were not necessarily psychologically helpful on the basic level of making participants 'feel better', they did appear to contribute, in a positive way, to participants' perceptions of psychological preparedness, while also serving to fulfil the sense of a moral duty to not turn away.

Michael spoke of feeling better in himself, if not better about climate change, when trying to remain mindful of its implications:

"As long as I'm… conscious about it and not dropping it or burying it, that tends to help me. I'm not sure that necessarily does away with the agitation or the frustration or the sadness particularly, but I feel more comfortable in myself." (Michael)

For Annie, this process of facing the reality of climate change, and living with the "pain and worries" that it provokes, was given shape by a turn to Buddhist philosophy:

"They talk about bearing witness…. Like I know they have retreats where they go to Auschwitz and just name all the people who died, saying, 'this is history, this is who we are, we need to witness this.' And I feel like when I follow what's going on, with the science and what is happening in the world, I am witnessing and saying 'wait a second, this is going on – we can't forget about this for one single second.'"

Annie's association, here, frames climate change as an atrocity, which, like the atrocities of the holocaust, can only be respected by being kept in mind.

As part of her practice of bearing witness to climate change, Annie spoke of the importance of "getting as much knowledge as possible". Gabrielle, too, advocated the power of knowledge:

"The more I know the less anxious I feel, weirdly – because the more I know the more I know we're… I don't want to say doomed but it's going to be difficult. But knowing helps with anxiety."

A similar process was described by Benjamin, who spoke of "trying to consciously confront… what climate breakdown and ecological breakdown means for civilisation", including its consequences at "a really individual level":

"If the food network breaks down and there are massive food shortages in this country and it reaches starvation point, who is going to feed my children?"

Though not exactly a pleasant subject to ruminate upon, there was a sense of these thoughts being psychologically helpful, for Benjamin, as part of an "emotional adaptation" to climate change.

Living values

The living values theme was developed to capture expressions of psychological gain from the experience of taking a stand, fighting on, and maintaining consistency between attitudes and action.

Luke conveyed a sense of "pride" in his embodiment of principle, when describing how his frustration at policymakers motivated the establishment of his own sustainable agriculture enterprise:

"If you're not going to do something about it, then I will – on my small scale."

As described by Catherine, in her account of attending climate protests, this sense of psychological gain seemed to run deeper than any experience of pleasure:

"I was just like, 'Well, it's important so I'm doing it. That's the end of it.' I started in January, and it was freezing, so there was a lot of getting up at 7am and going to some random park so I could stand with a sign and people could go by and shout about how we weren't making a difference. So it wasn't super-fun when I started, but even so it seemed to make me feel better."

Similar experiences of taking a stand for what is right were recounted by other participants, in their descriptions of attending climate protests:

"Just being down there on Fridays now with this group. And just like standing up… and saying, 'Here I am.'" (Annie)

"Then at the April Rebellion I showed up there just because it's like, 'I have to do something. I'm going to have to…' I just had to be there." (Katrina)

"It's very inspiring to see the student strikers and all that and XR really kicking off, brilliant, it feels like you're in the right place, you know?" (Hannah)

Participants also described the benefits of maintaining consistency between attitudes and action in their personal lives:

"Because she [Michael's girlfriend] *had been so heavily involved in the activism side and very much lives her values on it – doesn't fly, is vegan, takes it really seriously – I have then followed her down that path which I feel good about, to be honest."* (Michael)

"It [cooking vegan food] *can give you a sense of pride or a small sense of achievement…It's like, 'Okay, this is my belief and I'm carrying out that belief,' so you're going to feel good about that."* (Oscar)

The psychological benefits of value-action consistency were also conveyed by Efa:

"I always have the feeling of as long as you don't give up, it's not really over…. [Even] *if what I'm doing is not going to make a huge difference and it's going to happen anyway, I'm still not going to sit here and do nothing. The fact that I'm doing something that's true to what I believe in – I will act on."*

Conveyed in Efa's words is a sense of commitment to a self-transcending cause or, in Frankl's (1964/2010) terms, a fulfilled 'will to meaning'.

The hyper-macro-perspective

It seemed that a couple of participants derived a certain comfort from reframing climate change as just one chapter in the inexorable ebb and flow of the planet's self-regulatory systems. Expressions to this effect were captured in this theme.

The basic premise of the hyper-macro-perspective was set out by Luke:

"Sometimes you also do have the feeling… If you look at just the history of the Earth the climate always has changed and then, yeah, regenerates. And we have a certain baseline from which we think things have to be preserved…. [But] *to a certain extent things are always going to change anyway and you have to adapt with that."*

The inevitability of (some form of) climate change thus appeared to provide Luke with solace: collapse and regeneration was just the story of the universe. A similar perspective also seemed to provide Benjamin with comfort, on the condition that ecological collapse would lead to "renewal afterwards":

"It's obviously really, really, really tragic that that breakdown happening is going to result in millions of people's lives being made worse probably in the short term. [But] *I feel like it's necessary because I just feel like things cannot continue. We can't continue to use resources on a planet which only has a finite number of resources without causing mass destruction."*

This perspective did also provoke guilt in Benjamin:

"There's a guilt in saying that because that collapse will necessarily result in lots of people's lives being made very bad."

Nevertheless, it did seem that, for Luke and Benjamin at least, it was possible to take some of the heat out of concerns about climate change, by effectively reframing it as not (just) the end of the world, but a process leading to new stability.

Reconnecting

As described in the ache of modernism theme, climate change was positioned by several participants as both cause and effect of an increasingly synthetic human identity, characterised by disconnections from body, community and planet. Conversely, efforts to rebuild or nurture these connections were seemingly experienced as an effective way of improving wellbeing. Expressions to this effect were captured by a reconnecting theme. The diversity of participants' expressions relating specifically to the benefits of reconnecting to nature were felt to warrant the development of a separate subtheme (below).

Reconnecting appeared central to Benjamin's experiences of wellbeing. In daily life, this included spending time with his children::

"I love just the time at the end of the day, for example, where I'll just lie with my son for half an hour and just read and just be in the present myself."

Benjamin and Luke both also described the benefits of living in greater connection to the body:

"Exercise helps as well – movement of the body, I think, not necessarily exercise but movement of the body and being outdoors and doing that." (Benjamin)

"The writing and the research, even though it is on a topic that I am passionate about, I don't get the same buzz from it. It can sometimes feel more like a chore or laborious,

whereas the garden never really feels like that. That's because it is outside, you're working with your hands." (Luke)

Luke's contrast, here, between his manual work and his research work is illustrative of the relationship between the ache of modernism and reconnecting themes. It might be thought that, as a researcher, Luke experiences something of the synthetic human identity, the metaphorical lifelessness of the "laborious" work reflecting a very physical distance (alone, on a computer) from life and vibrancy. Working with the body, in contrast, could return Luke to the "buzz" of physical being.

Time in nature (subtheme)

Participants described particular psychological benefits of (re)connecting to nature.

Nature (or, more loosely, the outside world) was described by a few participants as containing healing properties:

"It's just so refreshing to be able to go on a walk and there are birds singing or there are trees. You don't have to see a busy dual carriageway every day on your walk to college…. Even when I was in Manchester I got a train to the Peak District for a day and that was just so good." (Oscar)

"We would go somewhere for a walk so that we were outside rather than sitting inside in a little room. I found that really helped and was really good. I just think being outdoors has just got so many mental health benefits." (Felicity)

"When I spend time on the Downs, in the forest, going walking with my friends, that's so nice because, again, you're either at work or you're at… for me I'm at work or I'm at uni

or I'm sleeping so when there's a chance to go out and remember the more important parts of life and just spending time in nature." (Izzy)

Nature, here, is framed as a physical and psychological escape from the stresses of life. Luke conveyed a similar sense of gentle "relaxation" in his description of work in the market garden, with the peaceful qualities of the external surroundings also felt within:

"I remember last weekend I was just sitting in the garden and I could hear birds singing around me, bees, butterflies buzzing around. That just brings you a sort of inner peace."

Beyond peace and relaxation, time in nature was also described by participants as provoking feelings of wonder and amazement. Hannah, for instance, described marvelling at a tortoise while on holiday in Greece:

"I was like…, 'How did it get there? How did it grow? What's it made of?' because I'd never really seen one. Of course that's true of everything – how does it arrive on the Earth, what made this become a thing?"

This sense of nature as a source of fascination and excitement was also conveyed by Felicity:

"Even when we get blue tits or something in our garden, or robins, we all get so excited."

Illustrated here is the potential of even commonplace encounters with nature to evoke positive feelings. For Natasha, this potential seemed to have been rediscovered through her relationship with her son:

"We walk to school and we walk diagonally across a big park, it's beautiful. Every single day, twice a day, I think, 'Wow, this is beautiful.' And there are always crows, right in the middle of the field…. I've decided I'm going to take popcorn on the school run and we're going to make friends with these crows…. I never would have thought of that if I hadn't had a five-year-old…. He's almost an excuse to engage with nature a bit more and to have some fun."

Encapsulated in this vignette are two benefits of time in nature – firstly, the basic sense of beauty and interest; and beyond this the platform for playful connections to people and animals.

Maintaining distance

While all participants spoke of the psychological benefits (current or historical) of purposeful engagement with climate change, a need to keep thoughts about climate change at some level of psychological distance was also apparent. A balancing mechanism might be postulated here: without the capacity to maintain this distance – whether through distractions, other interests, or just conscious avoidance – engagement could lead to burnout and despair. The maintaining distance theme was developed to conceptualise conscious or unconscious efforts to achieve this balance.

Izzy gave a clear illustration of balancing engagement with and distance from climate change:

"I allocate certain times of the week as a space where I talk about climate change. So I attend a climate group at university on a Tuesday evening for two hours, where we'll have

conversations and presentations about the climate crisis… and then in between I try my best to distract myself."

An insight into the process of distraction was provided by Catherine:

"You're just like, 'Right, I need a distraction. Do you want to watch a film? You want to go for a walk?' that kind of thing…. If I start to spiral a bit then it's only for an hour or so and then I have to be doing something."

In this account, activity ("doing something") is positioned as the key to distraction, even if the activity itself is unexceptional. Efa and Oscar both reported similar processes, using a combination of Netflix, YouTube, social media, and gaming to get thoughts about climate change "out of my mind" (Efa). Michael, meanwhile, noted how concerns about climate change seemed to be less significant "when I've been quite busy with work", while also describing how exercise can "shed a lot of angst" (whether climate-related or not). At this juncture, activities of distraction blur into activities relating to more general interests, the continued practice of which was described by Catherine as important for wellbeing:

"Just keeping doing things that you know you enjoy and will keep you healthy. Like I like to knit and paint and stuff like that. So just making sure that I do those things helps."

In addition to maintaining distance by engaging in other activities, virtually all participants also described a tendency (and need) to maintain distance from climate change by actively avoiding related thoughts or reminders. These efforts of conscious avoidance included not reading the news, not thinking about the future, and emotionally just "not quite going there" (Natasha). Participants recognised a self-preservative (or family-preservative) instinct behind these acts of conscious avoidance:

"I know if I let it all get to me too much then it would just be life, overwhelming my entire life, and I would never do anything." (Catherine)

"I just remember scrolling past it because I didn't even want to read it. I was like, 'I am not reading that. It's just going to make me feel horrible.'" (Efa)

"I tend to not think too much about what will happen twenty years from now because it stresses me out a bit." (Gabrielle)

"I try not to think too deeply about it because it is pretty grim and very worrying." (Hannah)

"I shield myself emotionally from it. I don't engage to the point where it's going to get in the way of me living. I feel like I can't afford to." (Natasha)

*"I just see the headline and then I don't want to read the article. I feel like, 'Oh God, more s***.' So it's depressing and I'm not motivated to read it."* (Oscar)

At times in the interview process it felt necessary to respect participants' strategies of conscious avoidance by "not quite going there" in the discussions. Overall, there was a clear sense, amongst almost all participants, that maintaining psychological distance, whether by conscious avoidance or other activities, was vital for wellbeing and continued functioning.

Summary and thematic map

Figure 3 depicts conceptual links between themes (in bold) and subthemes. Perhaps the most important cluster of themes can be seen on the left two-thirds of the diagram. Finding a way to purposefully engage with climate change, through an ecologically-protective activity, appeared to be an important source of wellbeing for participants, partly

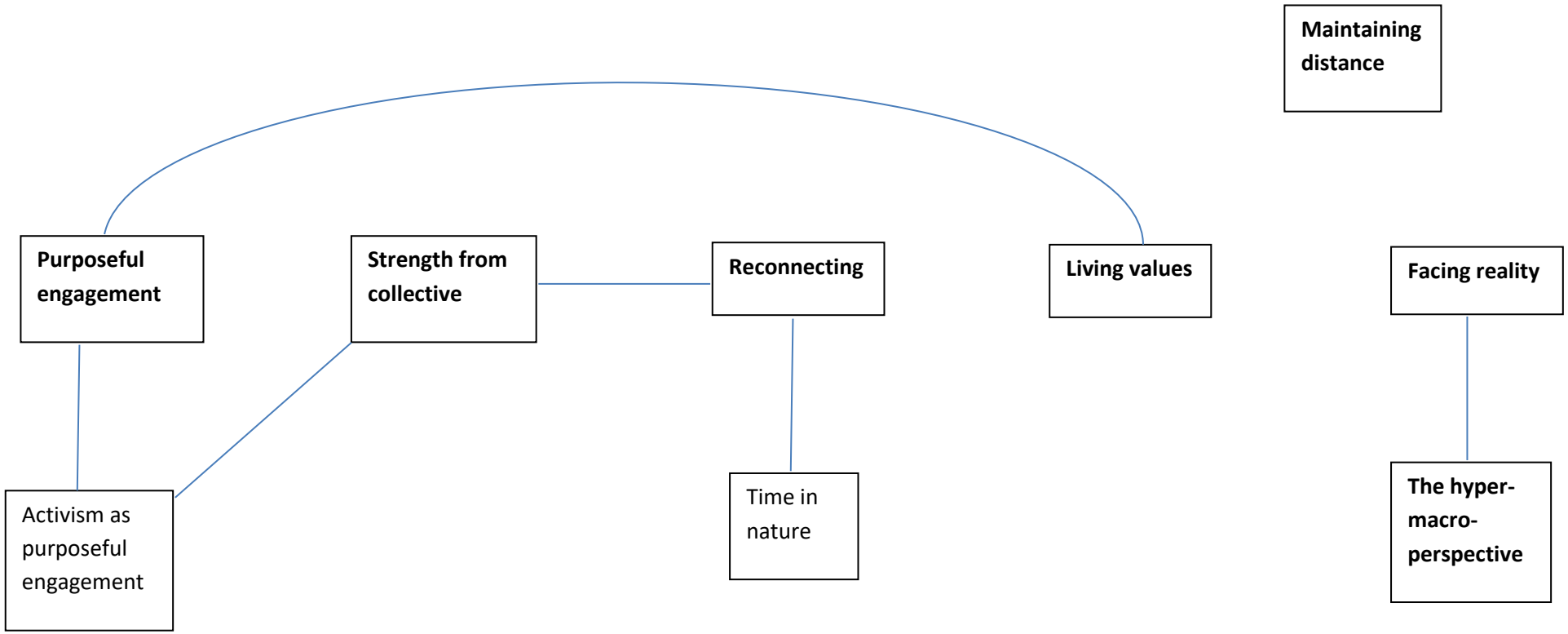
because of the opportunity that such an activity provided for ensuring consistency between attitude and action (as captured by the link to the living values theme). A popular way to purposefully engage with climate change appeared to be through activism, and a proportion of the benefits of activism appeared to flow from the more general benefits of union with likeminded people (as captured by the link to the strength from collective theme). A link may also then be drawn between the strength from collective theme, in its characterisation of the solace of community (especially the sense of not being alone in one's concerns), and the reconnecting theme, which captured the benefits of time spent in touch with the simpler things in life – community, physical being, and nature (captured in its own subtheme).

Beyond this cluster of interrelated themes, Figure 3 also posits a link between the facing reality theme – capturing the benefits of increased awareness of the full effects of climate change – and the hyper-macro-perspective theme – capturing the benefits of reframing climate change as a process of planetary self-regulation. This link reflects the finding that it was only after facing the (destructive) reality of climate change that a couple of participants could adjust perspective to also consider its potential to breed new life and new stability.

The maintaining distance theme – capturing the need to balance concerns about climate change with distractions, other interests or avoidance – may be conceptualised as operating in combination or alternation with all other protective mechanisms. In Figure 3, it is depicted apart from the other themes as a visual representation of participants' expressed need to spend time away from any thoughts about climate change.

Figure 3.

Thematic map: What helps?



