

“When I say I’m depressed, it’s like anger.” An exploration of the emotional landscape of climate change concern in Norway and its psychological, social and political implications

Michalina Marczak^{a,*}, Małgorzata Winkowska^{b,c}, Katia Chaton-Østlie^a, Roxanna Morote Rios^a, Christian A. Klöckner^a

^a Norwegian University of Science and Technology, NTNU, Department of Psychology NO-7491, Trondheim, Norway

^b Swedish University of Agricultural Science, Department of Forest Ecology and Management, Umeå, 90183, Sweden

^c Umeå University, Department of Ecology and Environmental Science

ARTICLE INFO

Handling Editor: D Drozdowski

Keywords:

Climate change
Emotions
Climate anger
Climate anxiety
Climate action
Mental health

ABSTRACT

Climate anxiety discourse focuses predominantly on individualised and potentially mentally disturbing aspects of emotional responses to the awareness of climate change which can silence the mobilising charge of strong emotions in response to climate change. We critically examine this perspective and explore the range, context, and perceived effects of emotional responses to climate change based on 33 in-depth interviews with people self-identified as highly concerned about this issue in the context of oil-wealthy Norway. Thematic analysis revealed that lived emotional experience of concern about climate change is characterised by a complex palette of co-occurring and dynamically linked emotions reported in relation to 16 evocative themes. We analyse the perceived effects of these emotions focusing on five areas: participants’ mood and wellbeing, concerns about existing and hypothetical children, feelings of alienation, responsibility for the climate situation, and positive experience in the context of climate change. We discuss the psychological, social and political implications of participants’ emotional experience, considering the Norwegian context, and we conclude that it goes beyond potentially debilitating and paralysing feelings, and includes politically charged moral anger and collective guilt, as well as love for nature, and a sense of community around collective climate action.

The scale of the current global climate crisis and the available knowledge about disastrous future events related to climate change are unprecedented in human history. Recently, emotional responses to climate change have become an increasingly popular topic in Western discourses and there has been a growing research interest in their health-related aspects, for example “climate anxiety” (Clayton, 2020). However, presenting strong emotions about the political problem of climate change as potentially detrimental de-legitimises such reactions and diminishes their mobilising charge to strive for changes (Theodossopoulos, 2014).

In this paper, we intend to reflect on the psychological discourse on “climate anxiety” which concentrates predominantly on individualised and potentially mentally disturbing aspects of emotional responses to climate change. Considering limited empirical evidence regarding the breadth and meanings of emotional experience of climate change among

highly concerned people in places shielded geographically and economically from the most dire effects of climate change, as well as bearing in mind that the complex ways in which people emotionally experience climate change to large extent steer their mental and behavioural reactions to this problem, we aim to systematically explore the range, context, and perceived effects of emotions around this issue in a group of people who self-identified as highly concerned about the topic in Norway.

1. Emotions and mental health in the context of climate change

Psychological research on the emotional and mental health impacts of environmental problems dates back to the studies on psychosocial morbidity in response to environmental stressors (Baum and Fleming, 1993). In this vein, a growing body of research documents mental health

* Corresponding author.

E-mail addresses: michalina.marczak@gmail.com, michalina.marczak@ntnu.no (M. Marczak), malgosia.winkowska@gmail.com (M. Winkowska), katia.ostlie@gmail.com (K. Chaton-Østlie), roxanna.morote@ntnu.no (R. Morote Rios), christian.klockner@ntnu.no (C.A. Klöckner).

<https://doi.org/10.1016/j.emospa.2023.100939>

Received 3 June 2021; Received in revised form 25 January 2023; Accepted 6 February 2023

Available online 10 February 2023

1755-4586/© 2023 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

effects of physical, social and economic impacts of climate change (for reviews see: Clayton et al., 2017; Hayes et al., 2018; Palinkas and Wong, 2020).

Recently, a number of studies linked negative emotions around concern about climate change with poorer mental health (e.g. Clayton and Karazsia 2020; Ogunbode et al., 2021; Reyes et al., 2021). Most of these studies viewed negative emotions as indicative of mental distress. Since the studies were cross-sectional, it is difficult, however, to determine whether negative emotional responses to climate change contribute to poorer mental health or whether people experiencing symptoms of mental health distress, experience them also in relation to climate change (Stanley et al., 2021). In addition, such dominating focus on the health-related aspects of concern about climate change might take the attention away from the motivational charge of strong emotions. Negative emotions around appraising climate change as a threat, and the appraisal of one's coping resources can also lead to climate action as a form of problem-focused coping (Higginbotham et al., 2014) as affect and emotions are among the strongest predictors of climate-relevant behaviour (van Valkengoed and Steg, 2019; Wang et al., 2018; Rees et al., 2015).

Concurrently, a number of scholars noted that "climate anxiety" concerns predominantly white middle-class, who dread the dystopian future that many unprivileged communities have already been living through for decades or centuries (Nixon, 2011; Ray, 2021; Whyte, 2017). Taking into account the relatively large political capital in privileged societies, it is important to consider not only the impact of emotional responses to climate change on mental wellbeing among such groups, but also, how their emotional engagement relates to mobilising action.

2. The current study

In this study, we adopt an exploratory approach to the implications of experiencing strong emotions in response to climate change, and we conduct in-depth interviews with individuals who self-identified as very worried about this issue and who reported that their worry influenced their daily lives. We deliberately focus on this highly engaged group to learn how potentially strong emotional responses unfold. We do not rule out that such people can experience psychological difficulties in response to climate change, but we also do not constrain their answers by asking questions only about this area. To the contrary, we leave them space to describe perceived effects of their emotional experience that go beyond symptoms of mental distress. Our exploratory research is guided by two broad research questions.

- (1) What is the range, intensity, and context of the emotional experience of climate change awareness among highly concerned people?
- (2) What are the perceived effects of these emotions on people's lives?

We conduct our research in Norway, a wealthy country characterised by high pro-environmental ambitions (Eckersley, 2016; Lahn, 2019). However, this green image of Norway has been increasingly criticised (Anker, 2020; Vetlesen, 2015), pointing to the fact that Norway is among the top petroleum producers in the world (EIA, 2019; Topdahl et al., 2021), and one of the countries with the highest environmental footprint of individual consumption (Ivanova et al., 2016). This contradictory position of Norway came to be known as the "Norwegian Paradox" (Lahn, 2019). Additionally, Norway is believed to be relatively sheltered from the most acute consequences of climate change, and it is deemed one of the countries most adaptable to the changing climate (King and Jones, 2021).

