



Overview of research on the impact of natural disasters on people's mental health

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Abstract

Natural disasters are increasing in frequency and intensity, causing serious consequences not only for the environment and socio-economics but also for people's mental health. The goal of this paper is to synthesize and analyze previous research results to clarify (1) the common types of mental health problems experienced by people after natural disasters; (2) identify risk and protective factors that influence the level of psychological impact; (3) discuss scientific and practical implications to propose appropriate psychosocial intervention and support, contributing to improving the community's resilience to future disasters. Based on the analysis of studies in the fields of psychology, psychiatry, and public health, the paper shows that people affected by natural disasters are at high risk of experiencing post-traumatic stress disorder, depression, anxiety, as well as many subclinical manifestations of psychological stress. The severity and duration of these problems are influenced by the complex interplay between risk factors such as exposure to the disaster, loss of life and property, adverse socioeconomic conditions, and pre-existing mental health conditions, along with protective factors such as social support, psychological resilience, and community cohesion. Based on this, the paper emphasizes the need for a comprehensive and multi-layered approach to post-disaster mental health and proposes integrating mental health care into disaster risk management and community recovery strategies to mitigate psychological burdens and enhance population resilience.

Keywords: Natural disasters, mental health, post-traumatic stress disorder, depression, anxiety, people

Introduction

Natural disasters such as floods, storms, earthquakes, droughts, and wildfires are increasing in both frequency and severity globally, primarily due to climate change and environmental degradation (Berry *et al.*, 2018; Cianconi *et al.*, 2022) [1, 2, 9, 10]. These events not only cause significant damage to infrastructure, the economy, and human lives, but also leave profound and lasting consequences for the mental health of affected populations. Numerous scientific studies show that exposure to natural disasters is strongly linked to an increase in mental disorders such as post-traumatic stress disorder (PTSD), depression, anxiety, adjustment disorders, and various forms of psychological stress in general (Neria *et al.*, 2008) [6, 12].

The psychological impact of disasters not only appears immediately after the event but also lasts for months, even years, significantly impairing the quality of life and resilience of individuals and communities (O'Donnell *et al.*, 2016) [7, 14]. Vulnerable populations, including children, the elderly, women, the poor, and those who have been displaced or lost loved ones, are often at higher risk of experiencing serious mental health problems (Tol *et al.*, 2011) [15]. Furthermore, the extent of the impact depends on the intensity of exposure to the disaster, individual and community resources, and access to psychosocial support services.

Despite numerous studies on the impact of natural disasters on mental health, several notable gaps remain. Firstly, there is a lack of long-term longitudinal studies to clarify the psychological recovery trajectory of populations after disasters. Secondly, many current studies are primarily based on Western diagnostic frameworks, failing to fully reflect the psychological manifestations and adaptive mechanisms specific to local cultures. Thirdly, vulnerable groups such as people with disabilities, ethnic minorities, and residents of impoverished areas have not received

adequate attention. Therefore, more multi-faceted, culturally sensitive, and locally-contextualized studies are needed to provide more comprehensive scientific evidence. Stemming from these gaps, this paper aims to systematically clarify the impact of natural disasters on the mental health of populations within a specific context, while also examining the role of relevant individual and social factors. Specifically, the research aims to (1) Analyze common mental health problems among people after experiencing natural disasters; (2) Identify risk and protective factors that influence the level of psychological impact; (3) Discuss scientific and practical implications to propose appropriate psychosocial intervention and support strategies, contributing to enhancing the community's resilience to future disasters.

Material and Methods

This study uses a literature review method to systematize and analyze previous research findings related to human mental health after natural disasters. This method allows for the synthesis of existing scientific knowledge, clarifies common types of psychological problems, and identifies risk and protective factors influencing the level of psychological impact of natural disasters. The literature was primarily collected from published scientific articles in reputable international journals, focusing on empirical studies, review studies, and longitudinal studies on mental health after natural disasters. The literature was selected based on the following criteria: (1) direct relevance to the psychological impact of natural disasters; (2) addressing common mental disorders such as post-traumatic stress disorder (PTSD), depression, anxiety, and subclinical psychological responses; (3) analysis of risk and protective factors at the individual, social, and community levels; and (4) were published within a timeframe appropriate to the current research context. After collection, the documents

were analyzed, compared, and synthesized using a thematic approach. Specifically, the research results were grouped into two main areas: (i) common mental health issues among post-disaster populations, including both short-term and long-term manifestations; and (ii) risk and protective factors influencing the level and progression of psychological impact. The analysis focused on clarifying the similarities and differences between studies, as well as the role of socio-economic, cultural, and temporal contexts in the post-disaster period.