Psychological services

Overview

Participants were asked for their perspective on how psychology services might help people distressed by climate change. A few participants could base responses to this question on personal experiences of seeking help. In all cases, however, it was an at least somewhat imaginative exercise, requiring participants to reflect on what might be personally helpful. Due to the research intention of developing implications for services based on themes pertaining to the first two questions (what hurts and what helps), explicit discussion on the issue of psychology services formed a relatively small part of each interview. This will be reflected in the brevity of the results, which were conceptualised in 8 themes.

Depth psychology

The depth psychology theme was developed to capture expressions of the potential for therapy to connect people to deeper parts of their own psychology.

Annie described the power of some forms of therapy – through music, guided imagery, or imaginal exercises – to bring people out of their "little box" of everyday rationalism:

"I just feel like therapy has also a lot been about using your rational mind and understanding everything…. But I just wanted to add that maybe we also need some other methods that actually connect us with a deeper part of ourselves."

Forming relationships

This theme was developed to conceptualise the view that psychological interventions could offer support by facilitating the formation of relationships between likeminded people.

Efa suggested that community links to environmental groups or charities could provide an opportunity for people to "share the burden" of concerns about climate change. Other participants spoke in similar terms about how therapy groups (or groups accessed through services) could offer a place for connection and shared feelings:

"Being connected to other people, feeling part of a community of people that make you feel it's okay to feel the things that you're feeling and it's not abnormal to do so." (Benjamin)

"If you're then talking singularly just to one therapist about it you can still feel pretty alone in it all. So group therapy settings would probably be better." (Felicity)

"I also can see a greater usage or need of maybe a group supporting each other and finding a common… common emotions and maybe common action, you know" (Annie)

Catherine spoke similarly about this potential dual value of groups, as both a place for mutual support and a potential springboard for collective action:

"It gives you people to talk to and it gives you an outlet to organise things."

Anti-psychiatric perspective

Resistance to the idea that there could (or should) be any psychological fix for distress about climate change was conceptualised in an anti-psychiatric perspective theme.

Benjamin expressed scepticism about psychological interventions for distress about climate change:

"What I'd be hesitant about, I suppose, is the idea that there's a fix for being made to feel that way. Because I think it should be okay, there should be some acceptance that it's normal to feel overwhelmingly anxious in the face of what's happening."

Similarly, other participants expressed the view that, because the source of distress is "logical and based in science" (Katrina), mental health services would almost "have to bamboozle you into forgetting the seriousness of the problem in order for you to feel okay" (Hannah). Natasha offered axiomatic opposition to equating distress about climate change with psychological aberrance:

"The saner you are, the worse it is."

An alternative way of approaching distress about climate change was suggested by Jennifer:

"It's like having a sensitivity, it's like not being made to feel wrong or bad or stupid because you do have that sensitivity."

A place to talk

This theme was developed to capture ideas about the potential value of being heard in therapy, whether through group or individual psychological support.

Delia, who had some experience of seeking help for distress about climate change, reflected that "you do get your own thoughts in order" by talking to someone, while Catherine, who had experience of seeking help for other issues, described the "release" of sharing one's troubles. In similar terms, Katrina spoke of the "unburdening" effect of expressing emotions "with another human being", a benefit that Benjamin recognised from

his experiences, through activism, of being part of "a space with people who are actively listening to what you're feeling".

Nature therapy

Suggestions that psychological interventions could tap into nature's psychological benefits were captured in a nature therapy theme.

Felicity reflected that "it is so good for the soul to be outside", before riffing on the idea of a "group therapy forest" where people could experience "just being in tune with nature, foraging, without there being any direct pressure". Benjamin appeared to have a similar idea, when advocating interventions that might foster "wider connection, spending time in nature really meaningfully, being connected to it". Significantly, Katrina positioned nature as not just curative but also preventative of mental health difficulties:

"I know that for me being able to just escape into a natural space where the only thing I can hear is nature is far more helpful than anything I've ever received from a doctor's surgery."

Luke spoke in similar terms about how "reconnecting with nature… is, in any case, beneficial for mental health". There was therefore a sense that, whatever the source of a person's distress, nature-based therapies might soothe, offer escape, and return people to a healthier state of being.

Authenticity

An authenticity theme was developed to conceptualise the idea that effective psychological support would depend, firstly, on therapists who were genuinely concerned and knowledgeable about climate change and, secondly, on patients (or co-participants?) who engaged in a meaningful way.

Hannah seemed wary of the potential superficiality of any intervention and stressed the need for therapists to appreciate the gravity of climate change:

"I think I'd probably be quite frustrated by it, you know, if they were like, 'Oh, you feel sad. That's a shame, maybe you can try this. Are you sleeping well?'... I guess I'd probably feel a bit dismissive of that…. Any service that did [offer support]*, it would need to respect that it* [climate change] *is genuinely tragic and true."*

Similarly, Gabrielle spoke of the possibility of feeling "really angry" if distress about climate change was met by non-specialist interventions. Natasha, meanwhile, suggested that it was important for professionals to "understand what's reasonable and what's pessimistic" to prevent the misinterpretation of rational worries.

An additional layer to the issue of authenticity was added by Benjamin, who conveyed not only that interventions should come from a place of genuine environmental concern, but that engagement should transpire "as naturally as possible", as "a meaningful part of somebody's life" rather than as a route to being fixed of their troubles:

"What I'm resistant to, I suppose, is the idea of going to spend an hour in woodland, in the wood, once a week and you'll be okay. I feel like it needs to be more organic than that."

As a general rule, it seems that any intervention must come from a position of shared concern and be met in a way that is personally meaningful: never blandly prescribed and blandly followed.

Symptom management

This theme was developed to capture suggestions about the potential role for psychology in helping people to manage some aspects of the distress (or symptoms) associated with concerns about climate change.

Perhaps the clearest call for symptom management came from Catherine, who suggested that services could offer exercises to "stop your thoughts spiralling" and help with physical symptoms of anxiety, such as a "racing heart and [when you] can't control your breathing". One possibly effective means of reducing these symptoms was hypothesised by Izzy, based on her experiences of managing concerns about climate change:

"Maybe keeping structure in their lives, so maybe encouraging them to allocate certain times of the week for spending time in an environment where they can talk about climate change where it's positive."

A similar suggestion was made by Oscar, with the added implication that services might encourage people distressed by climate change to engage in self-care:

"I suppose talking through how to balance being proactive and having also time to prioritise yourself."

Michael posited that another avenue of symptom management might involve helping people to tolerate uncertainty about the effectiveness of their actions in combating climate

change. Here, in Michael's view, it seemed as if there was scope for some form of cognitive restructuring, in supporting people to see that, while they "probably won't ever know whether anything they do does have any positive impact", this is "not a reason to despair".

For Hannah, it seemed that the 'symptom' that most warranted psychological support could be summarised as grief. A parallel was drawn to personal bereavement and the need to respect the all-consuming nature of the tragedy, but ultimately also to adjust to the reality of the loss:

"When someone very close to you dies you also don't want to come to terms with that but then there is a reality – they are dead, so you have to come to terms with it. I guess the world is dying and we have to come to terms with it in order to perhaps productively take action on it. Because if we're locked in grief… then nothing can happen."

Eco-behavioural activation

Suggestions that services could address distress about climate change by providing opportunities for ecologically protective activity were captured in an eco-behavioural activation theme.

Eco-behavioural activation was positioned by some participants as the most promising therapeutic avenue for managing distress about climate change:

"When it comes to the root causes, if anything, going out and protesting is therapy because you feel like you're doing something. Joining a litter-picking group or something, even if it's a really small thing, if you feel productive, I feel like that will help more than anything else." (Catherine)

"I think it would be helpful to go through ways of trying to make a difference but also without getting too obsessive about it." (Oscar)

"I mean, it's good to talk about your worries and so on in individual therapy, of course, but the tools [for working with distress about climate change] *are more action-oriented, I feel like, than ordinary therapy."* (Annie)

While Michael was of the view that helping people to engage consistently in an ecologically protective activity could help them with "processing and dealing with [difficult] emotions" relating to climate change, he also emphasised that this would only be sustainable "if you feel like you're achieving something", and that "the problem is that there's a high risk that you're not". Hannah similarly emphasised a desire to see "real results from what I've done".

For Luke, the key to unpicking this problem appeared to be in localising one's perspective:

"Understand that it is not your responsibility as an individual to solve everything. There are very concrete steps that can be taken that already exist to try to contribute towards overcoming it. Yes, that involves a lot of mobilisation for that to be effective on a global scale but that's not your problem as an individual."

This philosophy of starting small before "then try[ing] to build out" seemed to help Luke reframe climate change more as a "challenge" than a "never-ending doom scenario". It also appeared to unlock the benefits of eco-behavioural activation, including "reconnecting with nature" and enjoying the "wider sense of contribution and fulfilling your duty".

Summary and thematic map

Figure 4 attempts an interpretation of conceptual links between themes. As can be seen, authenticity – the notion that services or therapists must be concerned and knowledgeable about climate change; and that people must engage with interventions in an organic and meaningful way – occupies the central position in the map, reflecting its status as a likely precondition for any therapeutic gains. The anti-psychiatric perspective – that services ought not 'fix' concerns about climate change, nor equate them with psychological aberrance – is positioned as providing some of the conceptual foundations for authenticity. This is to say that, from participants' comments, it seems unlikely that a service which did try to fix concerns about climate change would attract much in the way of meaningful and authentic engagement from its target audience.

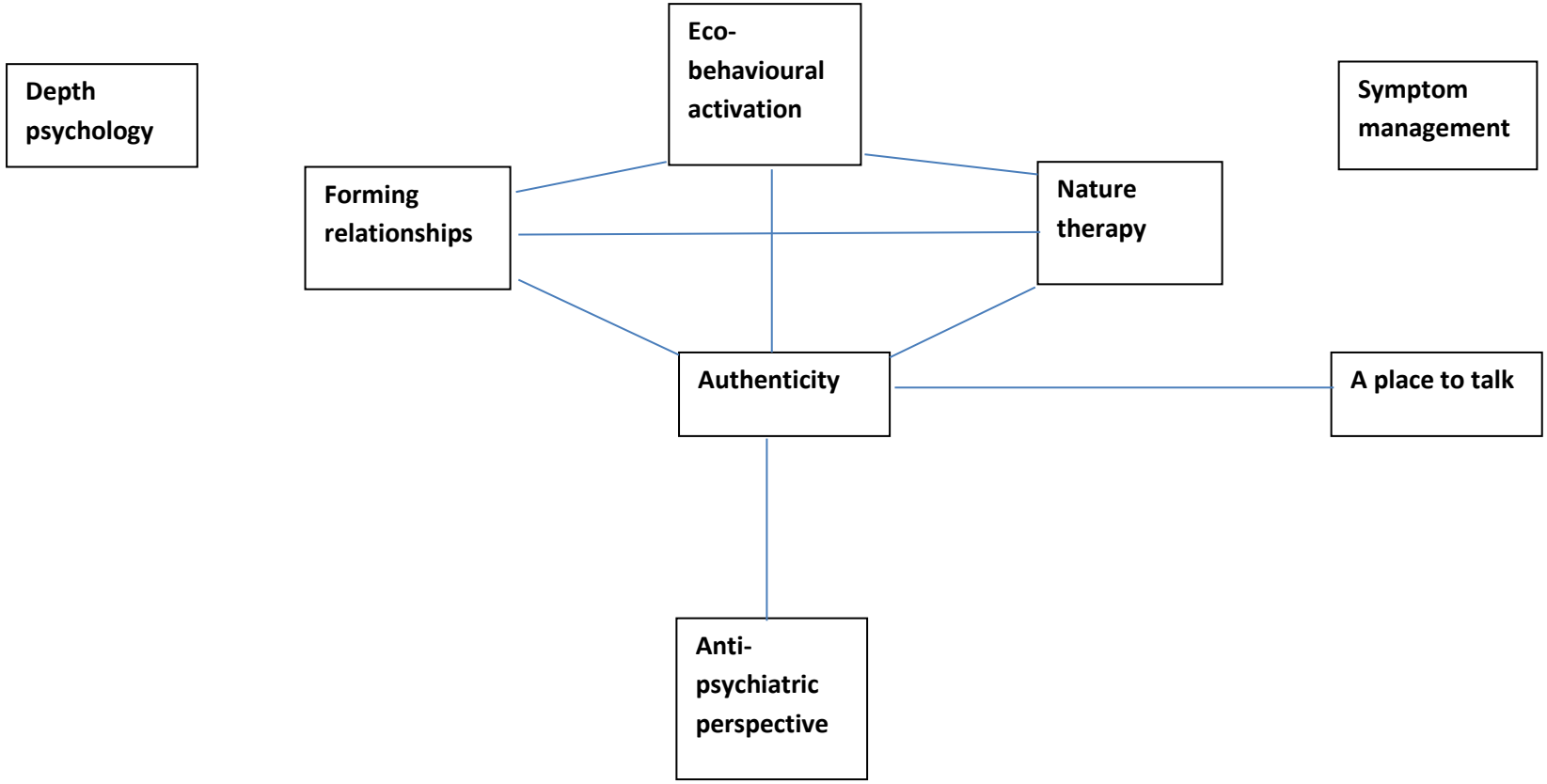
Perhaps the area on the map of most therapeutic significance is the triangle of interlinked forming relationships, eco-behavioural activation, and nature therapy themes. For several participants, there appeared to be a sense in which any combination of these three elements would be helpful, but that combining all three had the potential to be especially therapeutic. The data thus supports a combined facilitation of relationships with likeminded people, ecologically protective activity, and time in nature as a promising therapeutic direction.

Considerations of symptom management and depth psychology are positioned on the map as important reference points, with no specific links to other themes. Indeed, it might be expected that outcomes consistent with both the depth psychology theme (for instance, increased connection to sub-rational parts of the self) and the symptom management theme (for instance, reduced physiological markers of anxiety) could follow from any effective therapeutic intervention. Similarly, the benefits of talking and being heard in therapy – as captured in the place to talk theme – may be conceived as more generic than specific to a

climate-related intervention. It is thought that such benefits are, however, especially conditional on a genuinely concerned therapist, prompting the link to the authenticity theme.

Figure 4.

Thematic map: Psychological services



Discussion

Chapter overview

The first half of this chapter summarises and discusses the study's findings in relation to the three research aims – to explore what hurts when contemplating climate change; to explore what helps in managing or reversing any negative effects on wellbeing; and to consider how psychology services might support people who report distress about climate change. Each of the three research aims is considered in turn, with their own section overview and section summary, either side of a discussion of findings and their theoretical and clinical implications.

In the case of the first research aim (what hurts), findings are first discussed with reference to the existential framework that informed their analysis, and then with reference to the wider empirical and theoretical literature, and especially the findings of the systematic review. Implications are then discussed for clinical formulation – that is, the question of how to make sense of distress about climate change.

It is felt that the clinical implications for the second two research aims (what helps; and implications for services) converge on the question of what interventions could help people distressed by climate change. For this reason, while both of the second two research aims have their own separate discussion of findings, only the latter will contain a discussion of clinical implications. This discussion leads into a more general discussion on the appropriateness of mental health services offering support for people distressed by climate change.

The second half of this chapter offers some possible directions for future research, which centre around quantifying the prevalence and extent of distress about climate change in

clinical populations. After a brief discussion on some of the possible wider implications of the protest – specifically for the practices of protest and political opposition – the chapter ends with a methodological critique of the study and some final reflections.

Discussion of findings and their implications

This study has explored emotional responses to climate change in a non-clinical sample of 15 participants, who self-selected for interviews on the basis of engagement with and concern for the subject matter. Interviews were conducted and analysed with a view to addressing the project's three central research aims. Findings relating to each of the three research aims will now be presented and discussed, with reference to relevant theory, empirical literature, and clinical implications.

What hurts

Section overview

This section discusses the study's findings in relation to the first research aim – to explore what hurts in confrontations with or reflections on climate change. An existential framework served to guide but not limit the analysis pertaining to this aim. Findings are discussed first with reference to the existential framework and then with reference to the wider empirical and theoretical literature. Implications for clinical formulation are considered.

Discussion of findings

Summary of findings with reference to existential framework

Participants appeared to associate climate change with loss, especially the loss of nature and beauty. At times, participants' expressions of loss resonated with the existential concern of death (Yalom, 1980). This resonance was apparent in the language participants used to describe climate change (in images of terminal decay), in participants' allusions to feelings of grief, and in the way that an awareness of climate change – like an awareness of mortality: the "worm at the core" of the human condition (Becker, 1973, p.15) – was liable to intrude on innocent moments, from its common place beneath the surface of consciousness. In some cases, experiences of local climate change appeared to provoke feelings of solastalgia, arising from the degradation of cherished environments.