When it comes to risk perception, more than half of the Norwegian population state that they are worried about the effects climate change will have on them and their closest ones, and more than a third is

concerned about having to move from their houses in the future (Gallup, 2020). Nonetheless, Norwegian society is also one of the most polarised among the Western nations when it comes to the belief in anthropogenic climate change (YouGov, 2019). Public attitudes about the issue, especially in the context of reducing the country's dependence on fossil fuels and phasing out Norwegian oil production, have been influenced by actors in the oil industry who position themselves as environmentally responsible (Sæther, 2019), and at the same time emphasise the importance of revenues provided by the oil industry for supporting the Norwegian extensive welfare state (Lahn, 2019).

One reason for conducting research among the residents of Norway is that their lifestyle has a greater impact on the environment than the lifestyle of people in less affluent societies. It is also, to a large extent, the voice of the wealthy that shapes the prevailing narrative (Gramsci, 2007). We intend to expand this perspective, and acknowledge the complexities of power dynamics within a privileged society. Historically, public denial or apathy around the issue of climate change in the Global North has been disproportionately shaped by the corporate actors directly interested in continuing the extraction of fossil fuels (Klein, 2015). In this work, we want to give voice to people who oppose this narrative and who break out of the climate change apathy, understood as a socially constructed process (Norgaard, 2006). Their emotional experience and a related capacity or incapacity to take action may give an insight into their current power or limitations to influence political processes in a democratic country with a history of civil society's influence on the society and politics (Vike, 2018).

Furthermore, most research on emotional responses to climate change is based on questionnaires or experiments which substantially constrain people's responses. In contrast, our exploratory research provides rich bottom-up data on the interpretive context of emotions of people highly concerned about climate change. In this sense, we create an archive of affective experience (Cvetkovich, 2003), documenting the central role of emotions in climate change engagement and their power to transform the public sphere. Such a nuanced picture of the complexity of the emotional responses to climate change can provide detailed baseline information for various interdisciplinary emotion-focused initiatives in the context of climate change.

3. Methods

3.1. Participants

The selection of participants ($N = 33$) was based on purposive sampling - we explicitly recruited respondents who felt that they have experienced strong emotions about climate change to enable gaining an insight into how the more extreme forms of worry about climate change could manifest. The sample comprised individuals who responded to the call for participants addressed to people who were "worried about climate change and felt that this worry affected their daily life". We expected that such a sample would be the most psychologically affected by their strong concern. In addition, we assumed that self-selection of participants would result in their high commitment and thus expand the quality of the collected data. We strived to reach a diverse sample of concerned residents of Norway, in terms of age, gender, place of residence, and environmental engagement. Moreover, we took into account the available information about the groups found to be especially vulnerable to strong emotional experience of climate change, e.g. environmental science researchers or climate activists (Head and Harada, 2017; Kleres and Wettergren, 2017), and addressed our call for participants also to them. We approached the potential participants through various channels - emails to major environmental organisations in Norway and research groups working with environmental science, various pro-environmental groups on Facebook (e.g., Grandparents for Climate Action, Youth Climate Strike, Extinction Rebellion, Deep Adaptation, Future in Our Hands), posters at the campus of NTNU - Norwegian University of Science and Technology in Trondheim, and

Table 1
Characteristics of the study sample.

Age	
Generation Z (18–23)	4
Millennial (24–35)	12
Generation X (36–55)	11
Baby boomers (56–74)	6
Gender	
Female	18
Male	14
Non-binary	1
Place of residence	
Urban - major city (above 65 000 inhabitants)	24
Urban - small city (up to 65 000 inhabitants)	7
Rural	2
Education	
High school (incl. high school students)	5
Vocational school	2
University diploma	26
Environmental engagement	
Professionally engaged in environmental issues (incl. work within environmental sciences, NGO, or public administration/services)	7
Actively involved in an environmental organisation	16

snowball sampling through word of mouth among students, colleagues and university staff around Norway. Despite our efforts to diversify the sample, the majority of interviewees were Millennial or Generation x university-educated urban dwellers. The characteristics of the sample are presented in Table 1.

3.2. Procedure

The study was based on individual semi-structured in-depth interviews conducted between June and October 2020 in a conversational format (Kvale, 1996), allowing for new themes to emerge beyond the initial themes of the interview guide. The topics in the interview guide were designed to be exploratory, i.e. they were not informed by existing conceptual frameworks or theories. All interviews were audio-recorded.

After a short collection of demographic data, each interview started with questions about the interviewees' emotions in the context of climate change. In the first step, we encouraged the participants to spontaneously express what they felt in the context of climate change, drawing from their extant conceptual space. In the next step, to overcome individual differences in people's ability to label their emotions (Salovey et al., 1995), and to facilitate an in-depth insight into one's emotional experience, each participant was presented with auxiliary materials with detailed emotional vocabulary - the *Plutchik's wheel of emotions* (Plutchik, 2001), and the *List of emotions* (David, 2016). Using lists with emotion words is a common method in applied psychology to make it easier for people to verbalise with due detail what they feel (David, 2016). The words that the participants indicated as relevant to what they felt served as anchors for conversationally deepening the context, intensity, and perceived effects of these emotions on participants' lives. The interview guide along with the auxiliary emotion vocabulary is available in the Supplementary Material. The language of the interview was predominantly English but five interviews were conducted in Norwegian because the interviewees did not feel comfortable enough with using English. For the interviews in Norwegian, the interview guide and auxiliary materials were translated into Norwegian.

The research procedure, the written consent form and data protection issues were approved by the Norwegian Centre for Research Data (case number: 206971) and by the Regional Committees for Medical and Health Research Ethics (case number: 89334). All participants were informed about the aims of the study, the study procedure, how their data was going to be used as well as their rights, including the right to withdraw from the study. Each participant provided written informed consent before study inclusion.

