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The end of the game: emotional responses of older adults to climate crisis and climate mobilizations in Switzerland

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Introduction: In relation to climate change activism and climate emotions, the youth has captured most of the attention of researchers. This article draws on in-depth face-to-face interviews with people aged 64 and over engaged in pro-environmental behaviors in Switzerland.

Methods: Through a thematic analysis, we identify eight themes on positive and negative mental states related to the climate crisis and climate-related mobilizations.

Results: The qualitative sample shows that older people engage in pro-environmental behaviors, not out of fear of losing access to vital resources, but out of concern for future generations, humanity, and nature. This broad sense of morality is associated with a form of anger for a world that refuses to change.

Discussion: Between generations, emotions vary in intensity but not in nature, and the strategies older adults undertake to mitigate their negative emotions are similar to the strategies mobilized by youth activists. In both cases, anger and fear are powerful negative emotions, and the pleasure, joy, and hope of protesting with like-minded others is a kind of remedy. Older people just face very different constraints and undertake actions that are compatible with their physical and cognitive capacities.

KEYWORDS

climate crisis, emotions, behaviors, older people, intergenerational solidarity, resilience

Introduction

In relation to climate change activism, the youth has captured most of the attention of researchers in recent years (Davies et al., 2019; de Moor et al., 2020, 2021; Pickard et al., 2020; Halstead et al., 2021; Pickard, 2021). Concomitant to this research, there is a widely held belief that older adults are highly unlikely to adopt pro-environmental attitudes and, even more so, behaviors (Liere and Dunlap, 1980; Twenge et al., 2010; Johnson and Schwadel, 2019).

However, convincing studies show that neither age nor generational cohorts are correlated with the perceived severity of climate change and that environmental concern does not covary with age to the same extent as education, income, or occupational prestige (Jones and Dunlap, 1992; Gray et al., 2019).[1] Values and political orientations, much more than age or generational cohort, are determinants of climate activism (Gray et al., 2019). Furthermore, pro-environmental behaviors may include many actions: voting for political parties that make the fight against climate change an essential part of their platform, signing petitions, participating in social movements and associations that are active on the issue

1 A *generational cohort* is a generation of individuals who witness the same political, economic, and social events during the early stages of life and subsequently develop a similar set of beliefs, values, and behaviors (Inglehart and Flanagan, 1987; Padayachee, 2017).

of climate change, adapting lifestyle choices or consumption patterns, and, more generally, reducing their carbon footprint (Balsiger et al., 2019). It is in this broad sense that we understand the concept of climate engagement/commitment in this study. Some of these pro-environmental behaviors are more in line with the characteristics and the way of life of older adults, who have limited adaptative capacities to face climate change with respect to changes in physiology, decreased mobility, and more restricted access to social resources (Filiberto et al., 2009; Pillemer et al., 2009, 2011). Data from a representative sample show that generational differences are not noticeable, and there is potential for intergenerational alliances (Rosset, 2022). The gap between generations is larger for climate-related emotions than for climate-related beliefs (Poortinga et al., 2023), which is progressively disappearing due to a gradual convergence of climate-related beliefs and risk perceptions.

This paper is part of the research project "Fighting for the climate to age well?"[2] which aims to describe the attitudes and behaviors of senior citizens with regard to climate change, and to study the impact of their commitment to the climate on various dimensions of wellbeing.[3] The project is based around a survey using standardized questionnaires, the results of which are summarized in an initial report (Felix et al., 2020), and around 20 individual and group interviews. This study draws on the individual interviews and aims to complete the picture with an in-depth understanding of the emotional response of older adults to climate change and climate-related mobilizations.

Our quantitative study conducted in Switzerland between September 14 and October 26 2020 shows that people aged 64 and over are worried about climate change and are involved at different levels to mitigate its impact: most have adopted simple eco-actions that are compatible with their way of life, but some are committed to demanding collective action (Felix et al., 2020). For example, 96% of Swiss seniors citizens interviewed believe that the climate is changing (Felix et al., 2020). Further, the study reveals that some forms of engagement for the climate are widespread among this population. While older adults are unlikely to make radical changes in their mobility or diet and are less likely to participate in protest mobilizations, they tend to sign online petitions, vote for parties that support climate change action, and support environmental organizations financially (Felix et al., 2020). They readily adopt basic eco-actions—e.g., reducing energy consumption, reusing disposable products—and easily undertake reductions in consumption or changes in diet, e.g., eating less meat (Felix et al., 2020). The most active older adults participate in movements such as Grandparents for the Climate and are members of multiple associations; they have participated extensively in climate marches, some in a distant way as spectators and others in a very committed way, for example by playing with a brass band. They felt welcomed by the young demonstrators and were deeply affected by the experience of this massive mobilization. Many remained active at the end of 2019 when the mobilization movement of climate march started to lose steam and grew more diverse (Lorenzini et al., 2021).

Nevertheless, youth activism continues to dominate the field of climate emotions, where collective guilt, social identity, environmental threat, and climate change risk perception have been identified as indirectly related to protest intention and collective climate change action (Brügger et al., 2020; Haugesta et al., 2021). In contrast, little has been said about the emotional response of older adults to the climate crisis. For example, we have only recently learned that older militants taking part in climate protests are less likely than their younger counterparts to report that they fear climate change (Lorenzini and Rosset, 2023), but they are significantly more likely to report feelings of anger. While it is easy to understand why older people do not fear losing access to vital resources as much as youths, we know neither what negative emotions they experience nor how experiencing these emotions contributes to their specific mobilization, which in turn affects their mental state. It is, however, recognized in the literature that older adults are more resilient than young ones (Gooding et al., 2012; MacLeod et al., 2016; Wagener et al., 2022), especially with respect to emotional regulation and problem-solving abilities, with an exception regarding the social support dimension (Gooding et al., 2012; Wagener et al., 2022). We understand resilience as the behavior "to protect oneself by avoiding psychological harms from bad experiences" (Pearlin and Schooler, 1978, p. 2). This capacity "usually fluctuates across the lifespan and is often interrelated with some psychological conditions" (Chen, 2020, p. 104), and as such, resilience develops and changes over time through "ongoing experiences" (Resnick, 2014, p. 155). How do older people feel about the current climate situation? Are they afraid for themselves? For others? How do they make sense of their past actions or inaction? How can they cultivate "healthy emotional responses" (Kelly, 2017, p. 26) to combat climate anxiety? What are the resilience-related coping skills mobilized by older adults with minimal social support? By answering these questions, we hope to contribute to a better understanding of the emotional resilience of climate activists, particularly older adults.

Materials and methods

Understanding the relationship between emotions and environmental behavior is quite complex. Climate change triggers

2 The project is directed by Jasmine Lorenzini and Jan Rosset at the Institut d'études sur la citoyenneté (INCITE) at the University of Geneva and funded by the Leenaards Foundation under a call for projects entitled "Qualité de vie 65+."

