Mental Health on Survivor of Natural Disaster: Literature Review

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Abstract

Disasters result in damage to public facilities and infrastructure, deaths, and significant changes in people's daily activities and physical and mental health. This research aims to determine the impact of natural disasters on mental health among survivors to assist researchers in providing an understandable and comprehensive summary of the currently available data. Literature review in journals with quantitative and qualitative research criteria, written in English and published in 2018–2023. Journal search databases are Google Scholar, Scopus, and PubMed, using the keywords Mental Health, Disaster, Children, Adolescent, Adult, and Elderly. The total number of journals related to the impact of natural disasters on mental health identified based on database searches was 104 journals. A total of 19 journals were used as study material, consisting of 1 journal discussing the condition of the elderly, 2 journals discussing the condition of children, 3 journals discussing the condition of teenagers, 4 journals discussing the condition of children and teenagers simultaneously, 4 journals discussing the condition of children and parents, as well as 5 journals discussing the conditions of adults. Natural disaster survivors (children, adolescents, adults and the elderly) have the potential to experience symptoms of stress, anxiety and depression. Psychological interventions are expected to target vulnerable groups and groups according to demographic characteristics.

Key words: mental health, disasters, children, adolescents, adults, elderly

Introduction

Law Number 24 of 2007 concerning Disaster Management of the Republic of Indonesia explains that a disaster is an event or series of events that threatens and disrupts people's lives and livelihoods caused by either natural factors and/or non-natural factors or human factors, resulting in human casualties, environmental damage, property loss, and psychological impacts (Badan Nasional Penanggulangan Bencana (BNPB), 2007). Prasad and Francescutti (2017) categorise disasters into hydrometeorological, geological, and biological. Hydrometeorological disasters are related to climate, oceans, or the movement of wet masses, such as floods, droughts, and heat waves. Geological disasters include changes due to tectonic plates or fault shifts (tsunamis occur due to fault shifts) or the movement of solid masses. A biological disaster is an event that involves the rapid (infectious) incidence and prevalence of a disease, toxin, or pathogen (Prasad & Francescutti, 2017).
Natural disaster events cause several secondary stressors in people’s lives and can greatly disrupt daily functioning. For example, loss of property, reduced social support networks, and damage to community structures. Natural disasters include earthquakes, tsunamis, typhoons, and floods, causing high deaths and massive population displacement (Jang et al., 2020). Earthquakes cause a decline in human capital in developing countries, while floods, storms, and epidemics substantially reduce countries’ per capita income (Qureshi et al., 2019).

Several studies have shown a positive relationship between exposure to natural disasters or other extreme events and levels of interpersonal violence. This occurs due to limited safe places to live and the loss of community networks (Gearhart et al., 2018). Natural disasters can exacerbate existing health problems due to difficulties accessing needed health care and treatment (Prohaska & Peters, 2019). As a result, disaster survivors may experience increased anxiety, depression, or anger, which in turn may impair adaptive functioning capacity (Cherry & Gibson, 2021). Furthermore, exposure to natural disasters was significantly associated with post-disaster suicidal ideation (Zuromski et al., 2019).

In addition, the impact of natural disasters on mental health conditions is experienced by children, adolescents, adults and the elderly. Children and adolescents who were injured, witnessed the death of a family member or playmate, and experienced damage to their home and other facilities in their neighbourhood had higher scores on depression and PTSD symptoms (Schwind et al., 2018). Shorter sleep times are associated with higher mental health risks in children aged 4–6 years. On the other hand, excessive sleep is associated with high mental health risks in children aged 7–15 years (Itagaki et al., 2018). Furthermore, teenagers who experience worry, have learning difficulties, and have conflicts with family members or parents during or after a disaster have the potential to experience increased anxiety, depressive symptoms, and experience decreased life satisfaction (Magson et al., 2021).

In adults, mental health problems that often arise after exposure to natural disasters include increased smoking habits, feelings of helplessness, and worries about the possibility of impending death. This can increase the likelihood of experiencing symptoms of severe depression, anxiety and stress (Vujčić et al., 2021). Previous research by Gao et al. (2023) states that older adults or the elderly often experience fear and sadness due to earthquakes. Many elderly people have problems with financial status and economic losses, such as property loss after a disaster. This has a big influence on the mental health of the elderly, such as experiencing anxiety and depression (Gao et al., 2023).

Several studies have been conducted to explain the impact of natural disasters on mental health conditions in children, adolescents, adults and the elderly. This literature review aims to find out more deeply the impact of natural disasters on mental health in children, adolescents, adults and the elderly and, at the same time, summarise a large number of studies and explain the variety of studies conducted on the same subject. We reduce research bias by considering all available data and assessing each study for bias. Another expected finding is that additional information will be obtained regarding factors that have the potential to worsen survivors’ mental health conditions, along with recommendations for needed interventions. Researchers hope this literature review research can increase and deepen literacy related to natural disasters and mental health.

