

# Information as a Factor in Reducing the Psychological Impact of Climate Change: A Qualitative Research in Romania

Andra Costache\*

Lecturer, Department of Geography, Valahia University, Targoviste, Romania

**Abstract:** Climate change and its physical consequences are currently among the most discussed topics within the global change academic community. The issues of climate change mitigation, adaptation, and resilience are thoroughly researched, both in terms of institutional and community measures and requirements, as well as in terms of potential impact at different spatial scales. This paper emphasizes that, along with the physical impact, the psychological effects of climate change and the psychological drivers of engaging in climate activism should also be considered to build individual resilience in a dynamic environmental context. The psychological impact is a significant dimension of human vulnerability to climate change, shaping people's perceptions, responses, and coping capacity. The paper focuses on the psychological consequences of climate-related events in an Eastern European context, through a series of 23 semi-structured interviews conducted in Romania, between October 2022 and July 2023. The results highlight people's concerns about climate change and the fact that they perceive information as a key factor in reducing climate anxiety.

**Keywords:** Climate change perception, climate anxiety, semi-structured interviews, Romania.

## 1. Introduction

Romania, as well as other Central and Eastern European countries, is facing recent climatic changes such as significantly increasing trends of the air temperature, an increase in the number of summer days at 95% of the weather stations, and an increase in the duration of warm spells at 83% of the stations, over the 1961–2013 period [1].

In terms of climate-related hazards, Romania is exposed to events such as floods [2], heatwaves [3], landslides [4], and drought [5].

Climate scenarios (Fig. 1, Fig. 2) emphasize an increase in the annual average temperature and a decrease in the rainfall during the warm season of the year, over a near and medium-term time horizon [6]. Given these trends, there are also expected changes in the frequency and intensity of some climate-related extreme events, which would present new challenges in terms of individual and community adaptation. Thus, the multiple dimensions of human vulnerability to climate change should be thoroughly explored, not only in terms of physical impact, but also considering the psychological

impact (e.g., climate anxiety and climate depression), as well as the psychological coping and adaptation capacities.

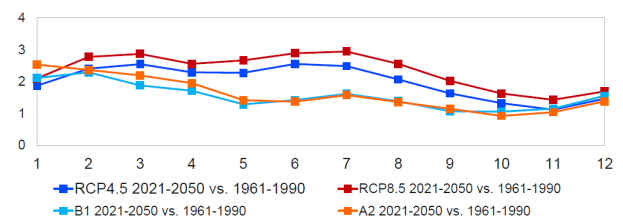


Fig. 1. Differences in multi-year averages of monthly temperature values, averaged at the level of Romania, between the periods 2021–2050 and 1961–1990, in °C [6]

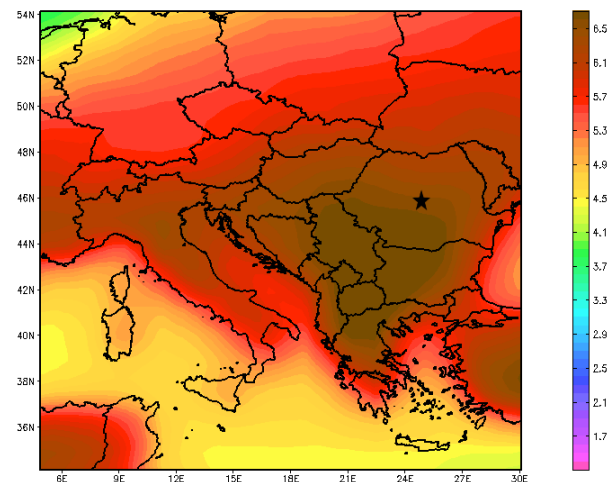


Fig. 2. The average increase in summer air temperature in Europe (°C) in the 2069–2098 interval versus the 1961–1990 interval under the RCP 8.5 scenario [6]. The black star emphasizes the position of the studied country

The objective of this qualitative research conducted in Romania is to highlight the main climate-related concerns and to provide an understanding of the factors perceived as useful in reducing climate anxiety.