3.3. Data analysis

The audio recordings were first transcribed verbatim. The transcriptions were analysed based on rigorous multi-step thematic analysis with semantic approach (Braun and Clarke, 2006). The transcripts from the interviews conducted in Norwegian were analysed in this language, and only illustrative quotes and emotion words were translated to be included in the text. The interviews were read and re-read by three of the members of the research team, and each of them proposed an initial list of codes. Next, the final list of key codes was created through discussing and merging the initial coding frames. All transcripts were then coded according to the final coding frame with the use of the NVivo software (QSR International Pty Ltd, 2018). The codes were then discussed and reviewed to arrive at the final themes presented in the results. In addition, the frequencies of emotion labels recalled by participants from their extant conceptual space (before we introduced the auxiliary emotion vocabulary) were coded manually to generate a figure using the R language for statistical computing version 3.6.0 (R Core Team, 2019). For this purpose, individual emotions were coded once for each participant, even if they were repeated during the interview.

3.4. Positionality

The authors of this study hold pro-environmental and egalitarian values. They support climate change activism and they have been engaged in individual and collective climate action. The educational, social, and cultural background of the authors is diverse. Four of the authors have a background in psychology (social, community and clinical), and one author has a background in social anthropology and environmental science. One of the authors is ethnically Norwegian, three are residents of Norway of Polish, Peruvian, and German origin respectively, and one is a resident of Sweden of Polish origin. We understand emotions as part of dynamic systems with two main consequences for interdisciplinary science. First, we contest the merely psychological study of emotions as individualised phenomena by emphasising their capacity to connect people and establish alliances (Ahmed, 2013). Second, as a social construction, we see emotions as informing research in broader interdisciplinary subjects such as social transformation and policy development on climate change.

The motivation to conduct this study comes from the authors' own strong emotions around environmental issues and their own concern about climate change from different geo-political locations. In fact, the authors shared many of the emotional responses to the climate crisis presented by the participants of the present study and they entered the research process as "engaged, emotionally embodied, and ready not only to listen closely, but also to respond with our own emotions, feelings, behaviours and expressions" (Cunsolo Willox et al., 2013, p. 22). Thanks to such open emotional engagement on the side of the researchers and the topic of the interviews that encouraged the interviewees to share their feelings, we believe that emotions became a connective medium that created intimacy between researcher and participant (Meunier, 2010).

4. Results

The interview participants described experiencing a complex, contextually dependent palette of emotions in relation to their concern about climate change. When drawing from their extant conceptual space, before we introduced the auxiliary emotion vocabulary, 6 participants had difficulty speaking about emotions, and expressed general worry or pessimism, or they shared their opinions about the climate situation. Among the remaining 27 participants, 20 mentioned several words to describe their emotional experience. The most commonly reported emotions were anger, fear, and sadness, as well as hopelessness, anxiety, grief, disappointment, despair, frustration, depression, regret and unrest. The emotion labels used by participants to describe their

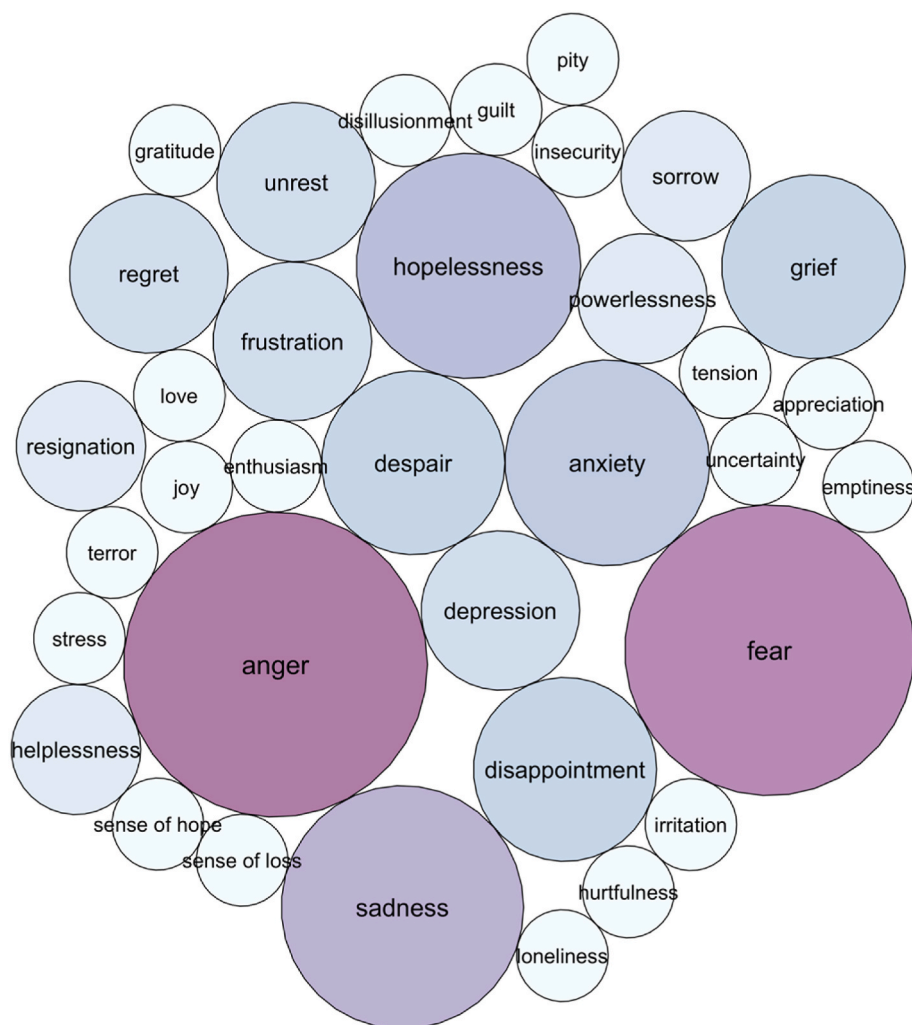


Fig. 1. Visual representation of the frequency of each emotion label recalled by the participants from their extant conceptual space, before the auxiliary emotion lists were introduced. The bigger the circle, the more participants referred to given emotion.

feelings around climate change along with the frequency of reporting each emotion are presented in Fig. 1.