3 The project is based on a threefold definition of wellbeing: hedonic, eudemonic, and social. One of the limitations of most research to date is the one-dimensional view of wellbeing, focusing mainly on hedonic wellbeing (Diener et al., 2003). These studies focus on happiness, life satisfaction and the balance between positive and negative effects. However, as Ryff (1989) and Ryff and Singer (2008) points out, the study of wellbeing cannot be limited to this dimension. It is important to consider the eudemonic dimension of wellbeing, which refers to the enhancement of each human being's potential. This is a conception of wellbeing that is based on the idea that individuals wish to make the most of their natural gifts, develop them and be socially recognized for these skills. Another way of enriching our understanding of wellbeing is to follow Son and Wilson's (2012) proposal, which takes account of the social dimension of wellbeing. This third dimension involves analyzing the relationships between the individual and the community in which he or she is embedded—both family and friends, but also the wider community.

a variety of responses, which in turn shape people's reactions to the climate crisis in a "profound but complex way" (Pihkala, 2022, p. 9). It implies taking into account many social and personal factors (Gifford and Nilsson, 2014). Many emotions do not result in behavioral impacts, and while there is a consensus on the fact that emotions can play an important role in causing action, there are deep disagreements on the intensity and nature of this role, which may be direct or indirect "in stimulating retrospective appraisal of actions" (Baumeister et al., 2007, p. 168). Emotions themselves are multiple and interrelated and refer to a variety of mental states of different intensities (Pihkala, 2022).

In this paper, we define *emotions* in a broad sense as mental states (Goldman, 2006), an "affective phenomena which can include many emotions" (Pihkala, 2022, p. 9). They relate to cognitive and affective phenomena and may differ in intensity, temporality, and modality (Pihkala, 2022). In this broad sense, it is "typical for climate emotions that they manifest together with various other emotions, in a plurality of compositions" (Pihkala, 2022, p. 9). What is commonly called "climate anxiety" covers a large spectrum, including "worry about threats to livelihood, worry for future generations, worry about apocalyptic futures, anxiety at the lack of response to climate change, and competing worries" (Soutar and Wand, 2022, p. 990). Further, response to climate change includes symptoms of anxiety, feeling helpless and disempowered, and ways of managing climate change anxiety (Soutar and Wand, 2022).

Some emotions are well-established in the literature on climate emotions. For example, fear is related to risk perception and linked to feelings of insecurity and the psychological need for security (Pihkala, 2022). Worry is defined as "negative or apprehensive thoughts about climate change that may be repetitive, difficult to control, or persistent" (Stewart, 2021, p. 494; Soutar and Wand, 2022, p. 2), which derives from the more rudimentary emotions of fear and anxiety (Ojala et al., 2021, p. 37). Grief is described as feelings of intense sadness in response to a loss (Barbato and Irwin, 1992; Eaton, 2016). Finally, hope is connected to "the belief that something positive, which does not presently apply to one's life, could still materialize" (Lazarus, 1999, p. 653).

However, there are very different typologies of climate emotions. For instance, Pickard (2021, p. 11) has pointed to the emotional responses of youth activists using three main groups of emotions and feelings: (1) "fear," "anxiety," "sadness," "despair"; (2) "anger," "annoyance," "frustration," "rage"; (3) "solidarity," "relation," "joy," "hope" (Pickard, 2021). Pihkala (2022, p. 9) has proposed another taxonomy of climate emotions with four key couplings: "fear/worry/anxiety, sadness/grief, guilt/shame, and hope/empowerment." While there is no consensus on a unique taxonomy of climate emotions, most classifications in the relevant literature agree on the need to group similar emotions and distinguish between negative and positive ones (Pickard, 2021; Pihkala, 2022). We limit ourself in the next sections to a group of negative emotions and a group of positive emotions. These two broad groups encompass the dichotomy between (many) negative and positive emotions that every typology of climate emotions includes. This binary approach is justified for heuristic reasons, but it has its limits. By not distinguishing between emotions, we risk ignoring the singular emotion involved, the variety of positive and negative emotions and their interconnection with similar cognitive and affective phenomena. Furthermore, by treating positive and negative emotions separately, we risk ignoring the ambivalence that can characterize many emotions. We will return to these issues in the Discussion Section.

The research project is divided into two parts, a quantitative part in the form of a survey and a qualitative part based on individual and group interviews. The survey respondents were recruited from within a representative sociodemographic sample (drawn at random) of the population of French-speaking Switzerland aged 64 and over, contacted by mail to participate in the online survey on environmental concerns and community involvement (Felix et al., 2020).[4] Of the 2,900 people contacted, more than half responded, with a final sample of 1,575 respondents (more than 9/10 of whom answered all the questions). In addition, members of associations that are active in climate-related advocacy were asked to answer the questionnaire to allow for an over-representation of this profile in the sample. In the end, 441 people participated (see Felix et al., 2020 for the full details). The respondents who completed the online survey were given the opportunity to provide their contact details if they were interested in participating in the qualitative part of the study (Grand et al., 2022). We selected the people to be contacted for participation in the individual and group interviews on the basis of three criteria: (a) gender (to invite as many women as men to participate); (b) membership in an environmental association (to have people who were or were not involved in collective reflection at the associative level); (c) place of residence (to interview people who lived in different cantons of French-speaking Switzerland). The people we contacted were asked to take part in two face-to-face interviews, one individual and one group. Each interview lasted ∼60 min, so a relatively high level of involvement was expected. There was no financial incentive to take part in the study. We contacted 14 people by email and eight agreed to meet us. They were asked to identify two friends or acquaintances who could grant an individual interview and take part in the group interview with them. However, four people had no friends or acquaintances willing to take part. They therefore only took part in the individual interviews. A total of six group interviews and 18 individual interviews were conducted. Only the latter form the basis of this study.[5] Certainly, participation in the study was to some extent affected by self-selection bias. The high level of commitment required for the interviews, the absence of incentives and the fact that some of the interviewees were invited by others to participate explain why only two of the interviewees limited themselves to small daily eco-gestures (interviews 1 and 10). All other interviewees are actively involved, through various associative affiliations or, more rarely, participation in protests. In this sense, we have mainly a sample of senior citizen activists. This is not a problem insofar as we are interested in the emotional resilience of seniors aged 64 and over engaged in pro-environmental behaviors, and provided we have a sufficient diversity of profiles. These are described at the beginning of the "Results" Section.

4 Data collection: Felix, AS, Lorenzini, J and Rosset, J; interpretation of results and report redaction: Felix, AS, Lorenzini, J and Rosset. I integrated the research team in November 2021 only, to conduct the qualitative part.

5 Group interviews enable to link collective interactions and deliberations with the information on forms of commitment, motivations and resources.

Data were collected, transcribed, and coded by our research team.[6] The qualitative data were collected by our team from March to July 2021 in four cantons of French-speaking Switzerland (Geneva, Jura, Neuchâtel, and Vaud). Data collection took place in a turbulent context in terms of public health, in the midst of the COVID-19 pandemic, but also politically, as some of the interviews took place around the popular vote of June 13, 2021, during which the federal law on the reduction of greenhouse gas emissions (the CO_2 law) was defeated. The COP25, which failed to go further than the Paris agreements on key points on mitigation, adaptation and financing, was also on the minds of some of our interviewees.