Participants' concerns about climate change were observed to colour perceptions of personal and group identity. At the personal level, it seemed that many participants' self-constructs – their sense of who they felt themselves to be (Spinelli, 1997; 2015) – centred around environmentalism. One corollary of this entanglement between personal identity and concerns about climate change appeared to be that negative environmental developments could be internalised in negative perceptions about the self.

At the group level, participants positioned climate change as both a cause and consequence of a human identity detached from deeper connections to self, community, and planet. This sense of an increasingly 'synthetic human' appeared to come characterised by feelings of emptiness and vague yearning for a life more in-tune with community and nature. These concerns of group identity chime with May's (1983/1994) position on existential isolation, that it includes a chronic sense of disconnection from the social and natural worlds.

Participants described difficulties conveying to other people the depth of their concerns about climate change. This experience connected with the concept of existential

isolation, in the sense of an unbridgeable gap between internal worlds (May, 1983/1994; Yalom, 1980). Participants also described strained social relationships, characterised by frustration at acquaintances' attitudes about climate change. It seemed that chronic experiences of this kind could give rise to a sense of unbelonging and a felt need to moderate behaviour towards social norms. This tension resonates with Spinelli's (1997, p.75) invocation of an "existential dilemma" in the need to find balance between "our experience of our own self-construct, [and] our experience of others as we have construed them to be".

The not uncommon perception among participants that climate change might, in the relative near-term, cause a substantial societal collapse, may be conceptualised as its ultimate threat to meaning. This conceptualisation chimes with Becker's (1973) theory that contributing to culture (whether at the local or species level) allows a person to achieve a kind of symbolic immortalisation, without which death is more terrifying and life less meaningful.

Other ways in which climate change appeared to be construed as diminishing a sense of meaning in life included through a loss of sources of interest (especially nature) and through abrupt realisations of the futility of personal efforts to combat climate change. In Frankl's (1973) terms, climate change was thus positioned as reducing the meaning available both through taking from life (in beauty and goodness) and through giving to life (in constructive work). Particularly among younger participants, high levels of perceived uncertainty about the future state of the world seemed to reduce engagement in future plans. Again in Frankl's (1964/2010) terms, it could be said that the 'will to meaning' of these participants had been disrupted by climate change, who seemed to feel less purpose could be found in a world set for ruin. Climate change also appeared capable of evoking feelings of existential absurdity (Camus, 1942), in the sense of a basic discord between the mundanity of daily affairs and the hidden reality of an earth tilting toward crisis.

Participants described feelings of chronic uncertainty about what to do to help combat climate change, as well as guilt for their complicity in the problem or their suboptimal engagement with it. These experiences were conceptualised by the existential concern of freedom/responsibility, which cites a tension between the desire for guiding structures or authorities in life, and the ultimate requirement for each person to author, and bear responsibility for, their own actions and inactions (Yalom, 1980). There did, however, also appear to be a subjectively positive aspect to this sense of responsibility, seen in participants' commitment to a self-transcending cause – indeed, in their fulfilment of a 'will to meaning' (Frankl, 2010) in environmentalism, or in their resolute bearing of an unalterable fate (Frankl, 1973).

Beyond the existential framework, it seemed that a portion of participants' distress about climate change centred around politics, in feelings of frustration and anger at perceived sites of political power, or of guilt and injustice on behalf of people in less developed countries. For some participants, it seemed that concerns about the socio-political dimensions of climate change could manifest in something like despair at humanity's inability or unwillingness to change course.

Finally, it was evident that concerns about climate change were capable of causing or contributing to substantial distress. Participants described how concerns about climate change could exacerbate existing low mood or anxiety, or even independently provoke periods of devastating realisation about present and future losses. At the extreme, such periods were described as preventing engagement with the demands of daily life. It also seemed as if the ubiquity of potential reminders about climate change (for instance traffic) could cause sudden peaks in distress during an otherwise innocuous activity.

Discussion in context of wider literature

Findings pertaining to the first research aim will now be considered more holistically, and in relation both to a wider theoretical literature and the findings of the systematic review.

In the systematic review, distress was found to flow from concrete effects of climate change – in reduced prosperity and access to outside spaces – and less tangible concerns about life meanings and personal and social identities in an increasingly uncertain world. Participants in this thesis were expected to differ from those in the systematic review in their exposure to climate change less as an immediate physical reality than as a set of ideas about the global future. However, this expectation was only partly born out in the results. It certainly seemed true that concerns of individual and social prosperity were not experienced in this sample as a consequence of climate change; but there did already seem to be some experiences of diminishing enjoyment of outside spaces. This was by no means the universal experience of the sample, with many participants describing the enduring benefits of their local countryside. Nevertheless, there was evidence that distress at the physical reality of climate change has started to follow, in the UK, the patterns observed, in the systematic review, in other parts of the world.

This trend was most evident in participants' expressions of solastalgia. Solastalgia is a concept that links physical changes in the local environment to people's sense of belonging in, and ability to derive comfort from, a much cherished place (Albrecht et al., 2007). In the systematic review, this experience was observed in relation to the Inuit's melting icesheets (Durkalec et al., 2015; MacDonald et al., 2013; MacDonald et al., 2015; Willox et al., 2012; Willox et al., 2013; Willox et al., 2013b), the Australian farmers' drying farms (Ellis & Albrecht, 2017; Sartore et al., 2008; Polain et al., 2011), and the Ghanaian villagers "homesick" (Tschakert et al., 2013, p.20) for a past reality. In this sample, there was evidence of similar processes in rural and coastal parts of Britain, where erosion to cliffs, natural spaces and wildlife populations threatened participants' sense of home and, in cases of an

intimate bond between person and land, even their integrity of self. This finding illustrates the presence (somewhat unexpected to the researcher) of an interaction, in contemporary Britain, between slow-burning but directly visible effects of climate change and emotional wellbeing. This is not just a question of worry, but of emotional fallout from ongoing processes in an immediate external reality.

Despite this finding, it should be said that participants' concerns about climate change did appear, in general, to be more future-oriented – or elsewhere-oriented – than the concerns observed in the systematic review. Rather than contending with the everyday reality of climate change, participants mostly conveyed a sense of anticipated disaster, albeit one with some comparable implications for wellbeing. For instance, it was observed in the systematic review that some samples (Ellis & Albrecht, 2017; MacDonald et al., 2013; Polain et al., 2011; Willox et al., 2013; Willox et al., 2013b) seemed to internalise socio-environmental changes in negative perceptions about the self, a mechanism shared by participants in this sample in relation to news of the general trajectory of climate change. Climate change was also positioned, by several samples in the systematic review (Durkalec et al., 2015; MacDonald et al., 2013; Polain et al., 2011; Willox et al., 2012; Willox et al., 2013), as a threat to meaning in life, especially in the context of disrupted cultural rituals. Though the threat to meaning reported in the results above generally seemed more individualised, the sense of a world without nature being stripped of meaning would appear as relevant to participants in this study as to many samples in the systematic review (Durkalec et al., 2015; Ellis & Albrecht, 2017; Tschakert et al., 2013; Willox et al., 2012; Willox et al., 2013; Willox et al., 2013b). Most fundamentally, a vague sense of ontological insecurity – of uncertainty and threat – may be seen to run through both the above results and the findings of the systematic review.

At the broadest level, this sense of ontological insecurity resonates not only with the existential framework but with the biophilia hypothesis. The biophilia hypothesis holds that humans are disposed by our evolutionary past to seek affiliations with the natural world; that it is here that we feel most alive; and that the physical and psychological health of a society is served by healthy relations with nature (Kellert & Wilson, 1993). In this sense, and as suggested by the above findings, it might be said that climate change poses not just a tangible material threat, but a threat to what feels like the proper order of the world, or the wounding of a vital object relation (Bodnar, 2008). Indeed, it is noted that Verlie (2019), in an anecdotal analysis of the distress caused by climate change among a class of undergraduate environmentalists, reported similar feelings – of frustration, overwhelm, guilt, and grief – to the findings established above. It is conceivable that, underlying these commonalties, may be the sense that climate change constitutes an assault on the fundamental connection between humanity and planet, the severing of an attachment bond.

Implications for clinical formulation

The study's findings have clear implications for the formulation of distress about (gradual) climate change.

Firstly, the results may serve to problematise the concept of eco-anxiety, a term which (as described in the Introduction chapter) appears to be in favour as a means of describing the more anticipatory forms of distress associated with climate change. Among this sample, terms such as 'eco-grief', 'eco-anger', or even 'eco-uncertainty-about-what-to-do' might all be thought to offer more face validity than eco-anxiety as a representation of reported experiences. Perhaps more fundamentally, the findings indicate that this distress can manifest in different ways between people and in multifaceted ways within the same person. Indeed,

even some direct contradiction might be observed between findings of purpose in the fight against climate change, and findings of a futile struggle and a life in general divested of meaning.

These complexities, of course, are the reason for formulation, an individualised account of a person's difficulties based on theoretically-informed links between past and present or external and internal (Johnstone & Dallos, 2014). The above findings support past propositions (Clayton & Karazsia, 2020; Pihkala, 2018; van Kessel, 2020) that existential ideas may offer a suitable tool for the formulation of distress about climate change. To recapitulate briefly, such a formulation might consider issues of:

Death and loss, in relation to the destruction of natural or home environments (including feelings of solastalgia), and in associations between climate change and terminal decay

Meaning, in relation to a reduced potential to give to life (through constructive work) and take from life (in beauty and goodness); in relation to feelings of apathy, futurelessness and absurdity in the context of fears of societal collapse; and in relation to feelings of futility associated both with the fight against climate change and the sense of life in its shadow

Isolation, in relation to fears both of social ostracism or unbelonging and of more fundamental aloneness in one's thoughts and fears

Identity, in relation to feelings of solastalgia, disenchantment with one's human identity, and the negative (and positive) effects on one's self-construct of engagement with climate change

Freedom/responsibility, in relation to chronic uncertainty about what to do and attendant feelings of guilt about not maximising one's positive impact on the world

Not all expressions of distress were conceptualised in these existential terms, and it was recognised throughout the research that the existential framework represented just one way of conceptualising the data, rather than a road to absolute truth. Moreover, arguably the more foundational finding of the research concerns the multifaceted and variable nature of distress about climate change. The findings do not endorse a manualised application of existential theory to climate change concerns.

The results do, though, indicate an ancillary benefit to an existential orientation in the formulation of distress about climate change. This relates to the finding – concordant with Rouf and Wainwright (2020) and Verplanken and Roy (2013) – that many participants experienced their distress not as something to eradicate, but as a favourable part of their identity, formed in healthy response to scientific reality. The findings indicate that any formulation which runs counter to this principle, for instance by emphasising the contribution of cognitive distortions (catastrophising or filtering out the positive) to people's distress, risks aggravating isolation or feelings of anger at the direction of humanity. In contrast, an existential orientation, with an emphasis on confrontations with the harsh facts of existence (Yalom, 1980), would seems to offer a more acceptable fit with participants' worldview. Such an orientation might position distress about climate change as something to be meaningfully engaged with, rather than worked around, as part of an authentic existence.

Section summary

This section has discussed the study's findings of 'what hurts' when contemplating the effects of climate change. The findings have been related both to the existential framework and to the wider literature. Two notable implications of the study's findings for the clinical formulation of distress about climate change have been considered. The first of

these is that the multifaceted and variable nature of distress about climate change means that any generic descriptor (such as eco-anxiety) will have limited utility. The second implication is that the existential framework would likely offer a useful tool for formulation – both in the resonance between its core themes and the content of distress about climate change; and in its general orientation towards meaningful engagement with harsh reality.

What helps

Section overview

This section summarises the study's findings in relation to the second research aim – to explore what helps people to manage distress about climate change. Findings are discussed with reference to the few studies that have previously explored this area (Macdonald et al., 2015; Ojala, 2012; Sartore et al., 2008; Willox et al., 2013; Willox et al., 2013b) and wider theoretical considerations. Although the process of generating themes for this research aim was less explicitly theory-driven than it was when conceptualising the distress caused by climate change, existential ideas will have undoubtedly informed the analysis. Discussion of the theoretical implications of the findings will therefore reference the existential framework. Although it is thought that the findings summarised in this section have implications for the clinical interventions that might help a person distressed by climate change, these implications will not be discussed until the next section, in the added light of participants' apparent views on the subject.

Discussion of findings

Purposefully engaging with climate change, in an activity oriented towards mitigating the problem, appeared to relieve distress and generate wellbeing for many participants. In terms of the existential framework, it seemed that purposeful engagement could constitute a source of life-meaning (Frankl, 1964/2010; 1967/1973), while also strengthening self-constructs formed around ecological ideals (Spinelli, 1977; 2015). Activities of purposeful engagement within the sample were varied, including local interventions (such as lifestyle changes, litter-picking, and influencing friends), professional occupations (in renewable energy or sustainable agriculture), and political actions or ambitions. Indeed, a substantial proportion of the sample had histories of involvement in political activism, and described the feelings of hope, excitement and courage that it could offer. These findings replicate those of Ojala (2012), whose sample of Swedish youth described, among other methods of emotional coping with climate change, the benefits of engaging in, and persuading others towards, environmentally-friendly activities.

Also evident in both Ojala's (2012) study and the results presented above was a sense of emotional coping through collective thinking or action. In this sample, connecting to a collective seemed to be particularly beneficial in permitting participants to feel less isolated in their concerns about climate change, or perhaps even in allowing the enjoyment of group identities based on ecological values (Newman & Newman, 2001). More speculatively, a link might be drawn to Terror Management Theory, and its proposition that embeddedness in a social group, and alignment with its cultural worldview, defends against existential anxiety (Solomon & Greenberg, 1991). Whatever its mechanisms, the finding of psychological gain through group membership is consistent with Macdonald and colleagues' (2015) finding that participation in close-knit communities protected the mental health of Inuit youth threatened by climate change. Sartore and colleagues (2008) found evidence of similar psychological gains from the experience of solidarity in response to climate change.

Some participants in this sample described a moral duty to hold climate change in mind, while others expressed the importance of a life lived in accordance with their ecological values. It seemed that this desire for consistency between attitude and action contributed, for some, to feelings of virtue and inner peace, even in the context of despair about the general trajectory of climate change. It seems likely that similar processes may have operated in Ojala's (2012) sample, behind its accounts of psychological benefit from ecological activities. Here again it seems reasonable to suggest that some of the psychological benefit derived from attitude-action consistency relates to the sense of a strengthened self-construct (Spinelli, 1977; 2015), or indeed to the sense of a fulfilled will to meaning (Frankl, 1964/2010; 1967/1973). For all the distress that climate change caused, purpose had been found in the struggle.

A couple of participants in this sample appeared to derive some comfort from viewing climate change as a process of planetary self-regulation, out of which new beginnings could flourish. Such a finding calls to mind cognitive theory (Robson Jr & Troutman-Jordan, 2014): although the fact of climate change remained, distress could be reduced by adopting a different appraisal of it. Similar logic seems to have been found among Macdonald's (2015) Inuit youth, whose emotional adaptability to climate change came tied to a sense of acceptance that the world could not possibly stay the same forever.

Other psychological benefits in this sample seemed to follow from efforts to reconnect to one's social or family relationships, one's physical being, and nature. In invoking the psychological value of time in nature, findings offer further support to the biophilia hypothesis and its proposition that humans are innately drawn to – and thrive when connected with – the natural world (Kellert & Wilson, 1993). On this point, the findings resonate with Willox and colleagues' (2013; 2013b) report of Inuit experiences of oneness

between self and nature, and of their positioning of time ‘on the land’ as a vital but precarious source of wellbeing.

Significantly, there was a strong sense in the sample of a need to balance engagement with climate change with a level of psychological distance from it, which participants maintained through allocated periods for engagement, hobbies or other interests, exercise, and a conscious moderation of their patterns of thought and intake of news. A similar need to stay busy to divert oneself from troubles was reported among Macdonald and colleagues’ (2015) Inuit youth. Sartore and colleagues (2008) and Ojala (2012) also described efforts of distraction and avoidance in their samples. There is a clearly cognitive-behavioural thread to such strategies, both in the sense of a need to disrupt cycles of ruminative thinking and low mood with deliberative behaviour, and in the sense of avoiding triggers for unpleasant psychological responses (Dudley & Kuyken, 2014).

Section summary

This section has summarised the study’s findings of what helps to moderate distress about climate change, and discussed these findings in relation to empirical studies and wider theoretical considerations. Unsurprisingly (given the researcher’s theoretical pre-inclinations), findings were found to resonate strongly, but not exclusively, with the existential framework, with other findings conceptualised from a more cognitive-behavioural perspective. Of course, it should again be noted that there are any number of theoretical angles to take on the research findings, and that the above discussion should be taken as more illustrative than prescriptive. This section has not included a discussion on clinical implications of the research findings, as it was felt that this discussion would be best saved

for the following section, where implications will be considered in light also of participants' apparent views about the potential role of psychology services.