Research Results

1. Studies on common mental health problems among people after natural disasters

Natural disasters are considered one of the most powerful and complex causes of psychological trauma in humans. This topic has attracted the attention of many scientists. Numerous studies have shown that mental health problems after natural disasters are diverse, ranging from normal psychological responses to clinically significant mental disorders (Norris *et al.*, 2002; Neria *et al.*, 2008) [6, 12, 13].

One of the most extensively studied forms of mental disorder in the context of natural disasters is post-traumatic stress disorder (PTSD). PTSD typically arises when individuals experience or witness life-threatening events accompanied by feelings of helplessness and extreme fear. Typical symptoms include re-experience of the traumatic event, avoidance of stimuli related to the disaster, negative changes in perception and emotion, and a prolonged state of hyperactivity. Research reviews show that the prevalence of PTSD after natural disasters varies greatly, from under 10% to over 50%, reflecting differences in the type of disaster, level of exposure, timing of assessment, and socio-cultural context (Norris *et al.*, 2002; Goldmann & Galea, 2014) [13, 11].

Besides PTSD, depression is another common mental health problem among people after natural disasters. Post-disaster depression is often associated with lasting losses such as the loss of loved ones, loss of livelihood, relocation, and a decline in a sense of security. Symptoms of depression include persistent sadness, loss of interest, feelings of hopelessness, reduced energy, and impaired social functioning. Many studies show that depression not only occurs independently but is often co-occurring with PTSD and anxiety, increasing the severity of mental health problems and prolonging recovery time (Neria *et al.*, 2008) [6, 12].

Anxiety and anxiety-related disorders are also reported at high rates in communities affected by natural disasters. People may experience excessive anxiety, prolonged fear, stress, sleep disturbances, and somatization symptoms. In many cases, anxiety is linked to prolonged instability in living conditions, such as the risk of a recurrence of the disaster, precarious housing conditions, and economic hardship. Studies indicate that post-disaster anxiety can persist for extended periods, especially when recovery is slow or there is a lack of appropriate psychological support services (Goldmann & Galea, 2014) [11].

Beyond mental disorders classified according to diagnostic criteria, numerous studies also highlight the prevalence of subclinical psychological responses and difficulties. These manifestations include prolonged psychological stress, loss of a sense of security, diminished confidence in the future, feelings of helplessness, and disruption in social

relationships. While not always diagnosed as mental disorders, these manifestations still negatively impact people's quality of life, work capacity, and social participation. This demonstrates that the impact of natural disasters on mental health is widespread and needs to be considered beyond the scope of traditional clinical diagnoses.

In terms of time, mental health problems following natural disasters can manifest in both short-term and long-term phases. In the immediate aftermath of a disaster, people often experience acute psychological reactions such as shock, panic, fear, sleep disturbances, and difficulty concentrating. These reactions are considered normal responses to unusual events and may subside as living conditions stabilize. However, for a significant portion of the population, these psychological symptoms do not resolve spontaneously but develop into chronic problems, lasting for many years after the disaster (O'Donnell *et al.*, 2016) [7, 14].

Longitudinal studies have provided evidence of the long-term impact of natural disasters on mental health. Individuals who continue to face economic hardship, unemployment, debt, or housing instability are at a higher risk of maintaining symptoms of PTSD, depression, and anxiety for extended periods. This suggests that post-disaster mental health cannot be viewed as a short-term issue, but must be approached within the framework of long-term individual and community recovery.

2. Studies on risk and protective factors affecting the level of psychological impact

Although natural disasters can have a significant impact on mental health, not all individuals are affected to the same degree. Studies show that the level of psychological impact depends on the complex interplay between individual, social, and contextual factors. Identifying risk and protective factors is crucial in understanding the mechanisms of natural disaster impact and developing appropriate intervention strategies (Norris *et al.*, 2002; Tol *et al.*, 2011) [13, 15].