Our individual interviews were conducted face-to-face based on a semi-structured interview grid consisting of three parts that asked seniors about their concerns about global warming, the environmental actions and commitments they undertake, and their wellbeing. Thus, the first set of questions identifies their concerns, while the others explore what they do to address these concerns (e.g., adopting environmentally responsible behaviors, voting for climate-friendly parties, signing a petition, participating in a demonstration, joining organizations, participating in civil disobedience) and what impact this has on their wellbeing.

The interviews were then transcribed in early 2021 and analyzed between June 2021 and January 2022. A summary of the individual interviews, which have been anonymized, is available in the Appendix. For the analysis of data, we used thematic analysis (see Ritchie and Lewis, 2003), some of which was performed using the Atlas.ti software. It was chosen as the best method to identify beliefs, behaviors, and mental states and to find out people's negative and positive emotions generated by the climate crisis. Negative emotions are treated as a "concern" in the interviews, while positive emotions are discussed under the label "wellbeing." From these two broad categories, we have extracted eight organizing themes that have been identified and refined in an iterative process between the data and the analytical framework. They will be presented in the Results Section.

There is no doubt that we can only have a partial representation of these mental states, passed through the filter of the interviewee—what they say they feel—and through the filter of the researcher—how we receive and analyze what they said they feel. On the one hand, the emotions thematized and narrated are only part of the emotional state of these individuals; beyond these "reflexive emotions," there are "affective tensions" and "unseen and often overlooked emotional dynamics" (Neckel and Hasenfratz, 2021). The focus here is in what older adults *say* they feel about the climate crisis and related mobilizations. The words used by older people thus only partially reflect their emotional state, particularly the part they are conscious of, the one they can name, and the one which contributes to shaping the public debate on environmental issues. On the other hand, thematic analysis is a method of analyzing that involves looking for patterns in the meaning of the data in order to find themes. It is an active process of reflexivity and we have given meaning to the data through our own subjective experiences, with some of our preconceptions about older people and climate change. We will return to these issues in the Discussion Section.

Results

The term "older people" used in this paper applies to all 18 interviewees. Ranging between 65 and 83 years old, most are still socially active and in good health, although some are experiencing physical difficulties due to a major health problem. Generally, they have a good level of education and have retired from careers in the service sector as teachers or professors, chemists, health auxiliaries, nurses, medical secretaries, social workers, architects, engineers, bankers, salespeople, or pastors. All interviewees said that they practice everyday commitment (adapting lifestyle choices or consumption patterns and reducing their carbon footprint) and tend to vote for candidates and parties that integrate the environment into their program. Those actively involved in associations are members of multiple organizations and were generally recruited through their close network, often linked to their past professional world. Some are members of the Socialist Party, the Greens, and the Christian Democratic Party, but few hold or have held an elected position. The panel includes seniors with very different levels and types of engagement. For the purposes of the analysis, we have distinguished three types of commitment: everyday commitment, associative commitment, and protest. Everyday commitment includes interviewees who adopt at least some eco-responsible behavior. Associative commitment encompasses participation in various political, social, and cultural associations and activities in the environmental field. Finally, protest engagement refers to unconventional forms of political participation, including demonstrations, boycotts, and acts of civil disobedience. These levels of engagement lie on a continuum and can be cumulative. While all of our interviewees said that they practice engagement on a daily basis and tend to vote for candidates and parties that integrate the environment into their program, only two people limited themselves to this category (Interviews 1 and 10), and eight were actively involved in cultural, social, or political associations (Interviews 3, 4, 5, 6, 7, 8, 12, and 14). The protest commitment is strongly reflected in participation in climate marches (Interviews 2, 8, 9, 12, 13, 16, 17, and 18) and more rarely in the organization of demonstrations or engagement in boycotts (Interview 5) or acts of civil disobedience (Interview 15).

Negative emotions

A fear that is not for oneself

Most of the interviewees have adult children and grandchildren, and all of them are very concerned about future generations and climate change. It is an evidentiary reality that they think about "almost every day."

The words used by the senior citizens to describe the climate situation are chilling; "total extinction," (Interview 18), "extermination of humanity," (Interview 9), and "desolation" (Interview 12) are the terms used to describe the "great catastrophes that are going to happen," in the more or less near future (Interview 13). Seniors feel concern and sadness toward this "poor little

6 Data collection: Felix, AS, Lorenzini, J and Rosset, J; transcription: Felix, AS; interpretation of results: Jérôme Grand; draft manuscript: Jérôme Grand, preparation: Jérôme Grand.

planet," which is "getting worse by the week" (Interview 12). The idea that we are at the "end of the game," (Interview 3), that the "end is near," (Interview 16) and that it may be "already too late" (Interview 2) is very strong. Seniors are confronted with the consequences of climate change, especially in relation to their exposure to news and information and their daily lives, through directly observed changes. They have ample opportunity to discuss the subject with their families and friends, and for those people aged 64 and over, climate change is a tangible reality. They have experienced different eras and have seen the disruption of the seasons and the loss of biodiversity with their own eyes. While few consider that there are bigger or equivalent problems, all consider that climate change is not a threat to themselves. They feel that they have "made their life" and that "their life is behind them." Pierre,[7] a 70-year-old former teacher, illustrates very well the position expressed by our interviewees:

> "It doesn't put my life in jeopardy, once again—I'll probably tell you several times, but my life is behind me; I'm happy with what I've lived" (Interview 12, p. 5).

Elise, a recently retired pastor, agrees:

> "We know that we have already lived a large part of our life, so there is a kind of philosophy, too—acceptance of what is to come, which I perceive differently. I wouldn't have told you that when I was 30. It's also about duty accomplished: you've done your professional life, you've finished bringing up your children; in the end, you're happy to live a little longer and to get involved if you can" (Interview 5, p. 6).

They feel that climate change does not currently impact their daily lives. For example, heat waves are barely mentioned. Thus, "for themselves, there is no real cause for concern," as the coronavirus (COVID-19) is a much more concrete threat to them than climate change. George, a retired chemist, explains: 6g

> "In the end, we don't really care about it in our daily lives. It's the Corona[virus] that affects us more, what to do on holiday, what I'm eating tonight, what I'm giving my grandchildren as a birthday present (...) these are the kinds of things that concern us every day. I think we cannot always think about this climate—we would go crazy. (...) The extermination of humanity is a threat that is perhaps too abstract. On the other hand, if I fall ill and perhaps die, it affects me much more directly" (Interviews 9, p. 2).

Despite this personal distance from the consequences of global warming, all the interviewees relay concerns about these changes and their consequences. They are aware that, for those to come, "life will become more complicated in every respect." The concern is dedicated above all to the young people in their lives: their grandchildren, younger family members, the children of friends, and even those they meet in the street. Isy, a 66-year-old university pensioner, summarizes:

> "In those around us, the youngest, those who are going to die of heat, die of anxiety about the great geopolitical changes, and then die altogether, I am very anxious" (Interview 17, p. 7).