Psychological services

Section overview

This section summarises the study's findings for the third research aim – to explore how psychology services might support people in distress about climate change. While only some participant perspectives were based on experiences of seeking support, all participants generated relevant ideas. The section therefore begins by summarising participants' ideas with reference to psychological theory, before proceeding to discuss the possible implications of these ideas – in combination with participant experiences of 'what helps' discussed above – for clinical interventions.

Discussion of findings

Participants acknowledged the universal benefits of having a place to talk and of feeling held or understood in therapy. It was, however, felt critical that there be an authenticity to services' engagement with people distressed by climate change, and a similar level of meaningful engagement from anyone seeking help. Many participants, moreover, stressed that it would be important for psychology services to not pathologise distress about climate change. In this way, it seemed as if participants expressed support for Rogerian (Nelson-Jones, 2000) therapeutic principles, in particular the ideal of an empathetic, non-judgemental and non-critical therapist, perceived as meaningfully engaged with a client's distress. Relatedly, it seems clear that an anti-psychiatric stance, with a focus on an aberrant

world rather than aberrant psychology (Nasser, 1995), is likely to be essential for motivating engagement.

Perhaps most substantially, the findings suggest that a psychological intervention could support people to purposefully engage with climate change, preferably through an ecologically-protective activity that delivers tangible results. This suggestion has clear resonances with the central principle of acceptance and commitment therapy, that psychological wellbeing flows from an increase in value-oriented behaviour (Harris, 2009). Theoretically, such an intervention could be conceptualised in a number of ways, including in existential terms of a fulfilled 'will to meaning' and a strengthened ecologically-grounded self-construct.

Findings also suggest that it would be helpful for interventions to facilitate the formation of relationships with likeminded people, whether through therapy groups or community links. This suggestion appeared to relate to the desire to share in a burden of distress and reduce feelings of isolation. There are resonances here to systemic theory, and in particular the coordinated management of meaning model (Cronen et al., 1988), in the idea that distress might be partially eased by entering a collective whose group norms transform the distress from aberrant to normative. Beyond considerations of shared distress and reduced isolation, groups were also positioned as potentially therapeutic for their capacity to provide a springboard for collective action. There is a community psychology angle to this consideration, in the idea of psychological gains attributable not just to a sense of belonging but to the pursuit of material changes in external reality (Levine & Perkins, 2005).

Participants also seemed to advocate for some form of nature therapy, whether in small-group or individual formats. In anticipating the therapeutic benefits of time in nature, participants again offered implicit support to the biophilia hypothesis (Kellert & Wilson,

1993) and its assumption of psychological benefit from connection with the natural world. For Stigsdotter and colleagues (2011), the critical ingredient to such a therapy is the sense of gentle and reciprocal nurture – of giving to, and receiving from, the natural world. There are echoes here of Frankl's (1973) view that meaning in life may be derived both from constructive work and the appreciation of beauty.

Implications for clinical intervention: A synthesis with 'what helps'

The following synthesis sets out the study's implications for clinical intervention, in light both of participants' methods of managing distress about climate change and participants' views about what support might be helpful. In staying close to the study findings, it offers a utopian vision, which will subsequently be examined – and supported – in a more realistic light.

One of the central findings of this research is that distress about climate change can be reduced by engaging in activities that are presumed to be good to the environment. It follows that a form of 'eco-behavioural activation' could form the centrepiece of interventions tailored to distress about climate change. Eco-behavioural activation may be taken as a generic term for any intervention grounded in an activity that promotes the fight against climate change or the protection of natural environments.

An eco-behavioural intervention might be productively combined with two other considerations derived from the research findings. Firstly, findings suggest that joining in a collective of likeminded people can both reduce a person's sense of isolation in their concerns about climate change and increase their degree of hope in the possibility of combating the problem. This finding (based on participants' experiences) was reflected in the

further finding (based on participants' ideas about possible interventions) that services might harness the power of groups when working with people distressed by climate change. A similar pattern was observed in relation to the psychological benefits of time in nature. In findings related to their own experiences, participants described nature's relaxing and rejuvenating qualities. Then, when considering what might be helpful as a psychological intervention, participants suggested that these qualities could be harnessed by a form of nature therapy

The basic form of a clinical intervention thus begins to take shape. This is to say that the findings support the likely effectiveness of, and indicate a potential appetite for, interventions that are group-based, conducted in close contact with nature, and centred around ecologically protective activities. Candidates for the content of such interventions are not hard to imagine, and might include engagement in conservation projects, rewilding projects, or regenerative agricultural enterprises.

Section summary

This section has summarised, and discussed in relation to psychological theory, participants' expressions of how clinical interventions might respond to people distressed by climate change. These considerations were then synthesised with findings relating to what helps participants to manage their own distress. This synthesis offered support to the idea of small-group, nature-based interventions, oriented particularly towards a form of ecologically protective activity, as a way of helping people in distress about climate change. The following section takes a step back from fantasy and considers a more pragmatic case for interventions of this kind in contemporary mental health services.

Is this what therapy is for?

There are both practical and conceptual reasons to be sceptical about the introduction, into clinical services, of small-group, nature-based, eco-behavioural interventions for people distressed about climate change. On the practical level, it might simply be thought that, in a world of stretched resources and long waiting lists (Buchanan, 2015; Matthews-King, 2018), there are many more urgent areas of need. Then, on the conceptual level, there could be questions about whether distress arising in rational response to non-personal, real-world issues (like climate change) is even the appropriate material for mental health services. If distress about climate change is rational, and decidedly not a mental illness, then surely it would constitute a straightforward category error to establish clinical services for its treatment.

There are reasons to resist this sceptical position, however. Hagan and Smail (1997), for instance, have conceptualised individual distress as the product of external forces operating both at 'proximal' levels – in the world of interpersonal relationships and daily stresses – and 'distal' levels – in the world of culture, politics and economics. From this perspective, most therapy entails some degree of encounter with non-personal, real-world issues (austerity; inequality), filtered through the more immediate lived experience – and the more personal, real-world issues – of the person seeking help. Rationality does not enter into the equation: who can say what the rational response should be to discrimination, to losing one's job in a punitive socio-economic context; or, indeed, to living through global ecological collapse? The remit of services is to support people in distress, not to distinguish between valid and invalid causes in external reality (Gerber, 1990).

There is then a clear practical case to support small-group, nature-based, eco-behavioural interventions in mental health services. This case relates not only to the degree of distress associated with climate change in the above research findings, nor also to signs that, in young people's services especially, concerns about climate change are often found close to the surface (Watts & Campbell, 2020), but perhaps most importantly to the weight of evidence supporting connections with nature as a universal source of health and wellbeing. In short, there is reason to think that nature-based interventions would be beneficial to a great many people accessing mental health services, irrespective of concerns about climate change.

A few studies should prove illustrative of this potential utility. For instance, an eight-week programme of small-group walks in nature was found to produce increases in subjective wellbeing and, in many cases, clinically significant reductions in depressive symptomatology in a small clinical sample (Korpela et al., 2016). A literature review by Poulsen (2017), meanwhile, established a range of positive effects of nature-based therapy, including reduced symptoms of trauma and depression, and improvements in physical health, daily functioning, and the subjective sense of hope. Song and colleagues' (2016) systematic review has also indicated positive effects of nature-based therapies on a number of physiological markers of stress and anxiety, and even on measures of immune system functioning, leading the authors to position nature as a form of preventative medicine. This position has been further supported by White and colleagues' (2019) finding that reports of good health and high well-being, among a representative UK sample of nearly 20,000 participants, significantly increased with two hours' weekly contact with nature.

The clear sense from the existing literature is thus that small-group, nature-based, eco-behavioural interventions could have universal utility within NHS mental health services. A utopian vision it may be, but not necessarily an inadvisable one from either a health or a cost-effectiveness perspective.

Section summary and future directions

This section has presented a case for the integration into mental health services of small-group, nature-based, eco-behavioural interventions (whether in support of people distressed by climate change or people with more general mental health difficulties). Part of this case rested on the finding of this research that concerns about climate change are capable of having a substantially deleterious effect on subjective wellbeing. Evidently, however, this qualitative finding says nothing for the arguably pivotal matter of prevalence: are such experiences a very fringe phenomenon, or are they sufficiently common to compel serious consideration of the interventions recommended by the research? The next section considers how this question might be addressed as part of a discussion on this project's implications for future research.

Implications for future research

It is in-keeping with the critical realism of this thesis to say that no value-free implications for future research can be recommended. It is not a case, as a positivist might have it, of one set of findings leading to a subsequent logical question, so that finding can be laid upon finding, in an ever-increasing body of knowledge. Rather, it is a case of actively selecting which further questions might be profitably pursued, from a great number of potential questions, and in the value-laden judgement of the author. By way of a declaration of interests, therefore, it should be said that the author likes the idea of small-group, nature-based, eco-behavioural interventions operating in or adjacent to mental health services, if not

universally then at least sporadically. All implications for future research may be read in this light.

Firstly, it might be thought that this research indicates the need to quantify the prevalence and extent of distress about climate change in clinical populations. An eco-anxiety scale has recently been developed (Clayton & Karazsia, 2020), which may hold some promise for a research endeavour of this kind. However, the findings presented above call into question the content validity of the scale, specifically by indicating the need for a set of more existentially-oriented items to capture the full extent of eco-anxiety. An initial direction for future research may therefore be to identify, based on the findings above, candidate items to integrate into Clayton and Karazsia's (2020) scale. For example, new items might ask about the frequency of feelings of futurelessness, reduced meaning in life, and uncertainty about what to do (in a context of concerns about climate change). A research project might then validate the extended scale, by investigating the correlation between scores on the existentially-oriented questions and scores on the same four-item measure of depression and anxiety (Kroenke et al., 2009) used in Clayton and Karazsia's (2020) validation study. A strong correlation would support the integration of the existentially-oriented questions into the existing scale, and in this way the formation of an extended scale with enhanced content validity.

This extended scale may then form the basis of quantitative research into distress about climate change in clinical populations. In particular, it might be useful to recruit a sample of people engaging with primary care mental health services (for instance IAPT) or university counselling services with mild to moderate depression or anxiety. The purpose of this research would be to explore the extent to which distress about climate change forms part of the picture, if not the express reason for seeking support, of populations with less significant or enduring psychological difficulties. Such data would be useful in establishing

the potential audience for services offering small-group, nature-based, eco-behavioural interventions.

Should this initial stage to further research establish a reasonable prevalence of distress about climate change in clinical populations, then it might pave the way for a pilot study into the effectiveness of a small-group, nature-based, eco-behavioural intervention. This might first involve recruiting people from primary care settings, either by a process of self-selection or based on scores on the climate change anxiety questionnaire. Participants could then attend weekly sessions of the intervention, in addition to continuing with their usual programmes of care. Outcomes could be assessed quantitatively and qualitatively at the end of the intervention and at follow-up, with a focus not only on clinical effectiveness but cost-effectiveness (that is, do participants make fewer contacts with physical or mental health services during the time of their engagement with the programme?).

This stage of further research might profitably collaborate with conservation charities, such as the Woodland Trust (n.d.), or existing nature therapy programmes, such as Dose of Nature (n.d.), which offers both one-to-one intervention programmes and group activities in nature.

Wider implications: Political protest and opposition

Some of the study's findings have implications that take us beyond the terrain of clinical psychology and into the domain of politics – and especially the politics of protest and opposition. It was clear, as described in the system miscalibration theme, that a portion of participants' distress about climate change concerned its entanglement with the global political and economic system. Participants typically perceived this system to be geared

towards extraction and profit, and only secondarily (if at all) towards the health and wellbeing of people and planet. The experience of living as part of this system – both as frustrated observer and reluctant contributor – led to feelings of guilt, despair, impotence, and injustice. There was a clear sense, to borrow again from Hagan and Smail (1997), of distress caused by a downward impress of external power – from political and economic macro-structures, to individuals lacking in the necessary resources to substantially affect the nature of reality.

In this context, political activism appeared to acquire an important duality for participants. On the one hand, participants spoke of feeling empowered by protest and of deriving hope and solace from their communities of fellow activists. On the other hand, participants (often but not always the same participants) also spoke of how activism could lead to increased feelings of futility and isolation, with the momentary high of protest giving way to realisations of minimal change and a reinforced sense of disconnection from other, less climate-engaged people. This appearance of a complicated – and perhaps entirely mixed – relationship between activism and wellbeing resonates with previous qualitative research, which has explored feelings of both empowerment and disempowerment in the context of protest (Drury et al., 2005). A further quantitative study (Klar & Kasser, 2009), though purporting to illustrate a link between activism and wellbeing, is far from persuasive – consisting as it does in correlational outcomes and, in an experimental phase of the study, a single statistically significant effect on one of three selected measures of wellbeing. The appropriate framing, therefore, is perhaps of activism as a double-edged sword, capable of bringing great highs – in empowerment, excitement and group support – but also notable lows – in disempowerment, futility and ostracism.

This mixed picture perhaps raises some questions for the politics of opposition. There is surely value in expressions of rage and solidarity. But when many of your number feel,

deep down, that it is all utterly futile, perhaps there is a need for a change of approach. For some participants, in particular, there was a sense of needing something more than activism – in fact of desiring to see tangible effects from their actions. One potential route forwards was outlined by another participant, who described their regenerative agricultural enterprise and associated philosophy of simply taking matters into their own hands, albeit on a localised scale, and trusting in a mass-mobilisation of likeminded people to turn a snowball into an avalanche. From this perspective, there may be limited use and limited satisfaction to be derived from campaigning (interminably) for political change. Instead, as Brown and Jones (2021) have also suggested, the more effective attitude may be one of solving problems from below without permission from above. There are echoes here of Kant's categorical imperative (Johnson & Cureton, 2004). The challenge, perhaps, is to shift one's perspective from global problems to local but scalable solutions, and ultimately to find and commit to a personal project that, were it to be replicated on a sufficient scale, would deliver global benefits.

Methodological critique

Section overview

This section assesses the methodological strengths and weaknesses of this research project, and considers alternative pathways the study may have taken. It will follow a similar structure to the Methods chapter, with a focus at the levels of study design, sampling, materials, procedure, and analysis. It begins, however, by introducing the conceptual framework to these discussions.

Conceptual framework

The below methodological critique flows from the qualitative study design and critical realist epistemological position of the thesis. In both qualitative and quantitative research, the fundamental methodological issue concerns the degree of confidence that can be had in the presentation and interpretation of data (Connelly, 2016). In quantitative and more positivist research, this issue is typically considered in terms of 'rigour' and to centre around issues of internal validity, external validity, reliability, and objectivity (Lincoln & Guba, 1985, see Table 5 for definitions). In qualitative and more social constructionist research, however, the emphasis is not on rigour but on 'trustworthiness', the extent to which the results offer an authentic reflection of the experiences under investigation (Curtin & Fossey, 2007). In keeping with this different orientation, alternative quality criteria have been proposed, the most widely used of which – credibility, dependability, confirmability, and transferability (Lincoln & Guba, 1985) – are defined in Table 5.

The critical realism and qualitative methodology of this thesis puts it in a slightly ambiguous position as to which of the two quality criteria to use. Guba and Lincoln (1994) hold that the orientation of critical realism towards an objective truth (however imperfectly apprehended) makes questions of rigour more appropriate than questions of trustworthiness. However, this paper holds that Bhaskar's (1979/2005) characterisation of critical realism, particularly regarding the inseparability of the human researcher from the human world they seek to explain, is not adequately described in Guba and Lincoln's (1994) taxonomy. Moreover, while allowing that critical realist research may make "increased utilisation of qualitative techniques" (Guba & Lincoln, 1994, p.110), their general position seems to align critical realism more with modified experiments than discursive investigation. For this reason, the following methodological critique feels at liberty to make use of both of Table 5's

conceptual frameworks. Sub-concepts (specific types of validity and reliability) will be defined as and when they arise in the discussion.

Table 5.

Definitions of concepts used in evaluation of research

Quantitative terminology as it applies to qualitative research	Qualitative terminology
Validity The extent to which findings reflect both the underlying data and external reality	*Credibility* The extent to which findings present an adequate reconstruction of participants' experiences, in an acknowledged context of researcher bias and the non-existence of any direct access to a single and absolute truth
Reliability The replicability and internal consistency of the research procedures (in the context of researcher biases)	*Dependability* The stability of the findings across time and contexts, as a product of both the (to some extent inherent) instability of the human mind and the (desired) stability of research procedures.
Objectivity The non-interference of the researcher with the researched	*Confirmability* The extent to which findings are demonstrated to flow from the research subjects, as opposed to the biases or

	motivations of the researcher
Generalisability The extent to which findings can be transferred to other contexts, settings, groups	*Transferability* The extent to which findings can be transferred (with extreme caution) to other contexts, settings, groups

Design

This study followed the research in the systematic review, in adopting a qualitative research design. Based on a desire to explore the experiences of each participant in maximum depth, it was decided that individual interviews, rather than focus groups, would offer the most appropriate format. It was further decided that semi-structured interviews, rather than structured or unstructured interviews, would offer the best balance in permitting a fluid exploration of potential idiosyncrasies, while ensuring that certain areas of core interest were explored with every participant.