## 2. Literature Review

The psychological dimension of human vulnerability to

\*Corresponding author: andra\_cost@yahoo.com

climate change is a growing research topic, both in the field of social psychology [7], as well as in the field of global change [8]. Current literature underlines the need for a system approach to climate change and mental health [9], given the fact that extreme weather is related to various mental health risks. The consequences of climate-related hazards on mental health can be classified as direct effects (e.g., PTSD, anxiety, depression, and suicidal ideation) and indirect effects (e.g., economic damage, environmental migration, collective violence, and resource shortage) [10].

Qualitative research focused on the perception of climate change and its relationship with mental health was previously conducted through semi-structured interviews with health professionals, which indicated the need for localized action and enhanced education [11]. Various studies also conducted qualitative research on eco-anxiety [12], intergenerational concern on climate change and health [13], and psychological determinants for climate change action [14].

### 3. Methods

#### A. Participants and Data Collection

Data were collected through semi-structured interviews, conducted between October 2022 and July 2023. The participants were selected through personal communication, from a pool of over 300 respondents who participated in previous research.

The interviews were scheduled in advance and were conducted by phone. Each participant agreed with the recording of the discussion, thus providing a basis for the interview transcript. The length of the interviews varied from 30 to 45 minutes. We interviewed 23 respondents, 14 of whom were female participants. The average age of the participants was 24 years, with a range from 18 to 47 years. They all lived in cities and 18 of them had higher education, while 5 were still undergraduate students. None of the subjects reported having mental health issues during the previous two years.

#### B. Research Instruments

The interview guide consisted of 12 questions (Table 1), with a focus on previous exposure to climate-related hazards, the psychological impact of those events, and the participants' concern about climate change.

#### C. Data Analysis

Data were analyzed using inductive thematic coding. Five themes were created to describe the impact of climate change, according to the participants' perception (i.e., types of hazards, type of exposure, physical impact, psychological impact, and safety concerns). In the results sections, we provide English translations of interview quotations to support our statements.

## 4. Results and Discussion

#### A. Types of Hazards and Types of Exposure

Based on the information collected, we identified five types of climate-related hazards mentioned by the respondents: floods, heatwaves, storms, drought, and wildfires. The last type of event was mentioned as being experienced only indirectly by the respondents, through media coverage and other people's description.

*I watched it on TV and on the Internet (i.e., the wildfires in North America). I have not seen anything like this. [It was a] very dangerous situation...*(Female participant, 39 years old, graduate degree).

The first four types of events are common in the geographical context of the study area.

While not climatic hazards, different signals of climate change were also discussed, i.e., the characteristics of the transition seasons (shorter springs and warmer falls).

#### B. Impact of the Climate-Related Hazards

In terms of the physical impact of floods, storms, and drought, respondents described both consequences experienced at an individual level (damage to assets and households), as well as broader effects, at the community or regional level (damage to infrastructure or, with a more general description, “economic effects”). None of the respondents were directly exposed to hazards that caused casualties.

The psychological effects varied largely within the sample. Fatigue, irritability, lack of productivity, and poor sleep quality were mentioned in relation to heatwaves. These effects persisted for a few days to a few weeks, during the heatwave.

*I felt nervous and exhausted (i.e., during the heatwave). For two or three weeks, I could hardly manage to work.* (Male participant, 47 years old, undergraduate degree).