Thus, there is no reason to worry "for oneself personally" but "for the generations that follow." Consequently, grandparents show themselves to be very worried for their children and grandchildren. Elise and George, both grandparents, testify:

> "The future of the elderly is relatively short [laughs], so I don't think too much about what I'm doing before I go to St George's.[8] Maybe that's also one of the reasons why, as an older person, it's harder to get involved. Because you say, "my personal catastrophe is that I'm going to die long before all this." So I understand young people better because, for them, this is the real future; this is real life. If all these disasters happen, they will live through them, so young people see it in a different way than we do. For us, it's an act of solidarity (...). My children are both happy, they live in a good place, and if all that breaks down and they are refugees somewhere, if they live in a hut, I cannot imagine. Maybe that's what's looming on the horizon" (Interview 9, p. 13).

There is a widely shared fear for their grandchildren, who are less concerned and less interested in adapting to the coming changes, yet they will be the only ones to suffer the full consequences:

> "I am afraid for my grandchildren because I think they are very spoiled, and I am worried that they will have to make big sacrifices, which we do not need to make at the moment" (Interview 13, p. 12).

Marc, aged 74, and Pierre, aged 72, testify to the discrepancies they see in their own family:

> "They are not used to this. They are not confronted with this. Everything is a bit too easy. We lived through a period that was a bit too easy, and then now it's also more complicated, and now it's going up in smoke; it's going to be difficult. So I think that our youth are not ready to face something like that—some of them, anyway. That's why we try to pass on as much resistance as possible to our young people" (Interview 3, p. 6).
>
> "It scares me about what they're going to go through because it's a short-term thing. They will probably have to make sacrifices, give up things they are not aware of. (...) My grandson, well, he has a car, he would like to do rallies, there you go—he has 20-year-old dreams" (Interview 12, p. 2–3).

Responsible but not guilty

All people interviewed admit responsibility toward future generations concerning "what kind of world we are leaving them." However, only a few express a feeling of guilt. These rare individuals think they are the generation that "screwed up everything," and they harbor a sense of guilt reinforced by the idea that they will not experience the coming crisis, which leads to a form of relief. Isy explains:

7 All the names used are fictitious to protect the anonymity of the interviewees.

8 City of Geneva cemetery.

> "Our generation, we've taken advantage of this race toward overconsumption—the advantages of comfort and life. And then when I see the curves [on the graph], I say to myself that I wouldn't be on this earth anymore, and then [feel] a kind of internal relief, but completely full of bad conscience" (Interview 17, p. 2).

New activists, people who had never been involved in a social or environmental cause before retirement, often feel a strong sense of individual guilt for their past inaction. This feeling is redoubled when it is associated with a health concern, a physical handicap, or a decrease in ability that limits the possibilities of new commitment. These people mention their active life, "obligations," and "professional interests" to justify this late commitment, insisting that they were working and did not have the time to get more involved.

Nevertheless, many reject a kind of generational responsibility and assert that they do not feel "guilt, but responsibility." They deny personal responsibility for the consequences of climate change and underline being "part of the system." They are "responsible in the sense of action, what we can do," but they are "not responsible for this situation." This feeling is clearly reinforced among activists who have been acting to prevent climate change for a long time:

> "I feel responsible but not guilty, I have followed my line (...) maybe I should have raised my voice even more" (Interview 13, p. 4).

Thus, if seniors recognize a special obligation to commit, it is not linked to past actions and how their generation has lived; it is much more linked to their privileged status as seniors, with the benefit of time and money:

> "As seniors, we have to feel responsible for what happens. We have to encourage the seniors to get moving, to say to themselves that we have time and money" (Interview 13, 12).

The feeling of powerlessness

In order to effect social change, older adults rely mainly on schools, political power, and the law (Felix et al., 2020). The interviewees are however rather pessimistic about the possibilities of accomplishing social change and are very skeptical about the ability of governments to solve climate change problems (Felix et al., 2020). Despite the "powerlessness of the international community," many seniors stress the need for a global strategy. The role of civil society is often reduced to raising public awareness and putting pressure on political parties. Only a few seniors believe that science and technology will solve the problems related to global warming. All point out the insignificance of acting on an individual or national scale. Most explain that they alternate between periods of awareness and denial, as one former senior civil servant explains:

> "We repress these ideas; it is too painful. This is also one of the reasons why the vast majority, including ourselves, are not very active" (Interview 16, p. 3).

Some would like to be exposed to less information. A 66-year-old retired woman notes:

> "It's at the limit of what I can tolerate myself, and I prefer not to think about it. It's so hopeless that I protect myself" (Interview 17, p. 15).

Faced with a worsening situation, they are torn between the idea that they "won't be around to see" the coming changes and that they can make the most of the current moment vs. the feeling that they have a responsibility to act regardless of this reality. As a retired university teacher and member of Grandparents for the Climate states:

> "Screwed for screwed, we are still living in our local comfort and narrowness, and still, I cannot—so I continue, but with a lot of discouragement and bitterness and even more anxiety" (Interview 17, p. 7).

Some seniors have been activists all their lives, and others have dedicated their retirement to continuing to raise awareness. Yet, none of this work could prevent the present situation, as Estelle, a socialist activist, testifies:

> "What shocks me is that for the last 25 years, I've been there, and it's become worse and worse. We have the idea that we have fought, yet it has become worse and worse. And we even see that in our daily lives, things have changed before our eyes and that, in fact, we have had no major impact, though we recognize the change—but, why we are where we are now, we find it hard to understand" (Interview 18, p. 4).

For the old guard activists, environmental concerns only grow over time, turning into sadness, weariness, frustration, and anger: a "revolt over a world that refuses to move" (interview 13, 3). Those who have "always dreamed of changing the world" often feel a form of weariness regarding institutional and associative approaches and the desire, if not the call, for something new. They no longer have the energy to carry out projects, and they feel a form of frustration with the political game, in which "active people are always being held back by others—that's the democratic game" (Interview 18, p. 8). As such, long-time activists are somewhat disillusioned about seeing social change directed through institutional and associative channels that they have practiced for too long. They are aware of the "complexity" of the world and are tired of repeating the same processes:

> "I know too much about how things work—it always seems to me to be the same thing (...). In the end, in politics, you realize that there are walls everywhere, so you don't necessarily obtain results over time" (Interview 18, p. 7).

For the eldest, this feeling of inertia is coupled with the awareness of their decreased mental and physical capacities. Pierre, a 72-year-old retired teacher, evokes a form of physical and mental wear and tear:

> "The wear and tear is, first of all, physical fatigue, that's it—the body; I cannot do sessions until two in the morning; I'm no longer operational. So there's physical wear and tear, but there's also a bit of mental wear and tear because you have ideas, but they don't go as quickly, they're less creative, and they're more

> marked by experience. There's moral wear and tear, and that's the hardest thing for me to live with—moral wear and tear in the sense that I cannot see the next step coming, I cannot see people taking over" (Interview 12, p. 18).

In contrast, for those who claim not to be committed to collective actions (associations or protests), small actions for the environment can give them a sense of responsibility. The very famous legend of the hummingbird, the little drop of water of "each one does their part," is a metaphor widely used by these interviewees. Sorting waste, consuming locally, limiting the use of cars, and eating less meat—all of these elements combine health and ecology and essentially require time, and a small quantity of money, that the older people interviewed have. None of the interviewees felt that adopting these measures constituted a deprivation, a sacrifice, or a renunciation.