Strengths

This study design yielded benefits very much as expected. Each interview ran a different course, between shared staging posts, allowing exploration of each participant's particular experiences and the development of overarching themes based on apparent commonalities of theoretical or clinical importance. The use of interviews meant that every participant could be equally heard. In this way, it is expected that the findings contain good credibility as a reflection of participants' experiences and views. In particular, it is thought that the findings have a high level of content validity, in offering appropriately broad representations of the phenomena of interest (Heale & Twycross, 2015).

It is also thought that the study design offered reasonable dependability. The concept of dependability acknowledges the inevitability of variable results across times and contexts in qualitative research, but stresses the importance of repeatable research processes. Shenton (2004) has recommended that the key to dependability is the detailed description of research processes, such that another researcher could follow the same trail. At the level of basic study design (semi-structured individual interviews), this criterion was hopefully met by the research.

Weaknesses

The study design was not without its limitations. Specifically, it is noted that a qualitative analysis of semi-structured interviews will have had implications for the reliability (and especially the replicability) of the research findings. This is to say that, even with the same participants and interview schedule, another researcher would have inevitably co-created a different set of conversations with participants, meaning a different dataset.

Another layer of non-replicability was introduced by the analysis process. Though the above findings hopefully offer a fair representation of reality (that is, they are somewhat credible), it seems obvious that another researcher, approaching the same data with the same analytic framework, would have generated a different set of results. How radically different these hypothetical results may have been is unknown, and both sets (hypothetical and actual) may well have contained value. The very fact of the difference, though, might be considered a threat to the reliability of the findings. It is for this reason that the concept of dependability, with its emphasis on stable research processes in a context of unstable human minds, may be of more relevance to this qualitative research than the concepts of reliability and replicability.

However, steps could still have been taken to improve the dependability of the study's design. Krefting (1991), for instance, has recommended that dependability can be improved

by a process of triangulation – the use of multiple data-gathering methods. From this perspective, the research might have benefitted from a mixed-methods approach, with participants' wellbeing assessed using a standard measure such as the Short Warwick–Edinburgh Mental Well-being Scale (Fat et al., 2917). The difficulty of such an approach, however, would have been the impossibility of separating effects on wellbeing attributable to climate change from general levels of wellbeing. If repeated today (it was not available when this research was conceived), the climate change anxiety scale (Clayton & Karazsia, 2020) might have offered an appropriate means of triangulation.

Sample

The research used a population sample of 15 participants who self-selected for the study (predominantly through social media) based on concern for the subject matter.

Strengths

The study's approach to sampling fulfilled its primary functions: participants were sufficiently engaged with climate change for detailed discussions; and the sample size of 15 appeared to provide, by virtue of individual differences, a reasonable breadth of relevant experience. Furthermore, a retrospective on the theme development process reveals that the final four interviews could all be removed from the analysis without this forcing the deletion of a theme. This suggests that 15 interviews brought the research close to data saturation. For this reason, it is thought that the findings contain good content validity and fair credibility, offering sufficiently broad and detailed representations of the phenomena of interest. This seems likely to also indicate reasonable transferability: the breadth of the findings make them more likely to apply to contexts beyond the realms of the study.

Weaknesses

The nature of the sample may, however, also offer some reason to question the transferability of the findings. Most notably, it seems likely that the requirement that participants self-select for an hour-long interview (with a stranger) will have biased recruitment towards more socially confident people. Some of the research findings, in particular the idea of therapeutic groups, may need to be viewed with this in mind: a hypothetical sample of extreme introverts, equally distressed by climate change, are surely less likely to have made the suggestion. The sample may also have been biased by the use, in recruitment, of social media pages belonging to environmental action groups. While this was a useful strategy in accessing a large pool of engaged people, it is possible that some of the research findings, perhaps in particular around the psychological benefits of activism, may have been more applicable to this study's participants than to most other people.

It is also worth noting that the sample skewed towards young women, with four male to eleven female participants and only one participant beyond the age of retirement. This may partly be explained by real-world age and gender differences: there is indeed evidence that younger people (Phillips et al., 2018) and women (Zainulbhai, 2015) are especially likely to be concerned about climate change. However, it is also possible that using social media as the primary recruitment tool did contribute to a sampling bias in the direction of younger participants. One important way in which this may have affected results was in increasing the relative emphasis on personal, prospective issues. Such issues were indeed a central feature of the freedom/responsibility theme, as participants grappled with such questions as what career path to choose and whether or not to have children. An older sample, by contrast, might have raised more feelings of regret over past choices or more concern for younger relatives, as part of a process of making sense of the world to be left behind (it is worth noting that the study's oldest participant had no children). In this sense, it seems fair to

wonder whether distress about climate change may come entangled with different existential concerns at different life stages. The nature of this sample offered limited scope to explore this matter.

All potential biases in sampling could have been circumvented by a recruitment process that avoided social media and environmentalist groups, instead establishing a sample of sufficiently engaged participants by distributing a large number of screening questionnaires, for instance Clayton and Karazsia's (2020) aforementioned scale, in a given population, and inviting to interview those whose scores indicated higher levels of distress.

Materials

Interviews were conducted over Zoom using a semi-structured interview schedule (Appendix 5).

Strengths

The interview schedule seemed to provide a useful guide for discussions, ensuring that important areas were covered with each participant, while permitting scope for exploration of idiosyncratic experiences. One important strength of the schedule was in the flow of questions. For instance, it seemed that first asking participants to bring to mind images or scenarios associated with climate change facilitated a less abstract (and more emotional) engagement with questions around how awareness of climate change affects day-to-day wellbeing. Perhaps more importantly, the decision to begin each interview with an open request to hear the history of the participant's concerns about climate change seemed to confer two related benefits – firstly, in leading to the generation of personally significant reference points for the rest of the discussion; and secondly in offering participants an

immediate opportunity to take the lead in the interview and convey their experiences with minimal intrusion. In this way, it is thought that the interview schedule made a useful contribution to the credibility and content validity of the study's findings. The availability of the schedule in the appendices below supports the dependability of the study.

The decision to use Zoom for the interviews was born of the pandemic. This necessity proved hugely enabling. With considerations of travel irrelevant, interviews could take place at any time of day and with participants beyond the local region. It could be argued that, in allowing the net to be cast wide in the recruitment process, and therefore in allowing a greater diversity of voices to be heard, the use of videocalls increased the transferability of the research findings.

Weaknesses

The reliability (particularly the replicability) of the findings will have been limited by the discursive nature of the research. More problematically, since the interview schedule was constructed only with fairly minimal input from one other person (the original thesis supervisor), it is possible that it may have been a suboptimal tool. In particular, it is possible that the author's commitment to environmental values contributed to an interview schedule that was insufficiently neutral in its framing of climate change and its line of questioning. Closer collaboration with another researcher may, as recommended by Shenton (2004), have yielded an improved, and potentially less idiosyncratic, schedule, with positive implications for the credibility of the research findings. It might also be thought that the process of developing the interview schedule was not sufficiently described in the methods section, with this limiting the dependability of the research process.

Procedure

Each interview lasted between 44 minutes and just over an hour. The majority of interviews were transcribed by a professional transcriptionist.

Strengths

The interview time range was sufficient for the exploration of relevant issues. The interview schedule was developed and refined in response to the first few interviews – most notably in relation to the decision to confine the study's focus to climate change, as opposed to this and other 'extreme risks'. This decision almost certainly improved the coherence of the project and the richness of the findings. Other, smaller changes to the interview schedule included the addition of a question about participants' prior experiences (if any) of seeking support for distress about climate change, after one participant revealed, in the debrief after the interview, that they had sought such support. For these reasons, and also because of the increasing confidence of the researcher, it is possible that subsequent interviews were (on average) more comprehensive than prior interviews. However, it is not thought that this had any substantial effect on the study's findings, with all interviews offering important data. It is also felt that the process of interview refinement evidences a good level of reflexivity in the research process.

Considerations of time management meant that a professional transcriptionist was used for the majority of the interviews. Although Braun and Clarke (2006) recommend that transcribing interviews enhances familiarity with the dataset, it is thought that the process of reading and re-reading the transcripts compensated for this potential methodological weakness. By the time it came to developing themes, the researcher was sufficiently familiar with the entire dataset to know the story of each interview and, with a reliability approaching certainty, which excerpts belonged to which participant.

Weaknesses

Debriefing sessions with, or greater scrutiny from, other researchers may have strengthened the interviews, as indeed would a greater level of experience on the part of the researcher (Shenton, 2004). These considerations may all have limited the credibility of the research. Perhaps more fundamentally, though, there is an acknowledged risk in qualitative interviews of participants delivering a socially desired set of responses, rather than one faithful to their lived experience (Bergen & Labonté, 2020; Krefting, 1991). Again, this may have been a particular issue in regard to the author's environmental values. It is possible that these values – and the presumptions of participants about these values – may have contributed to a degree of mirroring between participant and researcher, with each subtly and unconsciously adjusting their expressions to match those of the other. Although it is hoped that this effect was minimised by the use of open questions, as well as the fact that no mention was made to participants of the existential analytic framework, it is nevertheless possible that the particular dynamic of the interviews, and the orientation of the interview schedule, may have nudged participants towards unrepresentative modes of thought. This can be thought a potential threat to the overall trustworthiness – and especially the confirmability and credibility – of the study findings.

Analysis

The study utilised a reflexive thematic analysis following the procedure outlined by Braun and Clarke (2006; 2020). Data pertaining to the first research aim was conceptualised through an explicitly theory-driven application of the existential framework. Data pertaining to the second two research aims was conceptualised in a more inductive way (though through a personal lens unavoidably coloured by the existential framework).

Strengths

Perhaps the greatest strength of the analysis and the resultant findings was in the data itself, the richness of participants' expressions. It is hoped that an extensive use of verbatim quotes did justice to the data, and vividly conveyed the depth and strength of participants' feelings. In line with Cope's (2014) recommendations, it is also felt that the grounding of findings in extensive quotes enhanced the confirmability of the study findings.

Weaknesses

One significant methodological weakness of the study was in the potentially idiosyncratic nature of much of the analytic process. The researcher worked independently in the generation of codes, the sorting of codes into candidate themes, and the subsequent naming of these themes. Thesis supervisors did then review the study findings and make suggestions as to the reorganisation of some themes; however these changes were mostly at the level of the themes in relation to each other, rather than of the themes in relation to the dataset. It seems reasonable to consider this a mark against the credibility of the study findings. In the worst case, it is possible that a second researcher, going through the same analytic process, could have arrived at a very different list of themes, or that a thorough external interrogation of the actual themes might have advised substantial changes. A possible implication of either of these scenarios would be that results were largely a product of the inclinations of the researcher, indicating low levels of dependability and confirmability. In particular, it is worth wondering whether the author's prior ideas about climate change – both the nature of the distress it can cause and some possible ways of combatting the problem – might have exerted an undue influence on the analytic process. Moreover, while it is consistent with the project's critical realist epistemology that different findings will arise as a consequence of different researchers' antecedent understandings, it is

also incumbent on the critical realist to be mindful of how conclusions are shaped by researcher subjectivity. It is arguable that, in failing to seek external interrogation of the results, the research was insufficiently mindful of this critical realist imperative.

Several interventions could have increased the study's analytic trustworthiness. As recommended by Krefting (1991), working with a second researcher (or a research team) would have enabled a more collaborative approach to theme development. Co-researchers could have conducted their own analyses independently, with study themes then arising through a process of inter-researcher comparison and consensus. Alternatively, co-researchers could have validated the primary researcher's findings, using the codes and underlying dataset to interrogate the internal homogeneity and external heterogeneity of the themes. Recruiting an independent academic with a specialist interest in the area could have also helped in confirming the face validity of themes. Perhaps most fruitfully, though, the researcher could have validated themes by presenting them to the study participants and incorporating feedback into a subsequent iteration of theme development. It is likely that both the credibility and the confirmability of the findings would have benefitted from this process (Connelly, 2016).

Section summary

This section has considered the methodological strengths and weaknesses of the study. Significant strengths were held to include the capacity of the semi-structured interviews (and interview schedule) to facilitate detailed explorations of the phenomena of interest; the sampling strategy in its successful identification of engaged participants; and perhaps above all the grounding of findings in rich verbatim quotes. Significant weaknesses were held to include the potentially idiosyncratic nature of the analytic process; the lack of

external interrogation and validation of the study findings; and a potential sampling bias towards socially confident environmental activists. More detailed evidence of the reflexive process may also have enhanced the trustworthiness of the study findings. The next, final, section offers a more general retrospective on the project.

Final reflections

Reflecting back on the start of this project feels almost like a confrontation with the philosophical problem of personal identity: I find myself living with the consequences of, and striving to justify, decisions made not by me exactly, but by a clearly recognisable yet also recognisably different past version of me. I have learned so much about the process of qualitative research, through the implementation of this project, that it would be surprising if all of the major decisions appeared as sound to the late-project self as they did to the early-project self. In particular, I find myself wondering about the top-down use of an existential framework to conceptualise participants' expressions of distress about climate change: Did this impose an unhelpful limit on the interviews and their analysis, or did it provide a vital conceptual foothold in the research endeavour of carving nature (diverse and abstract responses to climate change) at its joints? I also wonder about the critical realist epistemological position of the thesis: Do the findings really represent an approximation of an underlying objective reality, or do they veer towards social construction, the co-creation of a context-bound 'truth'? The answer to these questions perhaps remains ultimately undecidable. Their persistence, though, is testament to what Lincoln and Guba (1985) term the emergent nature of qualitative designs: rather than walking a fixed path to a definitive outcome, the experience instead was of picking my way along one of many unfolding potential pathways. I would not walk the exact same path again.

One constancy, however, one factor common to every potential pathway, is the value structure that guided the research. In-keeping with critical realism, it is accepted that research always serves the social agenda and reflects the values of the researcher. In this case, the researcher was motivated (at least consciously) largely by a kind of environmentalist guilt: guilt about climate change; guilt about being part of the problem; guilt about how becoming a clinical psychologist might mean offering nothing by way of solution. This thesis was an attempt at resolving this guilt, at bringing my concerns about climate change into clinical psychology. In this context, it is perhaps unsurprising that a major finding of the research was that psychology services might support people in distress by facilitating nature-based, eco-behavioural activation projects. Rewilding; conservation; tree-planting: this is, from one perspective, probably just the parallel life with which I would like to connect. Certainly, it is conceivable that a pre-existing belief in the virtues of such enterprises contributed to a subtle steering of interviews and analysis in this direction. Similarly, more general convictions about the seriousness of climate change – and about the inadequacy of the response to it – seem likely to have been (partially) reflected back to me by the research process, rather than organically uncovered as part of an entirely disinterested exploration of participants' experiences. At the same time, however, it should probably be noted that, judging by their levels of engagement with the issue, all participants were at least (and in many cases probably more) pro-environmental in their values and worldview than I am.

There is a principle in psychoanalysis that "the subject speaks only of itself" (S. Bailly, personal communication, March 17, 2021) – that a patient's speculative detours into another's internal world are invariably a reflection and revelation of their own. My experience completing this project suggests that this principle applies equally to much research in the social sciences. Though decisions have hopefully been adequately justified along the way, it seems clear that major elements of this project exist as an extension of my

internal world. Interviews were conducted on a topic of ultimate concern, with people who basically share my concern, and analysed in such a way as to rekindle an affair with a long-loved school of philosophy. For all that the findings contain interest (to me), and for all that they do (in my opinion) explain something of the nature of distress about climate change – what hurts and what helps – there is perhaps also a sense in which I was, all along, just talking to myself.

References

Allen, C. D., Macalady, A. K., Chenchouni, H., Bachelet, D., McDowell, N., Vennetier, M., ... & Gonzalez, P. (2010). A global overview of drought and heat-induced tree mortality reveals emerging climate change risks for forests. *Forest ecology and management*, *259*(4), 660-684.

Albrecht, G. (2011). Chronic environmental change: Emerging 'psychoterratic' syndromes. In I. Weissbecker (Ed.), *Climate change and human well-being: Global challenges and opportunities* (pp. 43-56). Springer.

Albrecht, G., Sartore, G. M., Connor, L., Higginbotham, N., Freeman, S., Kelly, B., ... & Pollard, G. (2007). Solastalgia: the distress caused by environmental change. *Australasian psychiatry*, *15*(sup1), S95-S98.

Alroy, J. (2017). Effects of habitat disturbance on tropical forest biodiversity. *Proceedings of the National Academy of Sciences*, *114*(23), 6056-6061.

