REVIEW ARTICLE

MENTAL HEALTH CONSEQUENCES OF CLIMATE CHANGE FROM EUROPEAN PERSPECTIVE

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Summary

Society, as much as an individual, has a certain capacity to cope with issues. The preparedness of the society for the issue significantly enhances the ability to overcome the issue with minimum possible harm. This article considers psychological consequences of climate change, the major challenge for society, from the perspective of European security. It proposes an increasement of aggressive behavior and intergroup hostility as a direct and indirect psychological consequence of climate change. In the final section, crisis intervention and de-securitization of climate change debate are considered to serve as mitigating factors for future development.

Key words: climate change; mental health; direct/indirect psychological consequence; crisis intervention; de-securitization

Climate change and health

Climate change presents a severe threat to human health conditions globally. According to WHO (1) report, between 2030 and 2050 climate change is estimated to cause additional 250 000 deaths per year mostly due to malnutrition, malaria, diarrhoea and heat stress. Most affected will be vulnerable areas, mostly in the developing world, with the highest poverty, poor conditions for living in general and weak health infrastructure, which simultaneously have the least capacity to cope (2). Eight out of ten countries most affected by the extreme weather in 2019 were in the low to lower-middle income category, with Mozambique and Zimbabwe being the most affected (3). Nevertheless, Europe will also experience severe health difficulties connected to climate change. For example, due to rising temperature, even with the most optimistic scenario, wherein the temperature rise will not exceed 1.5 °C by 2050, it is estimated that the annual deaths caused by extreme heat will rise from today's 2700 per year to 30 000 per year (4). Within the perspective of Europe, as much as the global perspective, the most affected will be vulnerable or marginalized groups, ethnicities or areas. During the extreme heat in 2003, more than 70 000 additional deaths occurred and the most affected across all societies were the elderly (5). Older population is one of the vulnerable parts of European society, which in fact presents a serious challenge, as the European population is getting older.

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Consequently, climate change is predicted to affect people's health via droughts, rise in vector-borne disease, extreme weather events such are heats or floods or hurricanes, food and water contamination, sea acidification, or forest fires (6). Many times, in reports, mental health is considered as a factor, which is threatened by climate change, however, it is often poorly specified, in which the relation between mental health and climate change lies (see, for example, 7). One of the problems around the link between climate change and mental health is its problematic multicausal environment. In fact, it is very hard to estimate direct relation as the manifestation of climate change is slow and the link to mental health needs to be scrutinized through links of climate change manifestations in nature, which were only recently publicly accepted, and some of which are partially still debated or unclear. The existence of climate change was scientifically very well proved (8, 9), yet it requires a decent degree of abstraction to accept that fact, as the impact of climate change is timely and thus not possible to observe directly. Hence, it requires even more abstraction to link climate change to general mental health. And indeed, given the amount of variables to consider, it is highly challenging to find solid pathways of climate consequences to mental health.

Despite what has been said, there is a decent amount of literature attempting to connect climate change to mental health. The most used model divides impact of climate change on direct and indirect (10). Simply put, direct consequences of climate change embrace all kinds of traumas or other suffering related to extreme weather events like hurricanes, floods, wildfires, or heat waves, whereas indirect consequences are social, economic, or environmental disruptions related to climate change. For example, indirect consequences might be caused by damage to social or physical infrastructure, water contamination, and other long-term events, which influence the wellbeing of individuals (11). Direct influence of climate change is, on the other hand, psychological damage resulting from direct experience of crisis situations such as witnessing deaths caused by hurricanes or witnessing flood of one's own property and other similar traumatic events.

Extreme weather events strike usually within days or even hours and leave many casualties behind. Oftentimes, people are not prepared, and they need to react within minutes in order to save their lives, property, or both. Many are witnessing omnipresent chaos, perhaps deaths or serious injuries, and massive property damage. It is no surprise that experiencing such a traumatic event might result in mild to severe psychological consequences among which depression, abuse of substances, suicidal thoughts, anxiety or PTSD are the most common (10). It is important to note that the majority of affected people eventually recover in days or months to come, however, up to 20% of people develop chronic psychological dysfunction (12). Whether an individual develop chronic psychological dysfunction depends among else on type of disaster, where hurricane are among the most dangerous (13); certain pre-existing conditions like mental illness, age, economic disadvantage; or seriousness of personal loss, such as for example death of close person (12).

Nevertheless, less severe consequences have been observed, as people developed mild stress (people experiencing an extreme weather event reported higher stress than people who did not experience an extreme weather event), or sense of loss identity. Presence of subclinical depressive emotions such as grief, guilt or despair are common reactions to traumatic events (14). Moreover, researchers' attention recently turned towards beneficial results of tragedy and it has been documented that extreme weather-related disasters might lead to post-traumatic growth (12). Meaning that disaster may strengthen both individuals and society, as it results in a supportive and caring environment, strengthen social relations and enhance individual's capability to cope.