Method

This literature review research refers to literature that discusses the impact of natural disasters on mental health in children, adolescents, adults and the elderly. Literature review research generally has eight steps: (1) formulating the research problem; (2) developing and validating the review protocol; (3) searching the literature; (4) screening for inclusion; (5) assessing quality; (6) extracting data; (7) analysing and synthesising data; and (8) reporting the findings (Xiao & Watson, 2019). This research was conducted by paying attention to and considering the principles of implementing a systematic literature review:

1. Formulating the research problem and developing and validating the review protocol.
   Researchers created a research formula using a format reference from the National Institute for Health Research, PROSPERO International Prospective Register of Systematic Reviews. The formula contains research questions, keywords, determination of inclusion and exclusion criteria, determination of the database used in the research and some additional information needed.

2. Searching the literature
   Researchers searched for literature review journal materials by referring to the search keywords used, namely Mental Health, Disaster, Children, Adolescent, Adult, and Elderly (Table 1). The search used Google Scholar, PubMed, and Scopus databases. Researchers only chose journals published in English and 2018–2023 in order to include only recent evidence and update the review (Helbach et al., 2022). Literature searches were carried out using the Publish and Perish application.

3. Screening for inclusion
   Researchers checked duplicate journals obtained using the Mendeley application, and duplicate journals were then deleted. The researcher reviews the journal by looking at the title, abstract and suitability of the journal to the inclusion/exclusion criteria. Inclusion Criteria consist of research journals that discuss mental health among disaster survivors experienced by children, adolescents, adults and the elderly. Types of quantitative and qualitative journals that discuss impacts, causal factors, moderators and mental health aspects of disaster
Table 1. Keywords and Synonyms

<table>
<thead>
<tr>
<th>Mental Health</th>
<th>Disaster</th>
<th>Children</th>
<th>Adolescent</th>
<th>Adult</th>
<th>Elderly</th>
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<tr>
<td>“Mental Health” OR “Mental Well-being” OR “Emotional Well-being” OR “Psychological Well-being” OR “Psychological State”</td>
<td>Disaster OR Landslide OR Tsunami OR Catastrophe OR Fire OR Eruption OR Flood OR Earthquakes OR Cyclone OR Storm OR Epidemic</td>
<td>Children OR Child OR Girl OR Young OR Juvenile</td>
<td>Adolescent OR Teenage OR Pubescent OR Youthful OR Young OR Teenage</td>
<td>Adult OR Man OR Woman</td>
<td>Elderly OR Aged OR Old OR Ma- ture OR Senior OR An- cient</td>
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</table>

survivors. Research exclusion criteria include articles that discuss mental health outside of disaster conditions and are published not in English.

4. Assessing Quality
Researchers look at the quality of the journal and examine the journal more deeply by finding out the information contained in the journal. The assessment was carried out by referring to predetermined questions, namely: What is the mental health condition of children, adolescents, adults and the elderly survivors after exposure to natural disasters? What factors cause mental health in disaster survivors aged children, adolescents, adults and the elderly? What is the impact of disasters on the mental health of children, adolescents, adults and the elderly? What are the moderators of mental health in disaster survivors in children, adolescents, adults and the elderly?

5. Extracting data
Data is extracted using a form that lists the resource (name and year of publication), disaster conditions, population studied, and main results. Researchers grouped the information based on the type of disaster studied, year and research location, subject, and mental health information related to causal factors, impacts and moderators.

6. Analysing and synthesizing data and finding report
In the final stage, the researcher analysed the research results and compiled and summarized the data according to the theme of the findings to be presented in the form of a descriptive report.

Results and Discussion

The total number of journals related to the impact of natural disasters on mental health identified based on database searches was 104 journals. There were 58 journals found in the Scopus source, 17 in PubMed, and 35 in Google Scholar. A total of 40 journals discussed the mental health of children after exposure to natural disasters, 21 journals discussed adults, the health conditions of the elderly were discussed in 15 journals, and only 5 journals discussed the conditions of teenagers.

After double-checking the journals, 37 were eliminated and deleted or discarded. Researchers read the titles and abstracts of 67 journals and succeeded in discarding 10 journals because they felt they did not meet the required journal criteria. Furthermore, 57 journals were read in more depth, and researchers found 19 journals containing information needed by researchers, namely the impact of natural disasters on the mental health of children, teenagers, adults and the elderly.

The journals used as study material consist of 1 journal discussing the condition of the elderly, 2 journals discussing the condition of children, 3 journals discussing the condition of teenagers, 4 journals discussing the condition of children and teenagers simultaneously, 4 journals discussing the condition of children and the elderly, as well as 5 journals discussing the conditions of adults. However, 8 journals discuss pandemic disasters, 6 journals discuss earthquakes, 2 journals discuss floods, and only wind, storm and hurricane disasters, each discussed in 1 journal.