Alvesson, M., & Sköldberg, K. (2018). *Reflexive methodology: New vistas for qualitative research* (3rd ed.). Sage.

American Psychological Association. (2018). Stress in America – Generation Z. *Stress in America™ Survey.* Retrieved from https://www.apa.org/news/press/releases/stress/2018/stress-gen-z.pdf.

Anderegg, W. R., Hicke, J. A., Fisher, R. A., Allen, C. D., Aukema, J., Bentz, B., ... & Pan, Y. (2015). Tree mortality from drought, insects, and their interactions in a changing climate. *New Phytologist*, *208*(3), 674-683.

Anderson, D. (2008). Drought, endurance and 'the way things were': The lived experience of climate and climate change in the Mallee. *Australian Humanities Review, 45,* 67-81.

Anderson, D. (2009). Enduring drought then coping with climate change: Lived experience and local resolve in rural mental health. *Rural Society*, *19*(4), 340-352.

Antal, M., & Van Den Bergh, J. C. (2016). Green growth and climate change: conceptual and empirical considerations. *Climate Policy*, *16*(2), 165-177.

Arcanjo, M. (2018). Climate migration: A growing global crisis. *A climate institute publication.* Retrieved from http://climate.org/wp-content/uploads/2018/04/Climate-Migration.pdf.

Asugeni, J., MacLaren, D., Massey, P. D., & Speare, R. (2015). Mental health issues from rising sea level in a remote coastal region of the Solomon Islands: current and future. *Australasian Psychiatry*, *23*(6_suppl), 22-25.

Bala, G., Caldeira, K., Wickett, M., Phillips, T. J., Lobell, D. B., Delire, C., & Mirin, A. (2007). Combined climate and carbon-cycle effects of large-scale deforestation. *Proceedings of the National Academy of Sciences*, *104*(16), 6550-6555.

Banholzer, S., Kossin, J., & Donner, S. (2014). The impact of climate change on natural disasters. In A. Singh & Z. Zommers (Eds.), *Reducing disaster: Early warning systems for climate change* (pp. 21-49). Springer.

Basu, R., Gavin, L., Pearson, D., Ebisu, K., & Malig, B. (2018). Examining the association between apparent temperature and mental health-related emergency room visits in California. *American journal of epidemiology, 187*(4), 726-735.

Bateson., G. (1972). *Steps to an ecology of mind.* Chandler Publishing.

Baumann, H., Talmage, S. C., & Gobler, C. J. (2012). Reduced early life growth and survival in a fish in direct response to increased carbon dioxide. *Nature Climate Change*, *2*(1), 38-41.

Becken, S. (2007). Tourists' perception of international air travel's impact on the global climate and potential climate change policies. *Journal of sustainable tourism*, *15*(4), 351-368.

Becker, E. (1973). *The denial of death.* The Free Press.

Bergen, N., & Labonté, R. (2020). "Everything is perfect, and we have no problems": detecting and limiting social desirability bias in qualitative research. *Qualitative health research*, *30*(5), 783-792.

Berger, P. L. & Luckmann, T. (1966). *The social construction of reality: A treatise in the sociology of knowledge.* Doubleday.

Berlemann, M., & Steinhardt, M. F. (2017). Climate change, natural disasters, and migration—a survey of the empirical evidence. *CESifo Economic Studies*, *63*(4), 353-385.

Berry, H. L., & Peel, D. (2015). Worrying about climate change: is it responsible to promote public debate?. *BJPsych international*, *12*(2), 31-32.

Berry, H. L., Bowen, K., & Kjellstrom, T. (2010). Climate change and mental health: a causal pathways framework. *International journal of public health*, *55*(2), 123-132.

Bhaskar, R. (2015). *The possibility of naturalism: A philosophical critique of the contemporary human sciences* (4th ed.). Routledge. (Original work published 1979)

Bhaskar, R. (2008). *A realist theory of science.* Routledge.

Bodnar, S. (2008). Wasted and bombed: Clinical enactments of a changing relationship to the earth. *Psychoanalytic Dialogues, 18*(4), 484-512.

Borges, J. L. (2000). Pierre Menard, Author of the Quixote. In *Fictions* (A. Hurley., Trans.). Penguin Books. (Original work published 1962)

Bova, S., Rosenthal, Y., Liu, Z., Godad, S. P., & Yan, M. (2021). Seasonal origin of the thermal maxima at the Holocene and the last interglacial. *Nature, 589*(7843), 548-553.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

Braun, V., & Clarke, V. (2020). One size fits all? What counts as quality practice in (reflexive) thematic analysis?. *Qualitative research in psychology*, 1-25.

Bretherton, I. (1985). Attachment theory: Retrospect and prospect. *Monographs of the society for research in child development*, 3-35.

Brewin, C. R., & Holmes, E. A. (2003). Psychological theories of posttraumatic stress disorder. *Clinical psychology review*, *23*(3), 339-376.

Brown, C. (2004). Emerging zoonoses and pathogens of public health significance--an overview. *Revue scientifique et technique-office international des epizooties*, *23*(2), 435-442.

Brown, M., & Jones, R. E. (2021). *Paint your town red: How Preston took back control and your town can too.* Repeater Books.

Buchanan, M. (2015, March 20). Mental health service budgets 'cut by 8%'. *BBC News*. Retrieved from: https://www.bbc.co.uk/news/health-31970871.

Burr, V. (2015). *Social constructionism* (3rd ed.). Routledge.

Camus, A. (1942). *Le mythe de Sisyphe.* Librairie Gallimard.

Carty, T. (2017, April 27). A Climate in crisis: How climate change is making drought and humanitarian disaster worse in East Africa. *Oxfam.* Retrieved from: https://oxfamilibrary.openrepository.com/bitstream/handle/10546/620263/mb-climate-crisis-east-africa-drought-270417-en.pdf;jsessionid=9A7D812DE5B3E087EBD4FECEE197B6ED?sequence=10.

Ceballos, G., Ehrlich, P. R., Barnosky, A. D., García, A., Pringle, R. M., & Palmer, T. M. (2015). Accelerated modern human–induced species losses: Entering the sixth mass extinction. *Science advances*, *1*(5), e1400253.

Ceballos, G., Ehrlich, P. R., & Dirzo, R. (2017). Biological annihilation via the ongoing sixth mass extinction signaled by vertebrate population losses and declines. *Proceedings of the national academy of sciences*, *114*(30), E6089-E6096.

Charmaz, K. (1996). The search for meanings: Grounded theory. In J. A. Smith, R. Harre, & L. Van Langenhove (Eds.), *Rethinking methods psychology*. (pp. 27-49). Sage.

Clayton, S. (2020). Climate anxiety: Psychological responses to climate change. *Journal of Anxiety Disorders*, *74*, 102263.

Clayton, S., & Karazsia, B. T. (2020). Development and validation of a measure of climate change anxiety. *Journal of Environmental Psychology*, *69*, 101434.

Comte, A. (1998). Plan of the scientific operations necessary for reorganising society. In G. Lenzer (Ed.), *The essential writings: Auguste Comte and positivism.* Transaction Publishers. (Original work published 1822)

Connelly, L. M. (2016). Trustworthiness in qualitative research. *Medsurg Nursing*, *25*(6), 435.

Connelly, L. M., & Peltzer, J. N. (2016). Underdeveloped themes in qualitative research: Relationship with interviews and analysis. *Clinical nurse specialist*, *30*(1), 52-57.

Cope, D. G. (2014). Methods and meanings: Credibility and trustworthiness of qualitative research. In *Oncology nursing forum*, *41* (1), 89-91.

Costello, A., Abbas, M., Allen, A., Ball, S., Bell, S., Bellamy, R., ... & Patterson, C. (2009). Managing the health effects of climate change: Lancet and University College London Institute for Global Health Commission. *The lancet*, *373*(9676), 1693-1733.

Critical Appraisal Skills Programme (2018). *CASP Qualitative Checklist.* Retrieved from: https://casp-uk.net/wp-content/uploads/2018/03/CASP-Qualitative-Checklist-2018_fillable_form.pdf.

Cronen, V. E., Chen, V., & Pearce, W. B. (1988). Coordinated management of meaning. *Theories of intercultural communication*, 66-98.

Crowell, S. (2017). Existentialism. In E, N, Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Summer 2020 ed.). Retrieved from: https://plato.stanford.edu/entries/existentialism/.

Curtin, M., & Fossey, E. (2007). Appraising the trustworthiness of qualitative studies: Guidelines for occupational therapists. *Australian occupational therapy journal*, *54*(2), 88-94.

Dallos, R., & Draper, R. (2010). *An introduction to family therapy: Systemic theory and practice* (3rd ed.). Open University Press.

Dilshad, R. M., & Latif, M. I. (2013). Focus Group Interview as a Tool for Qualitative Research: An Analysis. *Pakistan Journal of Social Sciences (PJSS), 33*(1).

Dose of Nature. (n.d.). https://www.doseofnature.org.uk/.

Drury, J., Cocking, C., Beale, J., Hanson, C., & Rapley, F. (2005). The phenomenology of empowerment in collective action. *British Journal of Social Psychology*, *44*(3), 309-328.

Dudley, R., & Kuyken, W. (2014). Case formulation in cognitive-behavioural therapy: A principle-driven approach. In L. Johnstone, & R. Dallos (Eds.), *Formulation in psychology and psychotherapy: Making sense of people's problems* (2nd ed.) (pp. 18-45). Routledge.

Durkalec, A., Furgal, C., Skinner, M. W., & Sheldon, T. (2015). Climate change influences on environment as a determinant of Indigenous health: Relationships to place, sea ice, and health in an Inuit community. *Social science & medicine*, *136*, 17-26.

Eatough, V., & Smith, J. A. (2017). Interpretative phenomenological analysis. In C. Willig & W. S. Rogers (Eds.), *The Sage handbook of qualitative research in psychology* (2nd ed.) (pp. 193-211). Sage.

Ellis, N. R., & Albrecht, G. A. (2017). Climate change threats to family farmers' sense of place and mental wellbeing: A case study from the Western Australian Wheatbelt. *Social Science & Medicine*, *175*, 161-168.

Fat, L. N., Scholes, S., Boniface, S., Mindell, J., & Stewart-Brown, S. (2017). Evaluating and establishing national norms for mental wellbeing using the short Warwick–Edinburgh Mental Well-being Scale (SWEMWBS): findings from the Health Survey for England. *Quality of Life Research*, *26*(5), 1129-1144.

Fawbert, D. (2019, March 27). 'Eco-anxiety": how to spot it and what to do about it. *BBC.* Retrieved from: https://www.bbc.co.uk/bbcthree/article/b2e7ee32-ad28-4ec4-89aa-a8b8c98f95a5.

Flannigan, M. D., Amiro, B. D., Logan, K. A., Stocks, B. J., & Wotton, B. M. (2006). Forest fires and climate change in the 21 st century. *Mitigation and adaptation strategies for global change*, *11*(4), 847-859.

Fletcher, A. J. (2017). Applying critical realism in qualitative research: methodology meets method. *International journal of social research methodology*, *20*(2), 181-194.

Frankl, V. E. (2004). *Man's search for meaning.* Rider. (Original work published 1959)

Frankl, V. E. (1973). *Psychotherapy and existentialism: Selected papers on logotherapy.* Pelican Books. (Original work published 1967)

Frankl, V. E. (2010). The philosophical foundations of logotherapy. In A. Batthyany (Ed.), *The feeling of meaninglessness: A challenge to psychotherapy and philosophy* (pp. 107-120). Marquette University Press. (Original work published 1964)

Gerber, L. A. (1990). Integrating political-societal concerns in psychotherapy. *American journal of Psychotherapy*, *44*(4), 471-483.

Giam, X. (2017). Global biodiversity loss from tropical deforestation. *Proceedings of the National Academy of Sciences*, *114*(23), 5775-5777.

Gibson, L., Lee, T. M., Koh, L. P., Brook, B. W., Gardner, T. A., Barlow, J., ... & Sodhi, N. S. (2011). Primary forests are irreplaceable for sustaining tropical biodiversity. *Nature*, *478*(7369), 378-381.

Gleick, P. H. (2014). Water, drought, climate change, and conflict in Syria. *Weather, Climate, and Society*, *6*(3), 331-340.

Goldblatt, C., & Watson, A. J. (2012). The runaway greenhouse: implications for future climate change, geoengineering and planetary atmospheres. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, *370*(1974), 4197-4216.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105-117). Sage.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field methods*, *18*(1), 59-82.

Hardy, T. (1988). *Tess of the D'Urbervilles.* The Folio Society Limited. (Original work published in 1891)

Harvey, F. (2019, September 12). World losing area of forest the size of the UK each year, report finds. *The Guardian.* Retrieved from: https://www.theguardian.com/environment/2019/sep/12/deforestation-world-losing-area-forest-size-of-uk-each-year-report-finds.

Hagan, T., & Smail, D. (1997). Power-mapping—I. Background and basic methodology. *Journal of Community & Applied Social Psychology*, *7*(4), 257-267.

Hallegatte, S., Ranger, N., Mestre, O., Dumas, P., Corfee-Morlot, J., Herweijer, C., & Wood, R. M. (2011). Assessing climate change impacts, sea level rise and storm surge risk in port cities: a case study on Copenhagen. *Climatic change*, *104*(1), 113-137.

Harris, R. (2009). *ACT made simple: A quick-start guide to ACT basics and beyond.* Oakland.

Hayes, K., Blashki, G., Wiseman, J., Burke, S., & Reifels, L. (2018). Climate change and mental health: Risks, impacts and priority actions. *International journal of mental health systems*, *12*(1), 1-12.

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-based nursing*, *18*(3), 66-67.

Heidegger, M. (1962). *Being and time.* (J. Macquarrie & E. Robinson., Trans.). Basil Blackwell. (Original work published 1927)

Hollingsworth, J. (2020, October 21). More than 100 dead as Vietnam reels from 'worst floods in decades'. *CNN*. Retrieved from: https://edition.cnn.com/2020/10/21/asia/vietnam-floods-weather-intl-hnk/index.html.

Holtz-Eakin, D., & Selden, T. M. (1995). Stoking the fires? CO2 emissions and economic growth. *Journal of public economics*, *57*(1), 85-101.

Ingram, W. (2010). A very simple model for the water vapour feedback on climate change. *Quarterly Journal of the Royal Meteorological Society: A journal of the atmospheric sciences, applied meteorology and physical oceanography*, *136*(646), 30-40.

Intergovernmental Panel on Climate Change. (2018). *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. Retrieved from: https://www.ipcc.ch/sr15/.

Ioannidis, J. P. (2005). Why most published research findings are false. *PLoS medicine*, *2*(8), e124.

Jackson, J. B., Kirby, M. X., Berger, W. H., Bjorndal, K. A., Botsford, L. W., Bourque, B. J., ... & Warner, R. R. (2001). Historical overfishing and the recent collapse of coastal ecosystems. *science*, *293*(5530), 629-637.

James, W. (1890). *The principles of psychology* (Vol. 2). Henry Holt and Company. Retrieved from https://archive.org/details/principlespsych12jamegoog/page/n2/mode/2up?ref=ol&view=theater.

John, T. (2020, January 2). Jakarta floods leave dozens dead and 60,000 displaced. *CNN*. Retrieved from: https://edition.cnn.com/2020/01/02/asia/jakarta-floods-intl/index.html.

Johnson, R., & Cureton, A. (2004). Kant's moral philosophy. In E, N, Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Spring 2021 ed.). Retrieved from: https://plato.stanford.edu/entries/kant-moral/.

Johnstone, L., & Dallos, R. (Eds.). (2014). *Formulation in psychology and psychotherapy: Making sense of people's problems* (2nd ed.). Routledge.

Kabir, S. M. S. (2018). Psychological health challenges of the hill-tracts region for climate change in Bangladesh. *Asian journal of psychiatry*, *34*, 74-77.

Kellert, S. R., & Wilson, E. O. (Eds.). (1993). *The biophilia hypothesis*. Island Press.

Kidd, P. S., & Parshall, M. B. (2000). Getting the focus and the group: enhancing analytical rigor in focus group research. *Qualitative health research*, *10*(3), 293-308.

Kime, D. E. (1995). The effects of pollution on reproduction in fish. *Reviews in Fish Biology and Fisheries*, *5*(1), 52-95.

Klar, M., & Kasser, T. (2009). Some benefits of being an activist: Measuring activism and its role in psychological well-being. *Political Psychology*, *30*(5), 755-777.

Koole, S. L., Greenberg, J., & Pyszczynski, T. (2006). Introducing science to the psychology of the soul: Experimental existential psychology. *Current Directions in Psychological Science*, *15*(5), 212-216.