Across spontaneous and facilitated accounts, we identified 16 emotion evoking themes. They are presented in Table 2, along with the range of emotions the participants most frequently reported experiencing in relation to them.

To describe the dynamic relationships between the contextual triggers, emotions, and the perceived effects of these emotions on participants' lives, we reviewed the 16 evocative themes and organised them in five major lines of analysis: four related to negative emotional experiences regarding participants mood and emotional wellbeing, concerns about existing or hypothetical children, feelings of alienation, and the responsibility for the climate situation, and one linked to positive emotional experience. They are presented briefly below, and in full in the supplementary material.

4.1. "It's more difficult to be happy"

Nearly all participants (30 out of 33) reported experiencing, on a regular basis, strong negative emotions about climate change. Despite common feelings of hopelessness, insecurity and sadness, which made it "more difficult to be happy" (ID13), the participants largely disavowed the idea of psychopathological climate anxiety. As one interviewee expressed: "When I say I'm depressed, it's like anger" (ID30), pointing to the central place of anger among the painful feelings. The participants

expressed anger predominantly over the general perception that leaders and structures have been failing to effectively respond to climate change, as well as more concretely - in response to Norwegian government's support for the oil and gas production. Concurrently, a third of participants did describe sometimes overwhelming effects of their feelings around climate change which resulted in, for example, physical tension or lower motivation to engage in everyday activities.

4.2. "I really, really want to have kids, but I don't feel like it's safe"

Participants' reported experiencing strong feelings – fear, anxiety, confusion, regret, sadness - about existing or hypothetical children in the era of unfolding climate change. This topic emerged organically, across generations, in 19 interviews, and our interlocutors shared painful emotions regarding the perception about the irresponsibility of bringing children to the world which, in their view, is falling apart – "I regret that I had children, and it hurts quite a bit (...). It's the worst feeling ... I don't regret my children at all, it is the most important and best thing that has happened to me! But to feel somehow ... I have made that choice and put them into the world that is going to go to hell ..." (ID25).

4.3. "I feel lonely, because I am alone in this situation"

Participants reported experiencing alienation, powerlessness and isolation from the society related to the perception that other people are

Table 2

Emotion-evoking themes and emotions associated with them in the context of climate change.

Evocative theme	Emotions
Loss of species, landscapes, ways of life, opportunities in the future	Sadness, grief, deep sorrow, emotional pain, sense of loss, despair, fear, shame
Lack of engagement or deliberately harmful conduct of people in power	Anger, frustration, disappointment, disillusionment, rage, disgust
Children, reproduction, and future generations	Fear, regret, anxiety, sadness
Ignorance and other people's (family, friends, the general society's) perceived lack of concern and action about climate change	Irritation, annoyance, frustration, anger, isolation, loneliness, sadness
Being trapped in the political-economic system that is harmful for the natural environment	Frustration, guilt, anger, isolation, powerlessness
The uncertainty of the future	Confusion, anxiety, insecurity
Human species or human nature perceived as a destructive force	Anger, disappointment, disillusionment, shame
Catastrophic visions of the future	Fear, despair, hopelessness
Time pressure around climate change mitigation	Anxiety, fear, stress, frustration, powerlessness
Personal responsibility for climate action	Sense of moral obligation, guilt, stress
The complexity of climate change	Confusion, powerlessness, overwhelm
The 'double injustice' of climate change (that populations most harmed by climate change are the least responsible for causing it and have the least resources to cope with the consequences of the changing climate)	Anger, guilt, sadness
The privilege of living in a rich country that has a big contribution to climate change but has been largely sheltered from its consequences	sense of safety, guilt, shame
Feeling deeply connected to the natural world, including the local environment	Love, joy, sadness
Collective climate action	Excitement, love, energy, hopefulness, gratitude
Accepting that it is too late to stop catastrophic climate change	Relief, calmness

not as concerned about climate change as they should be considering climate science. These feelings were paired with the perception of being forced to consciously put on a positive mask and conceal the worry to be accepted by others, but also with seeking confrontation with others, as well as with losing trust in society and its institutions.

4.4. "I always relate everything to the climate, to the environment"

Participants tended to feel a strong personal responsibility for climate action. Striving to behave in line with their high standards, goals, and rules regarding addressing climate change, brought them a sense of integrity and moral pride but also evoked the feelings of stress and guilt, when they could not behave as intended. In addition, the participants reported feeling guilty for living in Norway where, on the one hand, they felt sheltered from the consequences of climate change, while, on the other hand, they were inevitably part of a society that has a large impact on the environment. There was a sense of shame on behalf of Norway - "Because we are so rich, because we have the knowledge and the opportunity to do a lot, and we don't" (ID12).

4.5. "That makes me hopeful. And tearful"

Although climate change was predominantly associated with negative feelings, participants also mentioned strong positive emotions about the empowering effects of collective climate action, both in terms of reading or watching media accounts about it and upon one's own participation in collective action, e.g. "I also feel very positive when I read about the regenerative cooperative that is working out. So, it's interesting, it's as if small things can almost balance out all the

negativity and environmental news" (ID7). In addition, because of the threat of climate change, participants described developing an expanded appreciation of nature and finding consolation in it. Finally, the notion of feeling hopeful was present across interviewees' accounts. Similarly to other positive emotions mentioned by the participants, it was framed in the context of inevitable, overwhelming changes. Interviewees spoke about the struggle of finding space for hope while remaining constantly aware of possible scenarios for the future in the face of climate change. Notably, emotions regarding hope were sometimes highly conflicting and giving up hope was seen as a relief. In this context, hope was perceived as a concept that only obscured an honest public discussion about the inevitably gloomy future.

5. Discussion

In this explorative study, we contribute to the literature on emotions related to the awareness and anticipation of climate change through providing original in-depth empirical data on the lived emotional experience of climate change concern and its perceived effects in a group of highly concerned people in Norway. Our study demonstrated that people who were worried about climate change and who felt that this worry affected their daily lives reported experiencing a complex palette of co-occurring and dynamically linked emotions around the topic of climate change.