One of the most significant risk factors is the level of direct exposure to the disaster. Individuals who witness casualties, lose loved ones, are injured, or suffer significant property damage are at a higher risk of developing mental health problems. The higher the level of exposure, the greater the risk of developing PTSD, depression, and anxiety. Additionally, experiencing multiple consecutive or recurring disasters also increases psychological vulnerability.

Socioeconomic factors play a crucial role in regulating the psychological impact of natural disasters. Individuals with low socioeconomic status, limited education, and limited access to healthcare services are at higher risk of experiencing long-term mental health problems. Loss of livelihood, unemployment, and financial instability after a disaster not only increase psychological stress but also hinder recovery, exacerbating mental health issues (Tol *et al.*, 2011) [15].

A history of mental disorders and physical health problems are also considered significant risk factors. Individuals who had pre-existing mental health issues before a disaster are more likely to experience relapses or worsening of symptoms after the disaster. In addition, chronic illnesses and physical impairments can limit an individual's ability to adapt, thereby increasing the risk of experiencing psychological difficulties.

Vulnerable population groups such as children, the elderly, and women are often identified as being at higher risk of negative mental health impacts. Children have limited cognitive and emotional regulation abilities, making them more susceptible to emotional, behavioral, and learning problems after disasters. The elderly, especially those living alone or dependent on social support networks, are more prone to depression, loneliness, and a loss of control over their lives (O'Donnell *et al.*, 2016)^[7, 14].

Besides risk factors, many studies also emphasize the role of protective factors in mitigating the psychological impact of natural disasters. Social support is considered one of the most important protective factors. Support from family, friends, and the community can help individuals share their feelings, reduce feelings of isolation, and enhance their ability to cope with trauma. Studies show that individuals with strong social support networks tend to have lower levels of psychological symptoms and recover more quickly after a disaster (Goldmann & Galea, 2014)^[11].

Community cohesion and social trust also play a crucial role in enhancing psychological resilience. Communities with high levels of cohesion, sharing common values and resources, tend to be better able to cope with disasters and minimize negative psychological impacts. Additionally, cultural and spiritual factors, such as religious beliefs and traditional cultural practices, can help individuals find meaning and hope in the face of loss, thereby supporting the psychological recovery process.

Post-disaster psychosocial interventions are also considered important protective factors at the systemic level. Early psychological support programs, community-based interventions, and the integration of mental health care into disaster recovery strategies have been shown to be effective in reducing psychological symptoms and preventing the development of chronic disorders (Tol *et al.*, 2011)^[15]. However, the effectiveness of these interventions depends heavily on their relevance to the socio-cultural context and resource conditions of each locality.

Discussion

The combined results from previous studies show that natural disasters have profound and multifaceted impacts on people's mental health, evidenced by a significant increase in mental disorders such as PTSD, depression, and anxiety, as well as subclinical manifestations of psychological stress. These findings reinforce the view that natural disasters are not merely environmental or socio-economic issues, but also a serious challenge to public mental health.

A key takeaway from the overview is the unevenness in the level of psychological impact among individuals and population groups. This underscores that post-disaster psychological experiences depend not only on the event itself but are also strongly influenced by risk and protective factors. The level of direct exposure, loss of life and property, and prolonged socioeconomic hardship were identified as factors that significantly increase the risk of mental health problems. This finding is consistent with theoretical models of stress and trauma, which emphasize the role of chronic stressors in maintaining and exacerbating psychological symptoms.

Furthermore, protective factors such as social support, psychological resilience, and community cohesion play a crucial role in mitigating the negative impacts of natural disasters. Individuals who receive emotional and practical

support from family, friends, and the community tend to recover better psychologically and are less likely to experience chronic mental disorders. This suggests that post-disaster interventions should not focus solely on individual treatment but should also aim to strengthen social and community resources.