Positive emotions

Feeling useful

Simple eco-actions are particularly suited to the abilities, experiences, and lifestyles of seniors; they provide a sense of "usefulness" (interviews 4) without compromising the quality of life of those who adopt them.

Some feel however that activism is "indispensable" and allows them to do "a little something." A 70-year-old former nurse relays that "taking action helps us to live through this period," in particular, in environmental commitment, they "feel useful" and "legitimized by scientists" (interview 13, 4). What makes them appreciate engagement is, above all, the pleasure of being useful, of contributing to a cause or a project. Pierre explains:

> "This driving force is the satisfaction—not of having changed things, I didn't see them change much—but it was working on a project. It was basically, yes, the activist motivation; it was to have a project and to go for it" (Interview 12, p. 19).

They find in their commitment a form of recognition, as Arthur, 74, clarifies:

> "It's a way of recognizing, of being recognized for my skills, for being someone who is still useful. So yes, it is rewarding (...). Otherwise, I'd go to the singing society or the jazz club [laughs], although maybe they still have common goals. I don't take part in things that are purely leisure activities; I have no commitment of that kind" (Interview 16, p. 10).

These commitments help to show that older people can still be useful to society. Isy, who is 66 years old, involved in politics, and has been elected to the legislature of her commune since her retirement, adds:

> "I have the impression that I can give and that I also receive a lot in return. It is very rewarding, and I am very grateful. It has also given me a lot of opportunities for first-hand information (...). I can express my ideas—my positions, which are obviously more like the group I'm in. And then, I make myself available to facilitate information—I write the minutes of our meetings. I play the role of a retired person who has time. I try to be useful, and that also satisfies me a lot. I have no political ambitions—my only ambition is to share the opinions of my party and what we can do in concrete terms in the committees and then to be useful to my colleagues; that gives me pleasure" (Interview 17, p. 13–14).

Certainly, the most rewarding associative commitments for the most qualified seniors seem to be those that make use of their experience and the skills they developed during their careers. Most of the people active in environmental associations were recruited through their professional networks, including a math teacher colleague, a colleague from an international organization, and a former department head. In this respect, the commitments are often linked to the professional skills that older adults bring to the table, especially for those who were deeply committed to their profession or worked in a scientific field.

The joy of togetherness

A 70-year-old participant, who is very involved in associations and politics, says that his "life as an activist has been a joy." In this study, positive feelings are, above all, deeply linked to the pleasure of being with others. Arthur, 74, active in *Grandparents for Climate*, explains:

> "We've become good friends. It's a very nice relationship. Generally speaking, I have adopted the philosophy, as I am retired, to say, 'I participate in things I enjoy.' If I don't enjoy it, I stop, because no one really forces me to do the things I stay in—they're things I enjoy, and I think that's really important because otherwise (...). Enjoyment. It's really that—it's to stay in touch, to meet new people, people from a different background than those I've worked with in my professional life; it's enriching" (Interview 16, p. 10).

They draw hope from the people they meet, with whom they agree and with whom they can share their concerns and act together. In environmental associations, "people getting together" is an "antidote" to be cultivated collectively. Alice tells us:

> "There is the action that allows me to counterbalance my deep anguish (...) I navigate between a kind of despair, and then from time to time I tell myself that these associations are a kind of antidote to despair, eco-stress, and eco-anxiety" (Interview 17, p. 7).

Seniors involved in associations are particularly motivated by the fact that they are surrounded by like-minded people, people who are also "aware" of climate issues, who share the same concerns, and who are trying to do something about them as much as they can. Committed seniors thus appreciate "being with like-minded people" with whom they get along well and have an enjoyable time. They develop "cordial, warm" relationships in a spirit of "benevolence" and "mutual sympathy" aimed at "cultivating the antidote together." Indeed, it is in the *vase-clos*

of like-minded circles that engaged seniors find the resources to address their concern for climate change and to "counteract climate anxiety." This activity provides them with a form of "inner security" and allows them to build friendships that are "as important as or more important than family." Many of the interviewees note that they frequent "circles of conviction" where everyone agrees and shares the same opinions, values, and way of thinking. Also, older people involved in climate mobilizations are rarely confronted with contradictory opinions, and only political involvement seems to allow them to "confront ideas in the diversity of opinions." However, many activists are aware that their activities take place in "a bubble," stating that "chattering among convinced people like us, it feels good, but it doesn't solve anything" (Interview 17, p. 11).

Hope in others

Many older adults counterbalance their worries with the hope linked to the mobilizations of the strike movement and the climate marches that have been organized since 2019. High-profile youth engagement and the "unbelievable energy" it has generated are seen as "a relief," a hope that "the movements will get underway." For the older climate activists, the 2019 mobilizations are about being together and doing something, about "staying positive and focusing on the people who are doing something," and some feel "that's why the youth movement is doing so much good."

In particular, for people who were not involved before their retirement, 2019 and the strong youth mobilizations were a trigger, a "pleasurable" moment when "we felt that something was happening, thanks to young people." This young retiree testifies to this feeling and its aftermath:

> "I found myself happy to be an activist (...) much less carried away by the feeling that we are part of the change as in 2019 (...) we were young people (laughs), it was the antidote to aging" (Interview 17, p. 6).

Climate activists who have been active for several decades, who have spent a lot of time and energy campaigning for a change in society that they never saw coming, feel "happy that young people are taking over" and bringing in new energy. This former nurse, who was active in the Grandparents for the Climate organization, explains:

> "At first, it was a relief for me because I had been an activist all my life without any success" (Interview 13, p. 9).

As they were unable to accomplish the institutional changes they were seeking, they have welcomed new methods. Also, seeing their forces diminishing, committed seniors can only make sense of their fight for a change in society in terms of succession:

> "It is the transmission that is important to find people who want to commit themselves, who have fresh blood, who have the necessary punch and new ideas that we did not have. So I'm very happy to pass them on" (Interview 18, p. 5).

Although many older people believe they have a role to play in supporting these young people who are mobilizing, their commitment deliberately remains in secondary roles. Faced with the mobilization of young people, many older activists see themselves as a necessary support system for this youth movement, which should not bear the burden of change alone:

> "We rely a lot on young people (...). We say youth, but we have to be by their side so that they don't lose heart and have the courage to take action. In this sense, an association such as Grandparents for the Climate carries an intergenerational message that expresses the idea that "we older adults still have a role to play" (Interview 16, p. 7).

This hope in young people is closely linked to the 2019 mobilizations, and when we look at the young people around them, the picture is much less optimistic. Within the family, or close circle, there is often the paradox of feeling more concerned and involved than the generations that will themselves be affected by this change. A 69-year-old grandmother involved with the Greens notes:

> "I have seven grandchildren, and I would like them to be a little more interested, frankly, in what is waiting for them. I consider that I am rather behind" (Interview 12, p. 1).

Discussion

We have proposed an in-depth understanding of how older people understand and make sense of climate change: how they see the future, what they fear, and their hopes. The insights we have gained should not be over-generalized. Our respondents were motivated to take part in two 1-h interviews and feel concerned by climate change, many of them being members of associations and have been engaged in various protest activities. They cannot speak for all the elderly. But their testimonies allow us to understand the process of resilience that enables these committed seniors to overcome their anger and despair and to nurture positive feelings to continue their mobilization. The positive and negative emotions they experience contributes to their specific mobilization, which in turn affects their mental state.