Across interviews, we identified 16 evocative themes related to emotions that the participants reported in their context. The emotional landscape of concern for climate change included, among other emotions, contextually dependent feelings of anger, fear, and sadness, as well as hopelessness, anxiety, grief, disappointment, despair, frustration, depression, regret and unrest. We identified four main lines of analysis for the negative emotional experience. They correspond with emotional wellbeing and mood, concerns about existing and hypothetical children, feelings of alienation, and the responsibility for the climate situation. Finally, positive emotions were present in the interviewees' accounts in one major line of interpretation: love, joy, excitement, energy, and hopefulness, mentioned in the context of having a strong sense of connectedness to nature, and collective climate action. These positive emotions were seen as having the power to balance out the difficult ones. In the next sections, we discuss the emotional landscape of climate change concern in relation to paralysing versus mobilising effects of negative emotions, the social and political aspects of interviewees' feelings, and the emotional experience of individual versus collective climate action.

5.1. Climate change emotions: from paralysis to public action

In the recent literature, emotional responses to climate change have been increasingly discussed in the context of their negative impact on mental health and well-being (e.g. Clayton, 2020; Ogunbode et al., 2021). In the present study, however, people who self-identified as very worried about climate change and who felt that their daily lives were affected by this worry, in theory - people prone to experience climate change anxiety - painted a more nuanced picture of their emotional experience of climate change.

While some feelings the interviewees told us about are indeed common for the experience of clinical anxiety (e.g. the feelings of uncertainty), or depression (e.g. feelings of hopelessness and lowered mood), according to the interviewees' self-reports, these reactions did not cause a serious dysfunction in their lives which is the definitional criterion of mental disorder (Stein et al., 2010). When leaving space for participants to describe what they felt without top-down constraints present in questionnaires, they spoke about experiencing a range of negative emotions around climate change related loss, social and political alienation, the injustice of climate change, uncertainty and existential threat of climate change, painful feelings about their children's future or eco-reproductive concerns, negative view of human nature, the

time pressure around climate change mitigation, the privilege of living in a sheltered yet highly polluting country, near obsession with faithfully executing personal level pro-environmental action; positive emotions stemming from collective climate action and having a strong comforting bond with the natural world, as well as accepting the dire climate situation.

Our results show that one of the main contextual triggers of painful emotions around climate change was concern around having children. This topic emerged organically in the interviews across age groups and genders, even though we did not ask specific questions about it. The participants reported experiencing very strong and painful emotions around the thoughts about the difficulties their existing or hypothetical children or grandchildren might face with the unfolding climate change. Our interviewees in Norway are not alone in their strong worry about children. Polls conducted in the US and Australia showed that millions of people declared either not having children or having less children than they would like to at least partially because of their worry about climate change (Australian Conservation Foundation, 2018; Miller, 2018).

In general, our results go beyond the individualised psychopathological aspects of concern about climate change such as, e.g. problems with concentration or sleep mentioned in the literature (Clayton and Karazsia, 2020; Ogunbode et al., 2021). This is not to suggest that some people do not suffer psychologically from difficult emotions around their concern about climate change. There is growing evidence that the emotional aspects of the mere awareness and anticipation of climate change may at least co-occur with poorer mental health (Clayton and Karazsia, 2020; Ogunbode et al., 2021). At the same time, strong emotional responses to this issue should not by default be seen as merely a pathological response. Climate change constitutes a genuine existential threat, and our participants demonstrated their knowledge and engagement with it. Therefore, we argue that strong emotions are at scale with the state of scientific knowledge about the observed and predicted consequences of the changing climate.

The recent focus on the biomedical aspects of emotional responses to climate change contributes to the social construction of climate anxiety as something connected to a psychological problematic process, neglecting that such feelings are linked to specific socio-political conditions, are shared between people and can be a resource for action. Taking into account that the interviewees commonly referred to the social and political aspects of climate change, climate anxiety can be seen as a public feeling, a type of ‘political depression’, a term introduced by Feel Tank Chicago to capture the experience of negative emotions around the sense that customary forms of political response, including activism, are no longer working to bring desired changes to the world (Cvetkovich, 2012). Importantly, the concept of ‘political depression’, while acknowledging the psychological suffering behind depression, was meant to depathologise individualised negative emotions so that they can become a trigger for action to change the structural factors that make people feel miserable (Cvetkovich, 2012).

In this respect, the experience of anger, so prevalent in the interviewees’ accounts, can be seen as a potentially powerful resource for action. Classical psychological work on emotion asserts that action against and increased attention are the behavioural tendencies ingrained in the very experience of anger (Frijda et al., 1989). Group-based anger about perceived injustice motivates people to take collective action against the source of the injustice (van Zomeren et al., 2004). Finally, strong feelings of anger or frustration about climate change, while often co-occurring with feelings of depression and anxiety, might not only be associated with greater engagement in both personal and collective pro-climate behaviours, but they may also preserve people’s mental health (Stanley et al., 2021).

5.2. The socio-political context of participants’ emotional experience

In the context of Norwegian politics, participants’ climate change concern is contrasted with the long history of the largest political

parties’ support for oil and gas development, and a recent increase in awarding new licences for their exploration and production, despite calls for restricting the Norwegian oil and gas industry (Lahn, 2019). Participants’ strong feelings around the perceptions that people in power prioritise continued value creation over other aspects of the functioning of the social and physical environment is in line with expert observations that the government in Norway rather than acknowledging that Norwegian oil and gas production contributes to disrupting global climate system, presents climate change and the need for reducing emissions as a problem for the Norwegian economy (Asdal, 2014; Lahn, 2019).

As another result of disapproval regarding the socio-political aspects of climate change, participants tended to feel high levels of isolation and they expressed critical opinions regarding other people - family, friends, colleagues, the society, and human species in general. One way of coping with these feelings adopted by participants was concealing their concerns not only in public but also in private spheres among friends and family who might not share their views. Such abstaining from speaking their mind (and heart) about climate change might be related to the fear of breaking social norms, which aligns with the reasons for self-silencing regarding climate change described in the literature (Head and Harada, 2017; Norgaard, 2006).