Aggression

Interestingly, one study found that children who experienced traumatic weather events tend to be more aggressive than before the event (15). Even though more research connecting aggression and extreme weather events is lacking, it is possible to find similarities between people who experienced weather-related trauma and different kinds of traumas such as war, abuse etc. For example, inpatient youth in the US, who suffered from PTSD, reported higher levels of aggression while hypermentalizing – over attributing hostile mental states (16). In this study, the gender difference appeared to be significant with, surprisingly, females being more aggressive in reactive relations. Also, several other studies indicate the relationship between trauma and aggression both in youngsters and adults, however, the results support higher tendency for aggression in males rather than females (17, 18). This implies a possible link between aggressive behavior and extreme weather event-related psychological

disruptions. It is especially interesting, as most of the literature consider mainly the relation between extreme heat and aggression, in which this specific link of aggression and climate change through PTSD might be highly contributive.

It is historically proven that aggression mostly occurs, when an individual is frustrated (19). Heat is, in its fundamental essence, an immense frustrating factor, as it is not possible to escape and thus, to some extent, deprives an individual from the possibility to direct his/her own fate. There are physiological and psychological theories explaining the rise of aggression in hot weather, for example, through the constitution of the brain, wherein the center of temperature regulation is situated in the same structure, which influences our emotional regulation (20). For the psychological explanation, higher temperature might increase irritability, which results in hostile perception of others (21). Indeed, it has been discovered that rates of violent behavior, such is rape or assault, are significantly correlated with temperature (22).

Another interesting model proposes the assumption that cultures in colder climates, those cultures who were historically forced to consider the future due to higher seasonal variation in heat, are more long-term oriented and self-control, which in turn decrease their potential for aggression (23). By the fact that climate becomes hotter and seasonal variation smaller, the long-term orientation and self-control is being decreased and thus a predisposition for aggression in society arises.

Together with the expected rise of temperature, it is possible to assume a higher level of violence in a society. This effect will be amplified by those who develop PTSD after extreme weather events. Along with the temperature rise, it is possible to expect higher prevalence of natural disasters, as the projection of weather seems to lean towards extremes in the winter and in the summer as well. Presumably, a significantly higher degree of population will be exposed to natural disasters, which in turn will lead to higher prevalence of PTSD in the population. By this, the risk of aggressive behavior will increase among the population.

Intergroup hostility

The rise of aggressive behavior within society stems mostly from direct consequences of climate change. On the other hand, within the Euro-American society, climate change might be often perceived as a threat (24). The perception of threat leads groups towards specific behavior, usually embracing restrictive measures and hostile attitudes towards out-groups. I would argue that climate change perceived as a threat in European society might lead to two societal processes on the group level: rejection of others and deeper polarization within the society.

Some psychologists believe that individual's identities are forged through identification with so-called "reference" group. According to Social Identity theory (25), people firstly organize and try to orient in their social environment by clustering objects to categories with subjective meaning. Secondly, they choose a cluster to identify with and lastly, they compare their reference group to others by the subjective connotations they developed about the clusters. People, then, perceive themselves as part of various social groups. For example, citizens of Prague might perceive him/herself as a part of a social group, which is characterized by all people who live in Prague. At the same time, he/she may perceive Czechs or Europeans as a reference group. Now, group cohesion is given by the strength of the perceived identification of individuals to the group. Sherif (26) proposed a theory of intergroup conflict, wherein prejudices between two different groups arise if both groups try to achieve the same aim. Especially in conditions, where the aim may be somehow depleted.

Going back to the climate change, it is predicted that climate change might lead to scarcity of freshwater, arable land, creation of inhabitable places etcetera (27). From European perspective, it starts to seem irrelevant, whether these threats will or will not actually take place, once considered the fact that mere conviction about possible threats constitutes the threat as real. Thus, in the context of climate change, the perception of climate change as a threat is likely to result in dismissive behavior towards other non-European groups. This is particularly important, as it is predicted that climate change will be the main cause of migration in the future (27). Mass migration along with hostile attitudes in European society might present a severe trouble in the future, scaling from possible inner riots to international conflicts or wars.

Also, Fritsche et al. (27) concluded that perceived threat from climate change will most likely lead to inclination towards authoritarian attitudes, which they define as higher level of conformity with ingroup norms, tendency to obey authorities and tendency to punish those who do not follow ingroup norms. The tendency to accept authoritarian attitudes in society presents another perspective on European (in)capability to peacefully deal with expected climate migration.