In the context of climate change, it seems normal that the fear of losing access to vital resources is not equally shared among all generations. Results show that, even if they were to experience major climatic changes in the latter part of their lives, older adults consider that they have made their life and have little to lose. Disease and COVID-19 represent much more concrete threats. Nonetheless, they note being "concerned" and "anxious." They are apprehensive about the fate of future generations, and most of them fear an extinction that they will not see themselves. There's something here that goes beyond fear for one's own person and amounts to empathic anger or moral outrage (Hechler and Kessler, 2018; Antadze, 2020), a special type of anger, triggered by the harmfulness of the situation for others.[9] This broad sense of

9 Moral outrage is defined as the "anger provoked by the perception that a moral standard—usually a standard of fairness or justice—has been violated" (Batson et al., 2007, p. 1,272). Hechler and Kessler (2018, p. 272) consider that "moral outrage is triggered by the wrongfulness of an action (i.e., a

morality, in part due to their latter life stage, shapes older adult's motivation to act. Nonetheless, their concerns are not only macro-sociologic but also micro-sociologic (Boehnke and Wong, 2011): the general information on global warming that they receive, and to which they are especially receptive, indirectly represents a threat to their offspring and close circle. This understanding undoubtedly explains the high level of concern among committed seniors (Felix et al., 2020), an explanation that is entirely consistent with the fact that committed young people—who rightly take the threat and the risks for themselves—feel more fear about the danger. Older adults do not feel guilty about the situation. The idea of being responsible but not guilty appeals to a notion of accountability that is "not only a property of the author of the act"—it is a matter of "collective consciousness," a social fact that emerges "outside the responsible subject" (Guerin-Lavignotte and Kerrouche, 2001, p. 143). In this understanding of responsibility, which can be described as politico-moral, one can therefore be responsible but not guilty for one's actions. Above all, responsibility is attached to functions and status (Guerin-Lavignotte and Kerrouche, 2001), particularly the privileged status older adults believe they possess in terms of time and money. Psychological resilience, as the capacity of avoiding psychological harms, includes emotional regulation, problem-solving abilities and social support; and older adults are known to be more resilient than young ones with respect emotional regulation and problem-solving abilities (Gooding et al., 2012; Wagener et al., 2022). In the context of climate change, however, the problem-solving dimension of older adults' resilience is hampered by the institutional complexity that older militants have experienced in previous life stages and, maybe, by the complexity of the climatic problem itself. Those who are actively engaged in environmental advocacy, those who feel more exposed to information on climate change and more concerned about it, say they are aware of both the seriousness and complexity of the problem and the limits of their actions and of democratic institutions. Faced with the limits of their capacity to act as citizens and their diminishing physical capacities as individuals, seniors express a form of moral distress, oscillating between despair and powerlessness.

Regarding emotional regulation, a wide range of negative emotions related to environmental problems can be transformed into "constructive responses" (Ojala et al., 2021, p. 35). It is established in the literature that the fear felt by young people has been an important driver of the collective mobilizations that have taken the form, since 2019, of massive demonstrations and ostentatious acts of civil disobedience. As Pickard (2021, p. 18) explains, initially "overwhelmed," young people "become angry and frustrated with politicians, which mobilized them in collective environmental protest movements that provide camaraderie, joy, and hope." Previous studies have found a positive relationship between environmental commitments and a person's level of physical activity, subjective life satisfaction, and positive feelings (Gagliardi et al., 2020), especially in later life (Pillemer et al., 2009). According to the literature, these activities provide older people with physical activity and in-person encounters, which help give meaning to their lives and allow them to meet people with whom they share the same interests. In particular, through these interactions, engagement generates social capital, itself a source of physical health and subjective wellbeing (Helliwell and Putnam, 2004). What makes Swiss senior citizens appreciate commitment is, above all, the feeling of doing their part, the pleasure of being useful, of contributing to a cause or a project, the reassurance of sharing anxieties and fears with others, and the possibility of nourishing the hope of a future change.

Their negative emotional state is lightened by the feeling of usefulness they develop following their commitment to environmental causes, by the pleasure they feel in being with others, by their relief at seeing young people mobilize and take the reins, and by the very idea of coming together to overcome common difficulties.

The protest movements of young people have been unanimously apprehended as a message of hope and an invitation to join. Faced with a hopeless situation, with a world they saw coming without having been able or willing to make it different, and with the slowness and redundancy of the political and associative processes, the protest movements led by young people have imbued older people with the hope they had lost. Youth mobilizations offer the expression of a set of shared emotions in the public forum and a network of like-minded individuals in the street. In the context of climate mobilizations, older adults benefit from substantial social support for resilience as the social resources of youth activists spill over to their elders, directly for the most active who join the protests or indirectly for those who have finally seen "those who think like them" rise in numbers. Youth crystallizes their hopes, and sometimes their disappointment, for the future of the planet.

The results show that although the binary division in positive and negatives emotions is very simplistic, it did not prevent us from identifying more specific groups of emotions. The thematic analysis allowed us to extract eight organizing themes from the interviews: usefulness, togetherness, joy, hope, fear, guilt, powerlessness, and anger. To be sure, these themes are the product of our analytic framework and the deliberate theoretical choices that we made. Our preconceptions on older adults and climate certainly influence their conceptualization. Nonetheless, these themes are built through an iterative process between the data and the analytic framework, our conceptual categories have been confronted to what interviewees said and revised accordingly. For instance, the theme "Responsible but Not Guilty" was primarily focused on "generational guilt." This idea is very present in the discourse carried by the climate strike movement and in the literature analyzing it. For instance, Great Thunberg contrasts in her now famous speech to the UN "her generation," "the young people" who should be in class and who will have to "sacrifice their lives" to "absorb the excess tons of CO_2," with those who "have known for 30 years" and who dared to steal "their dream" and "their youth" (Thunberg, 2019, p. 1). However, this line of analysis has been confronted with the interviewees' absence of guilt and their insistence on a shared conception of politico-moral responsibility. Furthermore, the linear presentation of the results in terms of negative and positive emotions does not prevent links being made between the two. For many of the older adults interviewed, the behavior of the younger generations gives rise to hope tinged with fear and the

perpetrator's intention to harm), whereas empathic anger is triggered by its harmfulness (i.e., the actual harm done)."

hope of renewal is not without the fear that it will not happen. Despite the separation between positive and negative emotions, this ambivalence is evident in the results. Further studies are required to explore the way by which these positive and negative climate emotions are intimately linked and co-interact in a complex way in the processes of resilience. This would require complex models and our qualitative study can only give a limited account of it.