This “compulsory optimism” (Head and Harada, 2017) is fortified by the public awareness of the role the oil revenue plays in financing the Norwegian welfare state (Lahn, 2019), and by the narrative of the Norwegian oil industry presenting themselves as environmentally responsible, and producing oil that has lower emissions per barrel than fossil fuels from other countries (Sæther, 2019). On top of that, taking into account that Norway has for a long time been among world’s countries with the highest quality of life (United Nations Development Programme, 2020), and that substantial parts of Norwegian economy and employment are linked to the fossil fuel industry, admitting the threat posed by climate change poses a challenge to the status quo from which the society has benefited (Krange et al., 2019).

These feelings of socio-political alienation might be further reinforced by the way controversial issues are managed in the Norwegian political and public narratives. Norway is known for its norm-conformity and consensus culture (Avant and Knutsen, 1993), and issue avoidance has long been used as an efficient tool for dealing with controversial topics in the Norwegian public sphere, which allows for border disputes to be managed without stirring conflict in public (Fossum, 2010).

Nevertheless, the interviewees’ highly negative image of the society as not caring about climate change is in contrast with the current data showing that the majority of Norwegians do express concern about this issue (Gallup, 2020). “Pluralistic ignorance”, a phenomenon describing wrongful assumptions about others’ opinion, can be in part responsible for the skewed perception held by the interviewees who assumed they were isolated in their concern (Geiger and Swim, 2016). Finding ways to break this pluralistic ignorance could be an effective way to reduce the feelings of isolation.

However, it might be only an incomplete part of the bigger picture. An important element of this view seems to be the discrepancy between declaring concern and actual engagement in climate action in the wider public. Bridging this gap is difficult, taking into consideration that people are expected to individually navigate between the clashing sets of norms and behaviours. People trying to incorporate individualised pro-environmental choices in their everyday life struggle to clearly delineate between behaviours of significantly different impact on carbon emissions (Berthoué, 2013). Such confusion about the extent to which individual behaviour can contribute to climate change mitigation efforts was also commonly mentioned by our interviewees.

5.3. From the individualisation of responsibility to collective action

In this study, the interviewees expressed feeling guilty, stressed and

anxious in relation to behaviours which in fact have little relevance for mitigating climate change, e.g. not having the chance to sort the garbage or buying things wrapped in plastic (Wynes and Nicholas, 2017). Feeling such strong emotions about behaviours that, taken individually, are of little importance can divert the energy and engagement needed to take more impactful structurally-oriented action in the longer run as pro-environmental behaviours performed to avoid negative emotions can result in negative behavioural spillover (Truelove et al., 2014).

Such feelings about one's own and others' small-impact individual behaviours touch upon the issue of the individualisation of responsibility for climate change which sees high greenhouse gases emissions as the consequence of destructive consumer choices rather than ill institutional arrangements (Maniates, 2001). While a pro-environmental change in individual behaviours is important for the successful mitigation of climate change, environmentally-friendly lifestyles are to a large extent constrained and shaped by institutions and political forces (Chomsky et al., 2020; Klein, 2015; Maniates, 2001).

Participants' accounts imply their strong sense that structural changes are needed to limit the consequences of climate change. This topic was pronounced both in their feelings around the indolence of people in power, and when speaking about their own privilege of living in Norway.

Such a sense of emotional injustice can be a strong motivator of collective climate action (Rees et al., 2015, 2015van Zomeren et al., 2008; Haugestad et al., 2021). Importantly, our results show that collective climate action is a source of positive emotions, which, in interviewees perception, counterbalance other paralysing and alienating feelings around climate change while having the power to challenge the prevailing structures to enable climate-compatible lifestyles for all.

5.4. Limitations and future directions

The selection of the interlocutors and the design of the study focusing on people self-identifying as particularly concerned about climate change might have produced the results highlighting the strongest emotions related to climate change concern. This was, however, the aim of the study - to shed more light onto the intense emotional experience behind climate change concern, not to strive to reach a representative sample. Our study was exploratory and, as such, it is limited in scope and generalisability. Notably, although we did include in-depth questions about the experience of psychophysical difficulties, our interview was not a clinical interview for diagnosing mental disorders. In addition, we relied on what the interviewees told us about the impacts of these emotions on their functioning, thus we cannot draw strong conclusions regarding mental health symptoms in our sample.

Nonetheless, the findings certainly generate valuable qualitative insights into the emotional experience of climate change and its perceived effects and implications in a group which is geographically and wealth-wise shielded from the most direct effects of climate change, and which, as seen from the transnational perspective, has considerable power to influence global climate action. Our results can inform the choice of items in the design of quantitative research instruments. The complexity of the emotional experience of climate change, demonstrated in this study, calls for studying the implications of different patterns of emotions with due attention to their contexts. Future research could try to elucidate the intricate links between climate emotions, social mobilisation for sustainability transition, and mental health and wellbeing.

Lastly, it should also be acknowledged that the focus on highly concerned people in the sample might have led to a selection of people with personalities that are characterised by higher levels of concern in general, irrespective of the topic. While we cannot rule that out based on our data, the genuine concern about the specific topic of climate change appeared obvious in the data material. Furthermore, future studies with quantitative methods could show how the dimensions of climate change related emotions, studied on our restricted sample, map on more general

measures such as personality measures in representative samples.

6. Conclusion

Our documentation of the lived emotional experience of concern about climate change in the privileged Norwegian context provides a rich material for the interdisciplinary research on the emotional experience of climate change. Importantly, it adds a critical voice to the climate anxiety literature which is focused predominantly on individualised responses and solutions to climate change. In light of our findings, we postulate to extend the focus beyond the debilitating and paralysing climate change anxiety and include also the mobilising moral anger, collective guilt, love around feeling connected to nature, and excitement and sense of community around collective action. Our research indicated that they are all likely to co-occur with the justified feelings of grief, apprehension and fear around climate change. Besides its value in the research context, our study can inspire the design of emotion-centred workshops on climate change (Ryan, 2016), guide the development of emotionally engaging climate change communications (Chapman et al., 2017), be useful for therapists working with persons experiencing distress related to the awareness of the existential threat of climate change (Budziszewska and Jonsson, 2021), and contribute to creating an affective community around climate change concern, transforming painful emotions into transformative action (Cvetkovich, 2003).