The overall findings also suggest that overemphasizing PTSD as a central psychological consequence of disaster may overshadow other mental health issues, particularly depression, anxiety, and subclinical manifestations. These issues, while receiving less attention, have long-term impacts on people's ability to work, social relationships, and quality of life. Therefore, a more holistic approach to post-disaster mental health is needed, encompassing prevention, early detection, and timely intervention for a wide range of mental health problems.

At the policy level, the findings from this overview underscore the need to integrate mental health care into disaster risk management and recovery strategies. Investing in community-based psychosocial support programs, tailored to local cultural contexts and resource conditions, can yield long-term benefits in reducing the mental health burden. Simultaneously, focusing on vulnerable populations such as children, the elderly, and households facing socioeconomic difficulties is particularly important.

However, this overview also highlights some common limitations of existing studies, including differences in research design, measurement tools, and cultural context, which may affect the comparability and generalizability of results. Therefore, future studies should aim to utilize integrated theoretical frameworks, longitudinal research methods, and standardized assessment tools to better understand the mechanisms by which natural disasters impact mental health.

In summary, this discussion affirms that the impact of natural disasters on mental health is a complex phenomenon, influenced by the interaction of numerous risk and protective factors. Understanding these factors not only enriches scientific knowledge but also has significant practical implications for developing intervention strategies and policies to protect and improve people's mental health in the context of increasing disaster risk.

Conclusion and Policy Implications

Conclusion

Natural disasters are events with far-reaching and long-lasting impacts not only on the environment and socioeconomic conditions, but also on people's mental health. Previous studies have shown that people who experience natural disasters are at high risk of developing a variety of mental health problems, ranging from diagnosed disorders such as post-traumatic stress disorder, depression, and anxiety, to subclinical psychological manifestations such as prolonged stress, sleep disturbances, and impaired adaptation. These problems can persist for extended periods and significantly affect the quality of life and social functioning of individuals and communities.

The overall findings also indicate that the level of psychological impact of natural disasters is not uniform among individuals and population groups, but is influenced by the complex interaction of multiple risk and protective factors. The degree of direct exposure to the disaster, loss of life and property, adverse socioeconomic status, and a history of mental health problems are significant risk factors

that increase the likelihood of developing and prolonging psychological problems. Conversely, social support, psychological resilience, and community cohesion play a crucial role in mitigating the negative impacts of disasters and promoting mental recovery.

These findings confirm that the impact of natural disasters on mental health needs to be viewed as a systemic public health issue, rather than being limited to individual clinical interventions. A holistic, multi-layered, and long-term approach to post-disaster mental health is necessary to fully reflect the psychological burden faced by individuals and communities.

Policy Implications

Based on the synthesized and analyzed results, this study offers several important implications for policy planning and mental health intervention practices in the context of natural disasters.

First, mental health care needs to be integrated as a core component in disaster risk management and recovery strategies. Disaster response policies should not focus solely on material relief and infrastructure reconstruction, but should also address the psychosocial needs of the population. Integrating mental health assessments and support into emergency response plans can help detect mental health problems early and limit the development of chronic disorders.

Secondly, post-disaster psychosocial intervention programs need to be designed with a community-based approach that is appropriate to the specific socio-cultural context. Mobilizing available community resources, strengthening the involvement of local organizations, and reinforcing social support networks can enhance the effectiveness and sustainability of interventions. This approach is particularly important in contexts with limited health resources where specialized mental health services are not widely available.

Third, priority should be given to policies and support programs for vulnerable population groups such as children, the elderly, women, and households facing socio-economic difficulties. Early identification and appropriate support for these groups will not only help mitigate immediate psychological consequences but also contribute to preventing long-term negative impacts on personal development and social cohesion.

Fourth, at the research and training level, it is necessary to promote the development of integrated theoretical frameworks and standardized assessment tools for studying mental health after disasters. Simultaneously, capacity building for healthcare professionals, social workers, and psychologists in the field of psychosocial support after disasters is a critical requirement to better meet the needs of people in the context of climate change and increasing natural disasters.

In summary, understanding the various forms of mental health problems, as well as the risk and protective factors associated with natural disasters, is not only academically significant but also highly practical. These findings provide a crucial scientific basis for developing comprehensive policies and intervention programs aimed at protecting and improving people's mental health, while also enhancing community resilience to the challenges posed by natural disasters.

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