The qualitative sample shows that older people engage in pro-environmental behaviors, not out of fear of losing access to vital resources, but out of concern for future generations, humanity, and nature and with a form of empathic anger for a world that refuses to change. Despite the decreasing physical and cognitive capacities and a form of moral distress, they can count on the social support of younger generations, and they undertake actions that are compatible with their physical and cognitive capacities and that in turns affect positively their mental state. The strategies older adults undertake to mitigate their negative emotions are similar to the strategies mobilized by youth activists to overcome their fears. In both cases, they try to transform, under contextual constraints and through specific types of commitments, their negative emotions into positive ones. In both cases, anger and fear are powerful negative emotions, and the pleasure, joy, and hope of protesting with like-minded others is a kind of remedy. Between generations, emotions vary in intensity but not in nature, and the process of emotional resilience is similar. Nevertheless, older people face very different constraints. They must take action for the climate with fewer social resources and diminishing physical capacities, sometimes associated with a sense of efficiency weakened by their past attempts to change the status quo.

These similar but different reactions can be mutually supportive. On the one hand, older adults see the energy and enthusiasm of youth mobilizations as a promise of succession and the hope that change will finally come. On the other hand, seniors have a form of serenity, that of a life already passed, and of hindsight, nourished by various experiences, which can temper the ardor of reaction driven by fear. Social support, problem-solving abilities, and emotional regulation. There's plenty here to nurture each other's resilience processes and strengthen the intergenerational climate alliance.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent from the participants was not required to participate in this study in accordance with the national legislation and the institutional requirements.

Author contributions

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Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fclim.2023.1264495/full#supplementary-material

References

Antadze, N. (2020). Moral outrage as the emotional response to climate injustice. *Environ. Just.* 13, 21–26. doi: 10.1089/env.2019.0038

Balsiger, P., Lorenzini, J., and Sahakian, M. (2019). How do ordinary swiss people represent and engage with environmental issues? Grappling with cultural repertoires. *Sociol. Perspect.* 62, 794–814. doi: 10.1177/0731121419855986

Barbato, A., and Irwin, H. J. (1992). Major therapeutic systems and the bereaved client. *Austral. Psychologist* 27, 22–27. doi: 10.1080/00050069208257571

Batson, C. D., Kennedy, C. L., Nord, L. A., Stocks, E. L., Fleming, D. Y. A., Marzette, C. M., et al. (2007). Anger at unfairness: is it moral outrage? *Eur. J. Soc. Psychol.* 37, 1272–1285. doi: 10.1002/ejsp.434

Baumeister, R. F., Vohs, K. D., DeWall, C., and Zhang, L. (2007). How emotion shapes behavior: feedback, anticipation, and reflection, rather than direct causation. *Personal. Soc. Psychol. Rev.* 11, 167–203. doi: 10.1177/1088868307301033

Boehnke, K., and Wong, B. (2011). Adolescent political activism and long-term happiness: a 21-year longitudinal study on the development of micro- and macrosocial worries: personality and social psychology. *Bulletin* 37, 435–447. doi: 10.1177/0146167210397553

Brügger, A., Gubler, M., Steentjes, K., and Capstick, S. B. (2020). Social identity and risk perception explain participation in the swiss youth climate strikes. *Sustainability* 2020, 10605. doi: 10.3390/su122410605

Chen, L. K. (2020). Older adults and COVID-19 pandemic: resilience matters. *Archiv. Gerontol. Geriatr.* 89, 104–124. doi: 10.1016/j.archger.2020.104124

Davies, S., Wouters, R., Wennerhag, M., van Stekelenburg, J., and Uba, K. (2019). *Protest for a Future: Composition, Mobilization and Motives of the Participants in Fridays For Future Climate Protests on 15 March, 2019 in 13 European Cities.* Available online at: https://protestinstitut.eu/wp-content/uploads/2019/07/20190709_Protest-for-a-future_GCS-Descriptive-Report.pdf (accessed November 07, 2022).

de Moor, J., De Vydt, M., Uba, K., and Wahlström, M. (2021). New kids on the block: taking stock of the recent cycle of climate activism. *Soc. Mov. Stud.* 20, 619–625. doi: 10.1080/14742837.2020.1836617

de Moor, J., Uba, K., Wahlström, M., Wennerhag, M., and De Vydt, M. (2020). *Protest for a Future II: Composition, Mobilization and Motives of the Participants in Fridays For Future Climate Protests on 20-27 September, 2019, in 19 Cities Around the World.* Available online at: https://protestinstitut.eu/wp-content/uploads/2019/07/20190709_Protest-for-a-future_GCS-Descriptive-Report.pdf (accessed December 17, 2022).

Diener, E., Oishi, S., and Lucas, R. E. (2003). Personality, culture, and subjective well-being: emotional and cognitive evaluations of life. *Ann. Rev. Psychol.* 54, 403–425. doi: 10.1146/annurev.psych.54.101601.145056

Eaton, M. (2016). *Contemplative Approaches to Sustainability in Higher Education.* London: Routledge.

Felix, A. S., Lorenzini, J., and Rosset, J. (2020). *Préoccupations environnementales, engagements associatifs et bien-être en Suisse romande. Résultats de l'enquête par questionnaire standardisé.* Available online at: https://archive-ouverte.unige.ch/unige:148430 (accessed December 17, 2022).

Filiberto, D., Wethington, E., Pillemer, K., Wells, N., Wysocki, M., and Parise, J. T. (2009). Older people and climate change: vulnerability and health effects. *Generations* 33, 19–25.

Gagliardi, C., Pillemer, K., Gambella, E., Piccinini, F., and Fabbietti, P. (2020). Benefits for older people engaged in environmental volunteering and socializing activities in city parks: Preliminary results of a program in Italy. *Int. J. Environ. Res. Public Health* 17, 3772. doi: 10.3390/ijerph17113772

Gifford, R., and Nilsson, A. (2014). Personal and social factors that influence pro-environmental concern and behaviour: a review. *Int. J. Psychol.* 49, 141–157. doi: 10.1002/ijop.12034

Goldman, A. I. (2006). *Simulating Minds: The Philosophy, Psychology, and Neuroscience of Mindreading.* Oxford: Oxford University Press.

Gooding, P. A., Hurst, A., Johnson, J., and Tarrier, N. (2012). Psychological resilience in young and older adults. *Int. J. Geriatr. Psychiatry* 27, 262–270. doi: 10.1002/gps.2712

Grand, J., Lorenzini, J., Rosset, J., and Rutschmann, M. (2022). *Préoccupations environnementales, engagements politiques et bien-être des sénior-es en Suisse romande.* Available online at: https://archive-ouverte.unige.ch/unige:159778 (accessed December 17, 2022).