Acknowledgements

Funding for this research was provided by NTNU - Norwegian University of Science and Technology Doctoral Scholarship Programme to Michalina Marczak and Norway Grants No. 2019/34/H/HS6/00677. Our sincerest thanks to all the study participants who shared their emotional experience with us and to all the colleagues and networks who helped spread the word about the search for participants in this study. The manuscript benefited greatly from the feedback from Professor Hanna Musiol.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.emospa.2023.100939>.

References

- Ahmed, S., 2013. *The Cultural Politics of Emotion*. Routledge.
- Anker, P., 2020. *The Power of the Periphery: How Norway Became an Environmental Pioneer for the World*. Cambridge University Press.
- Asdal, K., 2014. From climate issue to oil issue: offices of public administration, versions of economics, and the ordinary technologies of politics. *Environ. Plann. A*. 46 (9), 2110–2124.
- Australian Conservation Foundation, 2018. What Do Women Think about Climate Change? Australian Conservation Foundation and 1 Million Women. <https://www.acf.org.au/reports?page=5>.
- Avant, G.R., Knutsen, K.P., 1993. Understanding cultural differences: Janteloven and social conformity in Norway. *Etc A Rev. Gen. Semant.* 50 (4), 449–460.
- Baum, A., Fleming, I., 1993. Implications of psychological research on stress and technological accidents. *Am. Psychol.* 48 (6), 665–672.
- Berthoü, S.K.G., 2013. The everyday challenges of pro-environmental practices. *J. Transdiscipl. Environ. Stud.* 12 (1).
- Braun, V., Clarke, V., 2006. Using thematic analysis in psychology. *Qual. Res. Psychol.* 3 (2), 77–101.
- Budziszewska, M., Jonsson, S.E., 2021. From climate anxiety to climate action: an existential perspective on climate change concerns within psychotherapy. *J. Humanist. Psychol.* 0022167821993243.
- Chapman, D.A., Lickel, B., Markowitz, E.M., 2017. Reassessing emotion in climate change communication. *Nat. Clim. Change* 7 (12), 850–852.
- Chomsky, N., Pollin, R., Polychroniou, C.J., 2020. *Climate Crisis and the Global Green New Deal: the Political Economy of Saving the Planet*. Verso Books.
- Clayton, S., 2020. Climate anxiety: psychological responses to climate change. *J. Anxiety Disord.* 74, 102263.
- Clayton, S., Karazsia, B.T., 2020. Development and validation of a measure of climate change anxiety. *J. Environ. Psychol.* 69, 101434.