Kopp, R. E., Horton, R. M., Little, C. M., Mitrovica, J. X., Oppenheimer, M., Rasmussen, D. J., ... & Tebaldi, C. (2014). Probabilistic 21st and 22nd century sea-level projections at a global network of tide-gauge sites. *Earth's future*, *2*(8), 383-406.

Korpela, K. M., Stengård, E., & Jussila, P. (2016). Nature walks as a part of therapeutic intervention for depression. *Ecopsychology*, *8*(1), 8-15.

Kottasová, I. (2021, January 19). The world marks 2 million coronavirus deaths. The real toll is likely much higher. *CNN*. Retrieved from https://edition.cnn.com/2021/01/15/world/two-million-coronavirus-deaths-intl/index.html.

Krefting, L. (1991). Rigor in qualitative research: The assessment of trustworthiness. *American journal of occupational therapy*, *45*(3), 214-222.

Kroenke, K., Spitzer, R. L., Williams, J. B., & Löwe, B. (2009). An ultra-brief screening scale for anxiety and depression: the PHQ–4. *Psychosomatics*, *50*(6), 613-621.

Lambert, C., Jomeen, J., & McSherry, W. (2010). Reflexivity: A review of the literature in the context of midwifery research. *British Journal of Midwifery*, *18*(5), 321-326.

Lawlor, L. (2019). Jacques Derrida. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Fall 2019 ed.). Retrieved from: https://plato.stanford.edu/entries/derrida/.

Levine, M., Perkins, D. M., & Perkins, D. V. (2005). *Principles of community psychology: Perspectives and applications* (3rd ed.). Oxford University Press.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry.* Sage.

Le Houérou, H. N. (1996). Climate change, drought and desertification. *Journal of arid Environments*, *34*(2), 133-185.

MacDonald, J. P., Harper, S. L., Willox, A. C., Edge, V. L., & Government, R. I. C. (2013). A necessary voice: Climate change and lived experiences of youth in Rigolet, Nunatsiavut, Canada. *Global Environmental Change*, *23*(1), 360-371.

MacDonald, J. P., Willox, A. C., Ford, J. D., Shiwak, I., Wood, M., Government, R. I. C., & IMHACC Team. (2015). Protective factors for mental health and well-being in a changing climate: Perspectives from Inuit youth in Nunatsiavut, Labrador. *Social Science & Medicine*, *141*, 133-141.

Mancosu, N., Snyder, R. L., Kyriakakis, G., & Spano, D. (2015). Water scarcity and future challenges for food production. *Water*, *7*(3), 975-992.

Matthews-King, A. (2018, February 6). NHS patients with severe mental illness waiting up to two years for treatment, report finds. *Independent.* Retrieved from: https://www.independent.co.uk/news/health/nhs-patients-mental-illness-waiting-times-treatment-report-health-bma-talking-therapies-iapt-a8195611.html.

May, R. (1994). *The discovery of being.* Norton. (Original work published 1983)

McGrath, M. (2020, September 25). Global warming driving California wildfire trends – study. *BBC News.* Retrieved from: https://www.bbc.co.uk/news/science-environment-54278988.

McNamara, K. E., & Westoby, R. (2011). Solastalgia and the gendered nature of climate change: An example from Erub Island, Torres Strait. *EcoHealth*, *8*(2), 233-236.

Met Office (n.d.). *What is climate change?* Retrieved from: https://www.metoffice.gov.uk/climate-guide/climate-change.

Milman, O. (2018, October 4). Scientists say halting deforestation 'just as urgent' as reducing emissions. *The Guardian.* Retrieved from: https://www.theguardian.com/environment/2018/oct/04/climate-change-deforestation-global-warming-report.

Murphy, F. A. (1998). Emerging zoonoses. *Emerging Infectious Diseases*, *4*(3), 429.

Mushavi, R. C., Burns, B. F., Kakuhikire, B., Owembabazi, M., Vořechovská, D., McDonough, A. Q., ... & Tsai, A. C. (2020). "When you have no water, it means you have no peace": A mixed-methods, whole-population study of water insecurity and depression in rural Uganda. *Social Science & Medicine*, *245*, 112561.

Myers, N. (2002). Environmental refugees: a growing phenomenon of the 21st century. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, *357*(1420), 609-613.

Nerem, R. S., Beckley, B. D., Fasullo, J. T., Hamlington, B. D., Masters, D., & Mitchum, G. T. (2018). Climate-change–driven accelerated sea-level rise detected in the altimeter era. *Proceedings of the National Academy of Sciences*, *115*(9), 2022-2025.

Nasser, M. (1995). The rise and fall of anti-psychiatry. *Psychiatric Bulletin*, *19*(12), 743-746.

Nelson-Jones, R. (2000). *Six key approaches to counselling and therapy.* Continuum.

Neria, Y., Nandi, A., & Galea, S. (2008). Post-traumatic stress disorder following disasters: a systematic review. *Psychological medicine*, *38*(4), 467-480.

Newman, B. M., & Newman, P. R. (2001). Group identity and alienation: Giving the we its due. *Journal of youth and adolescence*, *30*(5), 515-538.

Noblit, G. W., & Hare, R. D. (1988). *Meta-ethnography: Synthesising qualitative studies.* Sage.

North, C. S., & Pfefferbaum, B. (2013). Mental health response to community disasters: a systematic review. *Jama*, *310*(5), 507-518.

Ojala, M. (2012). Regulating Worry, Promoting Hope: How Do Children, Adolescents, and Young Adults Cope with Climate Change?. *International Journal of Environmental and Science Education*, *7*(4), 537-561.

Oreskes, N. (2004). The scientific consensus on climate change. *Science*, *306*(5702), 1686-1686.

Panu, P. (2020). Anxiety and the ecological crisis: An analysis of eco-anxiety and climate anxiety. *Sustainability*, *12*(19), 7836.

Park, Y. S., Konge, L., & Artino, A. R. (2020). The positivism paradigm of research. *Academic Medicine*, *95*(5), 690-694.

Peake, S., & Smith, J. (2009). *Climate change: From science to sustainability*. Oxford University Press.

Phillips, D., Curtice, J., Phillips, M. and Perry, J. (Eds.) (2018). Climate change: Social divisions in beliefs and behaviour. *The National Centre for Social Research.* Retrieved from: https://www.bsa.natcen.ac.uk/media/39251/bsa35_climate_change.pdf.

Pihkala, P. (2018). Eco-anxiety, tragedy, and hope: Psychological and spiritual dimensions of climate change. *Zygon 53*(2), 545–569.

Polain, J. D., Berry, H. L., & Hoskin, J. O. (2011). Rapid change, climate adversity and the next 'big dry': Older farmers' mental health. *Australian Journal of Rural Health*, *19*(5), 239-243.

Poulsen, D. V. (2017). Nature-based therapy as a treatment for veterans with PTSD: What do we know?. *Journal of Public Mental Health*, *16*(1), 15-20.

Popper, K. (2002). *The logic of scientific discovery.* Routledge. (Original work published 1959)

Primeau, L. A. (2003). Reflections on self in qualitative research: Stories of family. *American Journal of Occupational Therapy*, *57*(1), 9-16.

Rayner, M., & Vitali, D. (2016). Short-term existential psychotherapy in primary care: A quantitative report. *Journal of Humanistic Psychology*, *56*(4), 357-372.

Reuveny, R. (2007). Climate change-induced migration and violent conflict. *Political geography*, *26*(6), 656-673.

Richardson, A. J., & Schoeman, D. S. (2019). Sea animals vulnerable to warming. *Nature: International Weekly Journal of Science*, *569*(7754), 50-51.

Rigby, C. W., Rosen, A., Berry, H. L., & Hart, C. R. (2011). If the land's sick, we're sick: The impact of prolonged drought on the social and emotional well-being of Aboriginal communities in rural New South Wales. *Australian Journal of Rural Health*, *19*(5), 249-254.

Ro, C. (2019, October 10). The harm from worrying about climate change. *BBC.* Retrieved from: https://www.bbc.com/future/article/20191010-how-to-beat-anxiety-about-climate-change-and-eco-awareness.

Robson Jr, J. P., & Troutman-Jordan, M. (2014). A concept analysis of cognitive reframing. *Journal of Theory Construction & Testing*, *18*(2).

Rouf, K., & Wainwright, T. (2020). Linking health justice, social justice, and climate justice. *The Lancet Planetary Health*, *4*(4), e131-e132.

Sartore, G. M., Kelly, B., Stain, H., Albrecht, G., & Higginbotham, N. (2008). Control, uncertainty, and expectations for the future: a qualitative study of the impact of drought on a rural Australian community. *Rural and Remote Health*, *8*(950).

Sartre, J-P. (2000). *Nausea.* (R. Baldick, Trans.). Penguin Classics. (Original work published 1938)

Schneider, S. H. (1989). The greenhouse effect: science and policy. *Science*, *243*(4892), 771-781.

Shaw, R. (2010). Embedding reflexivity within experiential qualitative psychology. *Qualitative research in psychology*, *7*(3), 233-243.

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for information*, *22*(2), 63-75.

Slater, T., Lawrence, I. R., Otosaka, I. N., Shepherd, A., Gourmelen, N., Jakob, L., ... & Nienow, P. (2021). Earth's ice imbalance. *The Cryosphere*, *15*(1), 233-246.

Slawson, N. (2020, September 5). Sudan declares state of emergency as record flooding kills 99 people. *The Guardian.* Retrieved from: https://www.theguardian.com/world/2020/sep/05/sudan-declares-state-of-emergency-record-flooding.

Solomon, S., Greenberg, J., & Pyszczynski, T. (1991). Terror management theory of self-esteem. *Handbook of social and clinical psychology: The health perspective*, *162*, 21-40.

Song, C., Ikei, H., & Miyazaki, Y. (2016). Physiological effects of nature therapy: A review of the research in Japan. *International journal of environmental research and public health*, *13*(8), 781.

Soreide, N. N., Jeffries, M., Richter-Menge, J. A., & Overland, J. E. (2016). The Arctic Report Card. *Bulletin of the American Meteorological Society*, *97*(8), 1339-1341.

Spinelli, E. (1997). *Tales of unknowing: Therapeutic encounters from an existential perspective.* PCCS Books.

Spinelli, E. (2015). *Practising existential therapy: The relational world* (2nd ed.). Sage Publications.

Stanke, C., Kerac, M., Prudhomme, C., Medlock, J., & Murray, V. (2013). Health effects of drought: a systematic review of the evidence. *PLoS Currents*, *5*(1).

Steentjes, K., Pidgeon, N. F., Poortinga, W., Corner, A. J., Arnold, A., Böhm, G., ... & Tvinnereim, E. (2017). *European Perceptions of Climate Change (EPCC): Topline*

findings of a survey conducted in four European countries in 2016. Cardiff University. Retrieved from http://orca.cf.ac.uk/98660/7/EPCC.pdf.

Stephenson, L., & Hale, B. (2020). An exploration into effectiveness of existential–phenomenological therapy as a UK NHS Psychological Treatment Intervention. *Journal of Humanistic Psychology*, *60*(3), 436-453.

Stevanović, M., Popp, A., Lotze-Campen, H., Dietrich, J. P., Müller, C., Bonsch, M., ... & Weindl, I. (2016). The impact of high-end climate change on agricultural welfare. *Science advances*, *2*(8), e1501452.

Storlazzi, C. D., Gingerich, S. B., van Dongeren, A., Cheriton, O. M., Swarzenski, P. W., Quataert, E., ... & McCall, R. (2018). Most atolls will be uninhabitable by the mid-21st century because of sea-level rise exacerbating wave-driven flooding. *Science Advances*, *4*(4), eaap9741.

Tallman, P. S. (2019). Water insecurity and mental health in the Amazon: Economic and ecological drivers of distress. *Economic Anthropology*, *6*(2), 304-316.

Taylor, M. & Murray, J. (2020, February 10). 'Overwhelming and terrifying': The rise of climate anxiety. *The Guardian.* Retrieved from: https://www.theguardian.com/environment/2020/feb/10/overwhelming-and-terrifying-impact-of-climate-crisis-on-mental-health.

Thackeray, C. W., & Fletcher, C. G. (2016). Snow albedo feedback: Current knowledge, importance, outstanding issues and future directions. *Progress in Physical Geography*, *40*(3), 392-408.

Trenberth, K. E. (2011). Changes in precipitation with climate change. *Climate Research*, *47*(1-2), 123-138.

Trenberth, K. E., Dai, A., Van Der Schrier, G., Jones, P. D., Barichivich, J., Briffa, K. R., & Sheffield, J. (2014). Global warming and changes in drought. *Nature Climate Change*, *4*(1), 17-22.

Tschakert, P., Tutu, R., & Alcaro, A. (2013). Embodied experiences of environmental and climatic changes in landscapes of everyday life in Ghana. *Emotion, Space and Society*, *7*, 13-25.

United Nations. (n.d). The United Nations Decade for Deserts (2010-2020) and the fight against Desertification. *United Nations – Convention to Combat Desertification.* Retrieved from: https://www.unccd.int/actions/united-nations-decade-deserts-2010-2020-and-fight-against-desertification.

van Bruggen, V., ten Klooster, P., Westerhof, G., Vos, J., de Kleine, E., Bohlmeijer, E., & Glas, G. (2017). The Existential Concerns Questionnaire (ECQ)–Development and Initial Validation of a New Existential Anxiety Scale in a Nonclinical and Clinical Sample. *Journal of clinical psychology*, *73*(12), 1692-1703.

Van den Hove, S., Le Menestrel, M., & De Bettignies, H. C. (2002). The oil industry and climate change: strategies and ethical dilemmas. *Climate Policy*, *2*(1), 3-18.

van Kessel, C. (2020). Teaching the climate crisis: Existential considerations. *Journal of Curriculum Studies Research*, *2*(1), 129-145.

Verlie, B. (2019). Bearing worlds: learning to live-with climate change. *Environmental Education Research*, *25*(5), 751-766.

Verplanken, B., & Roy, D. (2013). "My worries are rational, climate change is not": habitual ecological worrying is an adaptive response. *PloS one*, *8*(9), e74708.

Vos, J., Craig, M., & Cooper, M. (2015). Existential therapies: A meta-analysis of their effects on psychological outcomes. *Journal of consulting and clinical psychology*, *83*(1), 115.

Watts, J., & Campbell, D. (2020, November 20). Half of child psychiatrists surveyed say patients have environment anxiety. *The Guardian.* Retrieved from: https://www.theguardian.com/society/2020/nov/20/half-of-child-psychiatrists-surveyed-say-patients-have-environment-anxiety.

Weaver, L. J., & Hadley, C. (2009). Moving beyond hunger and nutrition: a systematic review of the evidence linking food insecurity and mental health in developing countries. *Ecology of food and nutrition*, *48*(4), 263-284.

White, M. P., Alcock, I., Grellier, J., Wheeler, B. W., Hartig, T., Warber, S. L., ... & Fleming, L. E. (2019). Spending at least 120 minutes a week in nature is associated with good health and wellbeing. *Scientific reports*, *9*(1), 1-11.

Wilkinson, M. (2013). Testing the null hypothesis: The forgotten legacy of Karl Popper?. *Journal of sports sciences*, *31*(9), 919-920.

Williams, A. P., Abatzoglou, J. T., Gershunov, A., Guzman-Morales, J., Bishop, D. A., Balch, J. K., & Lettenmaier, D. P. (2019). Observed impacts of anthropogenic climate change on wildfire in California. *Earth's Future*, *7*(8), 892-910.

Willox, A. C., Harper, S. L., Ford, J. D., Landman, K., Houle, K., & Edge, V. L. (2012). "From this place and of this place:" Climate change, sense of place, and health in Nunatsiavut, Canada. *Social science & medicine*, *75*(3), 538-547.

Willox, A. C., Harper, S. L., Ford, J. D., Edge, V. L., Landman, K., Houle, K., ... & Wolfrey, C. (2013). Climate change and mental health: an exploratory case study from Rigolet, Nunatsiavut, Canada. *Climatic Change, 121*(2), 255-270.

Willox, A. C., Harper, S. L., Edge, V. L., Landman, K., Houle, K., & Ford, J. D. (2013b). The land enriches the soul: On climatic and environmental change, affect, and emotional health and well-being in Rigolet, Nunatsiavut, Canada. *Emotion, Space and Society*, *6*, 14-24.

Woodland Trust. (n.d.). https://www.woodlandtrust.org.uk/.

World Health Organisation. (2018, May 2). 9 out of 10 people worldwide breathe polluted air, but more countries are taking action. *World Health Organisation.* Retrieved from https://www.who.int/news/item/02-05-2018-9-out-of-10-people-worldwide-breathe-polluted-air-but-more-countries-are-taking-action.

WWF. (2020). *Living Planet Report 2020 – Bending the curve of biodiversity loss.* Retrieved from: https://www.wwf.org.uk/sites/default/files/2020-09/LPR20_Full_report.pdf.