Nevertheless, climate change seems to divide society on both inter-national and intra-national level. From the beginning, the original debate on the existence of climate change happened to be a very divisive factor within Euro-American environment (28). Perhaps, optimistically, the debate is no longer about if, but how. And indeed, the omnipresent principle of climate change impacts is that it strikes unevenly. Specifically, it will be the elderly or economically disadvantaged groups, which will suffer the most. Naturally, those affected will look for the source of their suffering and, according to the Social Identity Theory, they will constantly compare their group to others. The perceived injustice, as they are the ones suffering and the others are not, might lead to accusation of unaffected parts of society. From the other perspective, the unaffected part of society might yield to the just-world fallacy, which is a tendency to attribute a person's action as inherently inclining to bring morally fair consequences to that person (29). This in turn might result in deepening societal polarization and division of society into the affected and unaffected fraction. Note that this paragraph does not try to fully comprehend the possible evolution of polarization in European society, it serves rather as a brief reflection on some processes which might play a more or less important role in the topic discussed.

Hence, intergroup hostility seems to present important indirect psychological consequences of climate change within the scope of European thinking. Together with enhanced overall societal level of aggression, which seems to be the case of direct psychological consequence of climate change, they constitute a notable challenge for European security in the future. In the next section, I would like to briefly propose a partial solution aiming to contribute to a better preparedness and coping capabilities of European societies.

Crisis intervention

To overcome the problem of aggressive behavior in society, it seems beneficial to reduce the psychological damage of extreme weather events, so that the risk of developing severe psychological diagnosis is decreased. For this, the structural support of personnel capable of conducting crisis intervention might be highly beneficial. A crisis intervention is an immediate and short response to emotional, cognitive or physical distress conducted by trained individuals. The aim of crisis intervention is to mitigate the burden, which an individual is perceiving in order to prevent future psychological impairment (30).

There are several different methods on how to conduct crisis intervention in the literature, which by different sets of recommendations suggest effective practice for crisis-aid practitioners. It is generally accepted that crisis interventions are helpful and effective (see, for example, 31). The strongest effect of crisis intervention was noted on PTSD or anxiety disorder (32). On the other hand, Fox et al. (33) reviewed a specific field of psychological first aid as a disaster intervention disaster tool, and did not find sufficient support for effectiveness of such treatment, although they stated that the psychological first aid best fits to the category of "evidence informed" and more data are required. Another study suggests that trauma-informed intervention (these interventions which support the understanding between trauma and abusive behavior, and which does not focus on people who necessarily have PTSD) reduces PTSD symptoms and consequently reduces aggressive behavior (18).

Thus, it seems that crisis interventions might be considered an effective means of relieving individuals after personal crises or trauma. Even though it is unclear whether the conductor of crisis intervention should be professionals or a trained personnel (33), the beneficial outcomes of such practice are undeniable.

De-securitization of climate change debate

One of the reasons climate change got proper public attention was the fact that the issue started to be presented as a security problem around 2007 (34). Simply put, researchers started to connect climate change with mass migration, resource scarcity and realized its potential for international conflict. The shift in the debate and understanding

the potential causes of climate change were immensely important at the time, as more people started to invest their time and attention into the problematic, be it scientists, practitioners, or politics. Yet, in the 2021 the public opinion has shifted, and climate change has become an omnipresent factor in daily life. In fact, more and more people in Europe tend to join the conviction that climate change is happening and is a serious problem to deal with. For example, within the Czech Republic, the vast majority of people acknowledge climate change, and they fear its economical consequence (35). Thus, the question arises, whether the securitization of climate change still serves its purpose, or whether it undermines European ability to deal with future challenges. The over-securitization seems to be contra-productive, as it was discovered that highly dramatic strategic speech makes audiences sceptical, thereby decreasing their capability to succeed in solutions (36). Simultaneously, over-securitization of climate change debates pictures climate change as a threat, which in turn support the in-group cohesion and intergroup hostility. If we are to succeed in the challenges which climate change brings, it is necessary to proactively prepare for effective dealing with different scenarios, mass migration included, rather than support hostile environments, which inevitably leads to conflict.

Conclusion

In this article, the link between climate change and psychological disruptions has been established in the form of several more or less severe psychological symptoms reminiscent of depression, PTSD, generalized anxiety disorder, suicidal behavior etc. Simultaneously, the link between climate change, psychological disruptions and aggression has been highlighted, as it is perhaps the most prominent and threatening direct manifestation of climate change and mental health. Via indirect means, climate change presents a threat to European security as it encourages intergroup hostility and thus, decreases the capability of European society to deal with migration according to the fundamental democratic principles. In this perspective, the attempt of de-securitization of the climate change debate seems rather hard to achieve yet might yield beneficial outcomes. As for the direct consequence of increased aggressive behavior, it has been concluded that practice of crisis intervention might mitigate symptoms of psychological impairment and, hence, might decrease violent mood or behavior in society.

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Conflict of Interest

The authors state that there are no conflicts of interest regarding the publication of this article.

Adherence to Ethical Standards

This article does not contain any studies involving animals performed by any of the authors. This article does not contain any studies involving human participants performed by any of the authors.

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