- Clayton, S., Manning, C., Krygsman, K., Speiser, M., 2017. *Mental Health and Our Changing Climate: Impacts, Implications, and Guidance*. American Psychological Association and ecoAmerica, Washington, DC.
- Cunsolo Willox, A., Harper, S.L., Edge, V.L., Landman, K., 2013. 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.
- Cvetkovich, A., 2003. *Archive of Feelings*. Duke University Press.
- Cvetkovich, A., 2012. *Depression: A Public Feeling*. Duke University Press.
- David, S., 2016. *Emotional Agility: Get Unstuck, Embrace Change, and Thrive in Work and Life*. Penguin.
- Eckersley, R., 2016. National identities, international roles, and the legitimization of climate leadership: Germany and Norway compared. *Environ. Polit.* 25 (1), 180–201.
- EIA, 2019. *International Energy Portal of the U.S. Energy Information Administration*. Administration url. <https://www.eia.gov/international/rankings/country/NOR?pa=12&u=0&f=A&v=none&y=01%2F01%2F2019>.
- Fossum, J.E., 2010. Norway's European "rag rules". *Eur. Rev.* 18 (1), 73–92.
- Frijda, N.H., Kuipers, P., ter Schure, E., 1989. Relations among emotion, appraisal, and emotional action readiness. *J. Pers. Soc. Psychol.* 57 (2), 212–228.
- Gallup, 2020. *Kantar Klimabarometer 2020*. TNS Gallup, Oslo, Norway.
- Geiger, N., Swim, J.K., 2016. Climate of silence: pluralistic ignorance as a barrier to climate change discussion. *J. Environ. Psychol.* 47, 79–90.
- Gramsci, A., 2007. Selections from the prison notebooks. In: Lawrence, B.B., Karim, A. (Eds.), *On Violence: A Reader*. Duke University Press, pp. 159–179.
- Haugestad, C.A.P., Skauge, A.D., Kunst, J.R., 2021. Why do youth participate in climate activism? A mixed-methods investigation of the # FridaysForFuture climate protests. *J. Environ. Psychol.* 76, 101647.
- Hayes, K., Blashki, G., Wiseman, J., Burke, S., Reifels, L., 2018. Climate change and mental health: risks, impacts and priority actions. *Int. J. Ment. Health Syst.* 12 (28).
- Head, L., Harada, T., 2017. Keeping the heart a long way from the brain: the emotional labour of climate scientists. *Emotion, Space and Society* 24, 34–41.
- Higginbotham, N., Connor, L.H., Baker, F., 2014. Subregional differences in Australian climate risk perceptions: coastal versus agricultural areas of the Hunter Valley, NSW. *Reg. Environ. Chang.* 14 (2), 699–712.
- Ivanova, D., Stadler, K., Steen-Olsen, K., Wood, R., Vita, G., Tukker, A., Hertwich, E.G., 2016. Environmental impact assessment of household consumption. *J. Ind. Ecol.* 20 (3), 526–536.
- King, N., Jones, A., 2021. An analysis of the potential for the formation of "nodes of persisting complexity". *Sustain. Sci. Pract. Pol.* 13 (15), 8161.
- Klein, N., 2015. *This Changes Everything: Capitalism vs. The Climate*. Simon and Schuster.
- Kleres, J., Wettergren, Å., 2017. Fear, hope, anger, and guilt in climate activism. *Soc. Mov. Stud.* 16 (5), 507–519.
- Krange, O., Kaltenborn, B.P., Hultman, M., 2019. Cool dudes in Norway: climate change denial among conservative Norwegian men. *Environ. Sociol.* 5 (1), 1–11.
- Kvale, S., 1996. *InterViews: An introduction to qualitative research interviewing*. Sage Publications.
- Lahn, B., 2019. *Norwegian Petroleum Policy in a Changing Climate*. CICERO Report. <https://pub.cicero.oslo.no/cicero-xmlui/handle/11250/2607906>.
- Maniates, M.F., 2001. Individualization: plant a tree, buy a bike, save the world? *Global Environ. Polit.* 1 (3), 31–52.
- Meunier, D., 2010. Emotional encounter: researching young people's intimate spaces in their information & communication technology practices. *Emotion, Space and Society* 3 (1), 36–39.
- Miller, C.C., 2018. *Americans Are Having Fewer Babies. They Told Us Why*. The New York Times. <https://www.nytimes.com/2018/07/05/upshot/americans-are-having-fewer-babies-they-told-us-why.html>.
- Nixon, R., 2011. *Slow Violence and the Environmentalism of the Poor*. Harvard University Press. <https://doi.org/10.4159/harvard.9780674061194>.
- Norgaard, K.M., 2006. We don't really want to know": environmental justice and socially organized denial of global warming in Norway. *Organ. Environ.* 19 (3), 347–370.
- Ogunbode, C.A., Pallesen, S., Böhm, G., Doran, R., 2021. Negative emotions about climate change are related to insomnia symptoms and mental health: cross-sectional evidence from 25 countries. *Curr. Psychol.*
- Palinkas, L.A., Wong, M., 2020. Global climate change and mental health. *Curr. Opin. Psychol.* 32, 12–16.
- Plutchik, R., 2001. The Nature of Emotions: human emotions have deep evolutionary roots, a fact that may explain their complexity and provide tools for clinical practice. *Am. Sci.* 89 (4), 344–350.
- QSR International Pty Ltd, 2018. *NVivo (Version 12 [Mac OS])*. <https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home>.
- Ray, S.J., 2021. Climate Anxiety Is an Overwhelmingly White Phenomenon. *Scientific American*.
- R Core Team, 2019. *R: A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing, Vienna, Austria.
- Rees, J.H., Klug, S., Bamberg, S., 2015. Guilty conscience: motivating pro-environmental behavior by inducing negative moral emotions. *Climatic Change* 130 (3), 439–452.
- Reyes, M.E.S., Carmen, B.P.B., Luminarias, M.E.P., Mangulabnan, S.A.N.B., Ogunbode, C. A., 2021. An investigation into the relationship between climate change anxiety and mental health among Gen Z Filipinos. *Curr. Psychol.* 1–9.
- Ryan, K., 2016. Incorporating emotional geography into climate change research: a case study in Londonderry, Vermont, USA. *Emotion, Space and Society* 19, 5–12.
- Sæther, A.K., 2019. De beste sensjoner: oljelandet i klimakampen. Cappelen Damm.
- Salovey, P., Mayer, J.D., Goldman, S.L., Turvey, C., Palfai, T.P., 1995. Emotional attention, clarity, and repair: exploring emotional intelligence using the Trait Meta-Mood Scale. In: Pennebaker, J.W. (Ed.), *Emotion, Disclosure, and Health*. American Psychological Association, pp. 125–154.
- Stanley, S.K., Hogg, T.L., Leviston, Z., Walker, I., 2021. From anger to action: differential impacts of eco-anxiety, eco-depression, and eco-anger on climate action and wellbeing. *J. Clim. Change Health* 1, 100003.
- Stein, D.J., Phillips, K.A., Bolton, D., Fulford, K.W.M., Sadler, J.Z., Kendler, K.S., 2010. What is a mental/psychiatric disorder? From DSM-IV to DSM-V. *Psychol. Med.* 40 (11), 1759–1765.
- Theodossopoulos, D., 2014. On de-pathologizing resistance. *Hist. Anthropol.* 25 (4), 415–430.
- Topdahl, R.C., Rommetveit, A., Kirkaune, E., 2021. Slik går Norge fra å være miniputt til gigant på klimastatistikken. NRK url. <https://www.nrk.no/klima/xl/norske-Co-Ut-slipp-Slik-Gar-Norge-Fra-a-Vaere-Miniputt-Til-Gigant-Pa-Klimastatistikken-1.15600846>.
- Truelove, H.B., Carrico, A.R., Weber, E.U., Raimi, K.T., Vandenbergh, M.P., 2014. Positive and negative spillover of pro-environmental behavior: an integrative review and theoretical framework. *Global Environ. Change* 29, 127–138.
- van Valkengoed, A.M., Steg, L., 2019. Meta-analyses of factors motivating climate change adaptation behaviour. *Nat. Clim. Change* 9 (2), 158–163.
- van Zomeren, M., Postmes, T., Spears, R., 2008. Toward an integrative social identity model of collective action: a quantitative research synthesis of three socio-psychological perspectives. *Psychol. Bull.* 134 (4), 504–535.
- van Zomeren, M., Spears, R., Fischer, A.H., Leach, C.W., 2004. Put your money where your mouth is! Explaining collective action tendencies through group-based anger and group efficacy. *J. Pers. Soc. Psychol.* 87 (5), 649–664.
- Vetlesen, A.J., 2015. *The Denial of Nature: Environmental Philosophy in the Era of Global Capitalism*. Routledge.
- Vike, H., 2018. *Politics and Bureaucracy in the Norwegian Welfare State: an Anthropological Approach*. Palgrave Macmillan, Cham.
- Wang, S., Leviston, Z., Hurlstone, M., Lawrence, C., Walker, I., 2018. Emotions predict policy support: why it matters how people feel about climate change. *Global Environ. Change* 50, 25–40.
- Whyte, K.P., 2017. Our ancestors' dystopia now: indigenous conservation and the Anthropocene. In: Heise, U., Christensen, J., Niemann, M. (Eds.), *The Routledge Companion to the Environmental Humanities*. Taylor & Francis, pp. 208–215.
- Wynes, S., Nicholas, K.A., 2017. The climate mitigation gap: education and government recommendations miss the most effective individual actions. *Environ. Lett.* 12 (7), 074024.
- YouGov, 2019. *International Climate Change Survey*. https://d25d2506sfb94s.cloudfront.net/cumulus_uploads/document/epj10nusce/YouGov%20-%20International%20climate%20change%20survey.pdf.
- UNDP (United Nations Development Programme). 2020. *Human Development Report 2020: The Next Frontier: Human Development and the Anthropocene*. New York.