Gray, S. G., Raimi, K. T., Wilson, R., and Árvai, J. (2019). Will Millennials save the world? The effect of age and generational differences on environmental concern. *J. Environ. Manag.* 242, 394–402. doi: 10.1016/j.jenvman.2019.04.071

Guerin-Lavignotte, E., and Kerrouche, E. (2001). Les élus locaux et la dimension pénale de la responsabilité publique: Entre responsabilité et culpabilité. *Politiques et Management Public* 19, 139–158. doi: 10.3406/pomap.2001.2684

Halstead, F., Parsons, L. R., Dunhill, A., and Parsons, K. (2021). A journey of emotions from a young environmental activist. *Area* 53, 708–717. doi: 10.1111/area.12745

Haugesta, C. A. P., Skauge, A. D., Kunst, J. R., and Power, S. A. (2021). Why do youth participate in climate activism? A mixed-methods investigation of the #FridaysForFuture climate protests. *J. Environ. Psychol.* 76, 101647. doi: 10.1016/j.jenvp.2021.101647

Hechler, S., and Kessler, T. (2018). On the difference between moral outrage and empathic anger: anger about wrongful deeds or harmful consequences. *J. Exp. Soc. Psychol.* 76, 270–282. doi: 10.1016/j.jesp.2018.03.005

Helliwell, J. F., and Putnam, R. D. (2004). The social context of well-being. *Philos. Trans. R. Soc. Lond.* 359, 1435–1446. doi: 10.1098/rstb.2004.1522

Inglehart, R., and Flanagan, S. C. (1987). Value change in industrial societies. *Am. Polit. Sci. Rev.* 81, 1289–1319. doi: 10.2307/1962590

Johnson, E. W., and Schwadel, P. (2019). It is not a cohort thing: interrogating the relationship between age, cohort, and support for the environment. *Environ. Behav.* 51, 879–901. doi: 10.1177/0013916518780483

Jones, R. E., and Dunlap, R. E. (1992). The social bases of environmental concern: have they changed over time? *Rural Sociol.* 57, 28–47. doi: 10.1111/j.1549-0831.1992.tb00455.x

Kelly, A. (2017). *Eco-Anxiety at University: Student Experiences and Academic Perspectives on Cultivating Healthy Emotional Responses to the Climate Crisis. Independant Study Project.* Available online at: https://pdfs.semanticscholar.org/3c27/a92dcb9c1d1ab7a87f47368a4eaa0660c455.pdf?_ga=2.79811351.1035768960.1673197871-2137480078.1673197871 (accessed December 17, 2022).

Lazarus, R. S. (1999). Hope: an emotion and a vital coping resource against despair. *Soc. Res.* 66, 653–678.

Liere, K. D. V., and Dunlap, R. E. (1980). The social bases of environmental concern: a review of hypotheses, explanations and empirical evidence. *Publ. Opin. Quart.* 44, 181–197. doi: 10.1086/268583

Lorenzini, J., Monsch, G. A., and Rosset, J. (2021). Challenging climate strikers' youthfulness: the evolution of the generational gap in environmental attitudes since 1999. *Front. Polit. Sci.* 3, 633563. doi: 10.3389/fpos.2021.633563

Lorenzini, J., and Rosset, J. (2023). Emotions and climate strike participation among young and old demonstrators. *Soc. Mov. Stud.* 2023, 2178406. doi: 10.1080/14742837.2023.2178406

MacLeod, S., Musich, S., Hawkins, K., Alsgaard, K., and Wicker, E. R. (2016). The impact of resilience among older adults. *Geriatr. Nurs.* 37, 266–272. doi: 10.1016/j.gerinurse.2016.02.014

Neckel, S., and Hasenfratz, M. (2021). Climate emotions and emotional climates: the emotional map of ecological crises and the blind spots on our sociological landscapes. *Soc. Sci. Inform.* 60, 253–271. doi: 10.1177/0539018421996264

Ojala, M., Cunsolo, A., Ogunbode, C. A., and Middleton, J. (2021). Anxiety, worry, and grief in a time of environmental and climate crisis: a narrative review. *Ann. Rev. Environ. Resour.* 46, 35–58. doi: 10.1146/annurev-environ-012220-022716

Padayachee, K. (2017). The myths and realities of Generational Cohort Theory on ICT Integration in Education: a South African Perspective. *Afri. J. Inform. Syst.* 10, 54–84.

Pearlin, L. I., and Schooler, C. (1978). The structure of coping. *J. Health Soc. Behav.* 19, 2–21. doi: 10.2307/2136319

Pickard, S. (2021). "You are stealing our future in front of our very eyes." The representation of climate change, emotions and the mobilisation of young environmental activists in Britain. *Revue Électronique d'études Sur Le Monde Anglophone* 18, 11774. doi: 10.4000/erea.11774

Pickard, S., Bowman, B., and Arya, D. (2020). "We are radical in our kindness": the political socialisation, motivations, demands and protest actions of young environmental activists in Britain. *Youth Globa.* 2, 251–280. doi: 10.1163/25895745-02020007

Pihkala, P. (2022). Toward a taxonomy of climate emotions. *Front. Climate* 3, 738154. doi: 10.3389/fclim.2021.738154

Pillemer, K., Wagenet, L., Goldman, D., Bushway, L., and Meador, R. (2009). Environmental volunteering in later life: benefits and barriers. *Generations* 33, 58–63. doi: 10.1177/0898264310381278

Pillemer, K., Wells, N. M., Wagenet, L. P., Meador, R. H., and Parise, J. T. (2011). Environmental sustainability in an aging society: a research agenda. *J. Aging Health* 23, 433–453. doi: 10.1038/s43247-023-00870-x

Poortinga, W., Demski, C., and Steentjes, K. (2023). Generational differences in climate-related beliefs, risk perceptions and emotions in the UK. *Commun. Earth Environ.* 229, 1–8.

Resnick, B. (2014). Resilience in older adults. *Top. Geriatr. Rehabil.* 30, 155–163. doi: 10.1097/TGR.0000000000000024

Ritchie, J., and Lewis, J. (2003). *Qualitative Research Practice. A Guide for Social Science Students and Researchers.* London: Sage.

Rosset, J. (2022). Sur le climat, les jeunes se distinguent peu des autres groupes d'âge. *La Revue durable* 67, 24–27.

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well being. *J. Personal. Soc. Psychol.* 57, 1069–1081. doi: 10.1037/0022-3514.57.6.1069

Ryff, C. D., and Singer, B. H. (2008). Know thyself and become what you are: a eudaimonic approach to psychological well-being. *J. Hap. Stud.* 9, 13–39. doi: 10.1007/s10902-006-9019-0

Son, J., and Wilson, J. (2012). Volunteer work and hedonic, eudemonic, and social well-being. *Sociol. For.* 27, 658–681. doi: 10.1111/j.1573-7861.2012.01340.x

Soutar, C., and Wand, A. P. F. (2022). Understanding the spectrum of anxiety responses to climate change: a systematic review of the qualitative literature. *Int. J. Environ. Res. Publ. Health* 19, 20990. doi: 10.3390/ijerph19020990

Stewart, A. E. (2021). Psychometric properties of the climate change worry scale. *Int. J. Environ. Res. Publ. Health* 18, 20494. doi: 10.3390/ijerph18020494

Thunberg, G. (2019). *Speech at the U.N. Climate Action Summit*. Available online at: https://www.npr.org/2019/09/23/763452863/transcript-greta-thunbergs-speech-at-the-u-n-climate-action-summit (accessed September 30, 2023).

Twenge, J. M., Campbell, S. M., Hoffman, B. J., and Lance, C. E. (2010). Generational differences in work values: leisure and extrinsic values increasing, social and intrinsic values decreasing. *J. Manag.* 36, 1117–1142. doi: 10.1177/0149206309352246

Wagener, A., Stassart, C., and Etienne, A. M. (2022). At the peak of the second wave of COVID-19, did millennials show different emotional responses from older adults? *Int. J. Environ. Res. Publ. Health* 19, 105908. doi: 10.3390/ijerph19105908