Yalom, I. D. (1980). *Existential psychotherapy*. Basic Books.

Yalom, I. D. (2008). *Staring at the sun: Overcoming the dread of death*. Piatkus Books.

YouGov (2019). *Top issues tracker (GB)*. Retrieved from: https://d25d2506sfb94s.cloudfront.net/cumulus_uploads/document/qj23oopdop/YG%20Trackers%20-%20Top%20Issues_W.pdf.

Zainulbhai, H. (2015, December 2). Women, more than men, say climate change will harm them personally. *Pew Research Centre*. Retrieved from:

https://www.pewresearch.org/fact-tank/2015/12/02/women-more-than-men-say-climate-change-will-harm-them-personally/.

Zickgraf, C. (2019). Climate change and migration crisis in Africa. In C. Menjivar, M. Ruiz, & I. Ness (Eds.), *The Oxford Handbook of Migration Crises* (pp. 347-366). Oxford University Press.

Zuckerman, M. (1999). Diathesis-stress models. In M. Zuckerman, *Vulnerability to psychopathology: A biosocial model* (pp. 3-23). American Psychological Association.

Appendices

Appendix 1. Recruitment poster: 'extreme risks'

University of Essex

Exploring psychological responses to "extreme risks": Implications for individual wellbeing and mental health services

The modern world is a place of great possibility but also, it might be thought, still greater risk. At the time of writing, we are living:

In the immediate context of a **pandemic**,
Through an accelerating **climate crisis**,
And in casual flirtation with a new **Cold War**

If you are worried or spend a lot of your time thinking about any or all of these issues, then we are interested in talking to you.

Discussions will form part of a doctoral research project into psychological responses to "extreme risks" – defined here as global and human-made threats to security, prosperity and life.

It is hoped that the results of the research project will offer insight into the effects on individual wellbeing of living in awareness of extreme risks, while also leading towards recommendations for how counselling or psychology services might better respond to a person expressing concerns of this or a similar nature.

You will receive £10 for your involvement in the project. Interviews will last around an hour and take place by Zoom, Skype or Microsoft Teams (video aspect optional!).

"We live in the flicker… But darkness was here yesterday."

Joseph Conrad, Heart of Darkness

Appendix 2. Recruitment poster: climate change

University of Essex

Exploring psychological responses to climate change: Implications for individual wellbeing and mental health services

Climate change can no longer be thought of as a prospect for the future; it is happening today, visibly and across the world. We live as witness and in awareness of it.

If you are worried or spend a lot of your time thinking about the climate crisis, then we are interested in talking to you.

Discussions will form part of a doctoral research project into psychological responses to climate change – defined here to include more frequent extreme weather events, rising sea levels and the spread of uninhabitable land, a loss of biodiversity and the natural world; and the consequences of all this on relations between people.

It is hoped that the results of the research project will offer insight into the effects on individual wellbeing of living in awareness of climate change, while also leading towards recommendations for how counselling or psychology services might better respond to a person expressing concerns of this nature.

You will receive £10 for your involvement in the project. Interviews will last around an hour and take place by Zoom, Skype or Microsoft Teams (video aspect optional!).

"We live in the flicker… But darkness was here yesterday."

Joseph Conrad, Heart of Darkness

Appendix 3. Participant information sheet

University of Essex

Participant information sheet:

Exploring psychological responses to climate change: Implications for individual wellbeing and mental health services

My name is Joe Rehling and I am a trainee clinical psychologist in the Department of Health and Social Care at the University of Essex. I am looking for people to take part in a study, which will be used for my doctoral thesis. Please take time to read the following information carefully, before deciding whether or not you would like to participate.

The project

The project is interested in how people think about and respond to climate change. Climate change is conceptualised here to include more frequent extreme weather events, rising sea levels and the spread of uninhabitable land, a loss of biodiversity and the natural world; and the consequences of all this on socio-political relations between people.

We are interested in talking to people with worries about climate change, but who have not suffered significant personal losses or trauma as a direct result of it (for instance, a life-threatening experience or the death of a close relative). We would like to discuss the extent and nature of people's worries, as well as people's sources of hope and what helps them to manage their concerns. It is hoped that findings from this research will help inform psychological services in the support of people with worries about climate change.

Discussions will take place over Zoom, Skype or Microsoft Teams (by video call) and last for approximately an hour. You will receive £10 for your time.

Risks

It is possible that, for some people, discussions may be experienced as mildly distressing. In this event, signposting will be available to relevant support services (such as Improving Access to Psychological Therapies, an NHS counselling and therapy service for low mood or anxiety). However, I would hope that, for most people, discussions will be more interesting than distressing, an opportunity to explore thoughts and feelings about some of the world's most pressing issues.

University of Essex

Consent and data security

It is possible that a secure transcription service will be used in the transcription of your interview. The file containing your interview will be assigned a pseudonym on completion. Your data will be kept confidential and stored securely on a password-protected computer for the duration of the project, which is scheduled to conclude in April 2021. At this point, your data will be deleted. Any duplicate copies created in the transcription process will be deleted.

If you do decide to take part in this study you will be asked to provide written consent, which is the legal basis for the processing of data used in the research. The Data Controller will be the University of Essex. The contact for any queries will be Sara Stock, University Information Assurance Manager (dpo@essex.ac.uk).

You will be able to withdraw from the study at any time, without giving a reason, by contacting the lead researcher (Joe Rehling).

Ethical approval for the project has been granted by the University of Essex Ethics Committee.

If you have any concerns about any aspect of the study or you have a complaint, in the first instance please contact the lead researcher of the project, Joe Rehling, using the contact details below. If you are still concerned, you think your complaint has not been addressed to your satisfaction or you feel that you cannot approach the lead researcher, please contact the

[redacted]

include the ERAMS reference which can be found at the foot of this page.

Taking part

If you are interested in participating in the research or feel that you would like further information, please contact the lead researcher, Joe Rehling, Trainee Clinical Psychologist,

[redacted]

Appendix 4. Participant consent form

University of Essex

University of Essex, School of Health and Social Care

Participant consent form

Project title

Exploring psychological responses to climate change: Implications for individual wellbeing and mental health services

Research team

Lead Researcher: Joe Rehling, Doctorate in Clinical Psychology, School of Health and Social Care, University of Essex (jr18520@essex.ac.uk)

Please initial box

1. I confirm that I have read and understand the Information Sheet dated 28/09/2020 for the above study. I have had an opportunity to consider the information, ask questions and have had any questions answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw from the project at any time without giving any reason and without penalty. I understand that any data collected up to the point of my withdrawal will be destroyed. ☐
3. I understand that I may find some of the content of the interviews distressing or worrying. ☐
4. I confirm that I have not suffered significant personal loss or trauma as a result of past or current exposure to climate change, as per discussions with Joe Rehling, Lead Researcher. ☐

University of Essex

5. I understand that the identifiable data provided will be securely stored and accessible only to the members of the research team directly involved in the project, and that confidentiality will be maintained. ☐

6. I understand that my fully anonymised data will be used for Joe Rehling's doctoral thesis, and may subsequently be used as part of a research publication. ☐

7. I understand that data arising from my participation will be stored securely and anonymised throughout the research, and deleted at the conclusion of the project. ☐

8. I understand that a secure transcription service may be used to transcribe my anonymised interview. ☐

9. I have given this consent voluntarily and without coercion. ☐

Participant Name	Date	Participant Signature
_____	_____	_____

Researcher Name	Date	Researcher Signature
_____	_____	_____

Appendix 5. Semi-structured interview schedule

Semi-structured interview schedule

Before recording – where connecting from? How find me?

Do you have any questions before we start recording?

INTRO

As you saw in the PIS, the research project is concerned with climate change – or the climate crisis - and your emotional responses to it. When we talk about climate change, I think this can be taken to include not just more and worse extreme weather events, rising sea levels and the spread of uninhabitable land, but also a loss of biodiversity (global mass extinction) threatening the collapse of ecosystems and the natural world... And the impact of all of this on human society.

Interested today in your emotional responses to climate change – what hurts and also what helps you to get by. Begin by asking…

WHAT HURTS

- Can you tell me about the history of your concern for this issue; when it started and how it developed?
- What is it that is particularly distressing to witness or think about?
- Can you tell me about what sort of images or future scenarios come to mind?
- **Which bit is most important to you? What image comes to mind?**
- How might it affect you personally?
- **How does it affect the way you live in the present – emotionally, or in terms of action – living with this notion of the future / impending catastrophe?**
- **At its worst, what sort of feelings / how does it make you feel?**

- **At its worst, how does it affect you in daily life – work; with friends etc? What thoughts / feelings?**
- How do you generally respond to news items about climate change? What do you do next, in the moments just after seeing the item?
- How might other people or life generally (here or in other parts of the world) be affected?
- What might change culturally, politically, or socially? How this feel about life now
- Who is responsible (i.e. to blame)? What thoughts or feelings come up when you think about the question or blame or responsibility?
- What keeps the problem going?
- What limits your ability to help?

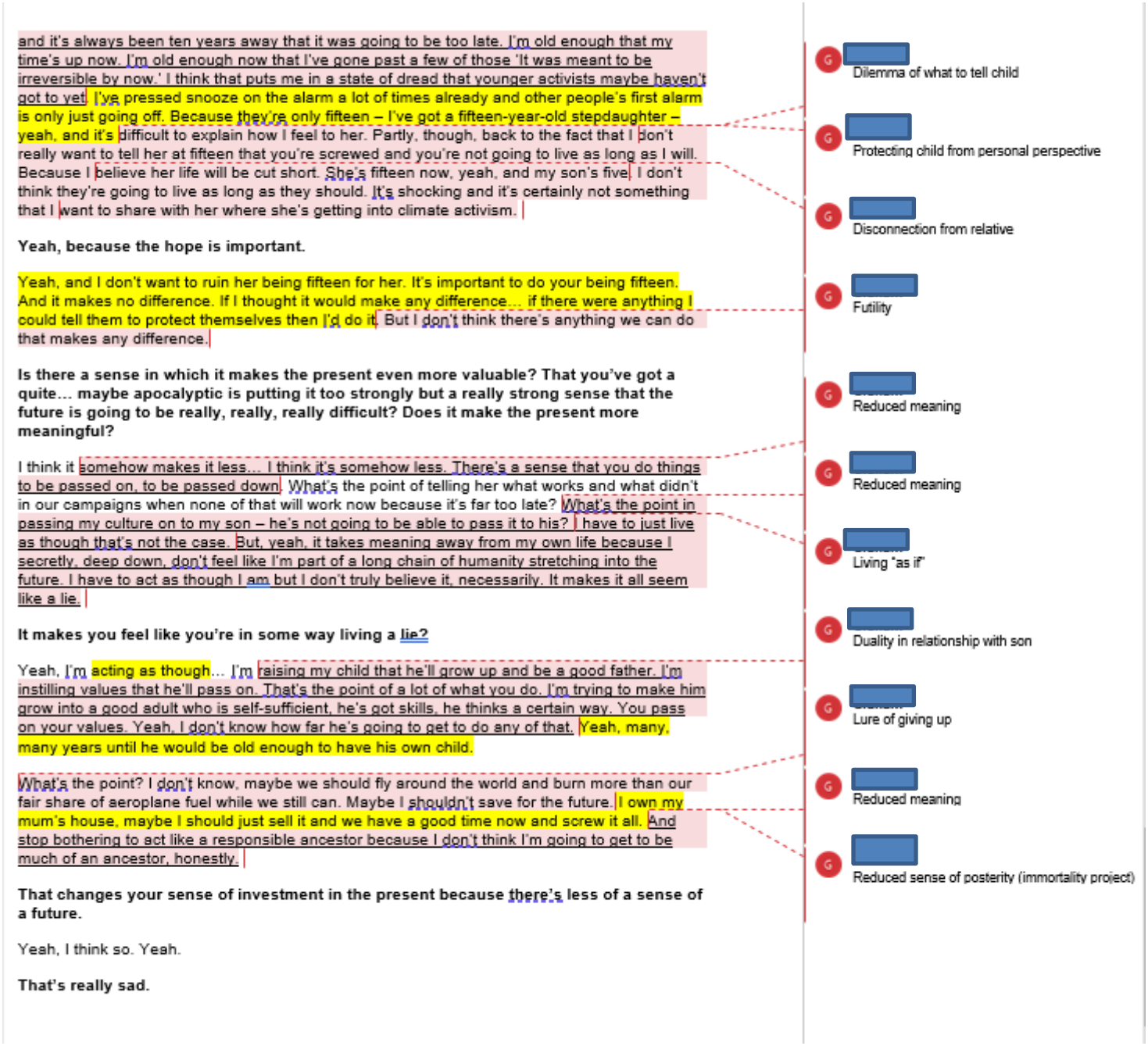
WHAT HELPS

- **What helps you to manage concerns or anxieties in everyday life?**
- Political activism (or support of charities)?
- Activism - **what's it like?**
- What sort of talk with others or "self-talk" helps to ease concerns?
- How do you view the relationship between climate change and new technology?
- What are your [other] sources of hope?
- If this was to become overwhelming issue, what might help?

PSYCHOLOGICAL SERVICES

- **Have you ever accessed or tried to access professional / therapeutic help to manage concerns?**
- How might psychological or mental health services provide support for people with concerns about climate change?
- What sort of intervention / discussion would be helpful?

Appendix 6. Coded extract



Appendix 7. Ethical approval (ETH1920-1258)

University of Essex

15/08/2020

Mr Joseph Rehling

Health and Social Care

University of Essex

Dear Joseph,

Ethics Committee Decision

I am writing to advise you that your research proposal entitled "Exploring the existential dimension of psychological responses to "extreme risks": Implications for individual wellbeing and mental health services" has been reviewed by the Science and Health Ethics Sub Committee.

The Committee is content to give a favourable ethical opinion of the research. I am pleased, therefore, to tell you that your application has been granted ethical approval by the Committee.

Please do not hesitate to contact me if you require any further information or have any queries.

Yours sincerely,

Colchester Campus
Wivenhoe Park
Colchester CO4 3SQ
United Kingdom

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Appendix 8. Ethics amendment (ETH2021-0106)

Ethics ETH2021-0106: Mr Joseph Rehling

Date Created	22 Sep 2020
Date Submitted	28 Sep 2020
Academic Staff	Mr Joseph Rehling
Category	Postgraduate Research Student
Supervisor	[redacted]
Project	Exploring the existential dimension of psychological responses to climate change: Implications for individual wellbeing and mental health services
Faculty	Science and Health
Department	Health and Social Care
Current status	Signed off under Annex B

Ethics application

Project details

Title of project

Exploring the existential dimension of psychological responses to climate change: Implications for individual wellbeing and mental health services

Do you object to the title of your project being published?

No

Applicant(s)

Mr Joseph Rehling

Supervisor(s)

[redacted]

Proposed start date of research

28 Sept 2020

Expected end date

01 Apr 2021

Amendment details

Is the amendment substantial or non-substantial?

Substantial

Type of amendment:

Amendment to the information previously provided in the application form

Amendment to the proposed research in terms of methodology

Amendment to the information sheet(s) and consent form(s) for participants, or to any other supporting document for the project

Summary of changes

Pilot and initial interviews suggested that the original focus - to explore psychological responses to climate change, nuclear war, pandemics - was unwieldy and over-demanding. Furthermore, all participants were most interested to explore their responses to climate change, but had relatively little to say on the other two areas of interest. I have therefore decided that a more restricted focus, with a sole emphasis on responses to climate change, will enable a more in-depth exploration and analysis of participants' experiences, while making for a more comfortable interview process that more accurately represents participants' concerns. The change is therefore to narrow the focus of the interviews, allowing for more in-depth analysis of participants' psychological responses to climate change -- how it affects them emotionally, how they cope personally, and what might therefore be helpful for psychological services to offer by way of intervention.

My original ethics form also said that I may use the service of a medical transcriptionist to transcribe my interviews. I would also like to clarify that this may include a general transcriptionist with medical experience.

Any other relevant information.

Supporting documentation

Attached files

Project flyer climate change.docx

Participant consent form version 6.docx

Participation information sheet climate change.docx

Appendix 9. Amendment approval letter (ETH2021-0106)

University of Essex

30/09/2020

Mr Joseph Rehling

Health and Social Care

University of Essex

Dear Joseph,

Ethics Committee Decision

I am writing to advise you that your research proposal entitled "Exploring the existential dimension of psychological responses to "extreme risks": Implications for individual wellbeing and mental health services" has been reviewed by the Ethics Sub Committee 1.

The Committee is content to give a favourable ethical opinion of the research. I am pleased, therefore, to tell you that your application has been granted ethical approval by the Committee.

Please do not hesitate to contact me if you require any further information or have any queries.

Yours sincerely,

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