Stress, sadness, fear, worry, and astonishment were reported as consequences of direct exposure (floods), as well as effects

Table 1  
Interview guide

Variable	Item
Previous exposure to climate-related hazards	1. During the past 12 months, have you been directly exposed to any climate-related hazard?
	2. If so, please describe the physical impact of the event.
	3. During the past year, do you remember being indirectly exposed to extreme events related to climate change (e.g., through social media, news, or other people's descriptions)?
Psychological impact	4. Did any of these events have an impact on your psychological well-being?
	5. If so, in which way?
	6. How much did the psychological impact last?
	7. Do you worry about similar events and their possible occurrence in the future?
Concerns about climate change	8. What worries you more, the impact on the environment or the socio-economic impact of these events?
	9. Do you feel that having more information about climate change increases your worries about climate change?
	10. When you are thinking about future climate change, what are your concerns in terms of personal safety?
	11. When thinking about the occurrence of climate-related extreme events, do you have concerns about the safety of your family and friends?
	12. If so, what would lessen your concerns?

of indirect exposure (floods and wildfires). These consequences lasted post-event (for several weeks to two months, in one case) and they were more vividly remembered than those of heatwaves. Still, none of the participants required counseling or other kind of psychological assistance post-exposure.

All participants stated that they worry about the future occurrence of such events and considered equally important their worry for the environment and their concern about the socio-economic impact of the above-mentioned hazards.

*Forests were destroyed, and ecosystems developed over the years. Nature will recover, but the people who depend on these areas will be affected in the medium and short term.* (Male participant, 29 years old, graduate degree).

Unanimously, the respondents considered information as a positive factor, which did not increase their worry about climate change and contributed to a feeling of safety.

*I feel less stressed if I understand the phenomenon. That's how I can prepare.* (Male participant, 21 years old, undergraduate student).

To a certain degree, the results are in line with previous research, which highlights the fact that exposure to information about climate change is positively related to climate anxiety, but a moderate level of anxiety could cause people to reconsider their actions with a negative impact on the environment [15] and, thus, could be helpful in taking steps towards adaptation and generating positive feelings of being more prepared for extreme events. We could label the concerns of the respondents in the studied sample as taking the form of adaptive climate anxiety, i.e., the anxiety that can motivate climate activism [16].

### C. Safety Concerns

When asked about their concerns about personal safety, the respondents did not consider climate-related hazards as major threats (i.e., life-threatening events). They estimated damage to personal assets and damage to infrastructure as being more probable occurrences. These results could be explained by their direct experiences [17] and by people's tendency to underestimate the risk to their own safety [18].

They worried more about the safety of family and friends than about their personal safety, maybe because of the affect heuristic [19] - their feelings have a greater weight when estimating the risk faced by loved ones. Some of the respondents were parents or had to take care of older relatives, so their concerns were directed to dependent family members.

Our interview results emphasized the fact that information is critical in lessening concerns about climate change.

*It would help me to have information and to know that measures are being taken. To know that they (i.e., the authorities) invest in protecting the population.* (Male participant, 37 years old, graduate degree).

*It is important to be informed. See the pandemic, for example. People were spreading all kinds of wrong information and that was putting themselves and others at risk.* (Female participant, 44 years old, undergraduate degree).

We identified two types of information required by the participants:

- Scientific information about climate change and about

climate change adaptation at the individual level.

- Information about the measures taken by the local and central authorities, such as investments in early warning systems, supporting green energy projects, and combating pseudoscientific information and conspiracy theories.

These results can be used in shaping pro-environmental messages and in increasing individual resilience to climate change. It is noteworthy to mention that even information about the authorities' lack of action could be used to develop pro-climate activism since frustration and anger have been identified as key emotional drivers that cause people to engage in climate change impact mitigation [20].

## 5. Conclusion

Despite some limitations of the research (i.e., lack of participants from rural areas and lack of participants with direct exposure to severe climate-related hazards), the results underline the importance of providing accurate and tailored information in increasing climate activism and reducing climate anxiety. At least two types of such possible messages have been identified following data analysis: a. messages focused on scientific data; b. messages focused on measures and actions initiated by the government and the local authorities.

Further research needs to be conducted to test the efficiency of these kinds of messages in reducing the psychological impact of climate change within the Romanian population.

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