As a result of journal analysis, it is known that survivors in the adult age category and types of pandemic natural disasters are discussed more in several journals. Researchers also identified impacts, stressors, and several intervention recommendations related to mental health in children, adolescents, adults, and the elderly after exposure to natural disasters. The researchers then explained the results of this identification based on the age categories of children, teenagers, adults and the elderly.

Researchers found that several journals discussed more about the mental health conditions of survivors after facing pandemic-type natural disasters and earthquakes. Pandemic-type natural disasters cause the most psychological health problems, followed by earthquakes. This happens because pandemic disasters occur over a long period and cause transmission quite quickly, so many survivors have to go through a long mass recovery period (Prasad & Francescutti, 2017).

Furthermore, the earthquake resulted in quite high deaths and large population displacement or displacement (Jang et al., 2020), lack of privacy between individuals and their families or other individuals due to limited housing
Figure 1. Diagram Preferred Reporting Items for Systematic Reviews and Meta-Analyses

(Gearhart et al., 2018), Damage to public facilities makes it difficult to access health facilities (Prohaska & Peters, 2019), lack of skilled personnel for handling (Qureshi et al., 2019) and influence the adaptive abilities of survivors (Cherry & Gibson, 2021). This has an impact on the mental health condition of adult survivors, coupled with the feeling of having lost the ability to support their family (IASC, 2007).

**Children**

Several age groups have the potential to become vulnerable groups, depending on each person’s condition and the emergency level of the disaster that is occurring. Children are one of the vulnerable groups. Apart from being unable to protect themselves fully, children also have the potential to be separated from their parents or companions (including orphans). Children who are separated from their families in disaster situations have the potential to be recruited by irresponsible groups of people and used as tools to obtain economic assistance or trafficked. Children also have the potential to be involved in conflicts with the law, dangerous work, living or working on the streets and malnourished/under-stimulated children (IASC, 2007). Children are a vulnerable group and need special attention regarding protection, education, and physical and mental health.

The results of the literature review show that children have the potential to experience mental health problems after being exposed to natural disasters, such as PTSD, Major Depression Predisaster, Generalized Anxiety Disorder, Overanxious Disorder, Oppositional Defiant Disorder, Conduct Disorder, Attention Deficit/Hyperactivity Disorder, Alcohol Use Disorder, Drug Use Disorder, Separation Anxiety Disorder, and Any Disorder (Lee et al., 2021). Depression and PTSD symptoms were more prevalent in children and adolescents who had been hurt, had witnessed the death of a playmate or family member, and had had damage done to their house and other neighbourhood facilities (Schwind et al., 2018).

| Table 2. Article characteristics and summary of findings (N=19) |
|---|---|---|---|---|
| No | Resources | Conditions | Population | Summary of Result |
| 1 | (Vujčić et al., 2021) | Pandemic | 1057 Adult Serbia | 1. **Stressor**: Smoking status, feelings of helplessness, likelihood of impending death, and presence of COVID-19 symptoms  
2. **Impact**: Severe depression, anxiety, and stress symptoms  
3. **Addition**: Older people try to protect themselves from anxiety and stress. High socioeconomic status was significantly associated with low levels of depression, anxiety, and stress |
<p>| 2 | (Simonds, 2022) | 10 natural disaster and war | 16,768 children in 5 countries | Trauma-related functioning/well-being improved from day 1 to day 5 |</p>
<table>
<thead>
<tr>
<th>No</th>
<th>Resources</th>
<th>Conditions</th>
<th>Population</th>
<th>Summary of Result</th>
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<tbody>
<tr>
<td>3</td>
<td>(Lee et al., 2021)</td>
<td>Floods</td>
<td>290 children, 272 adults (Mother, Father, any parents) Missouri</td>
<td>1. <strong>Impact</strong>&lt;br&gt;Children: PTSD, Major Depression Predisaster, Generalized Anxiety Disorder, Overanxious Disorder, Oppositional Defiant Disorder, Conduct Disorder, Attention Deficit/Hyperactivity Disorder, Alcohol Use Disorder, Drug Use Disorder, Separation Anxiety Disorder, and Any Disorder.&lt;br&gt;Adult: PTSD, Major Depression, Generalized Anxiety Disorder, Panic Disorder, Alcohol Use, Drug Use. 2. <strong>Addition:</strong> Post-disaster mental health outcomes in children are related to their parent’s mental health responses</td>
</tr>
<tr>
<td>4</td>
<td>(Itagaki et al., 2018)</td>
<td>Earthquake</td>
<td>29,585 children in Japan</td>
<td>1. <strong>Stressor</strong>&lt;br&gt;Sleep time (Shorter and oversleeping) 2. <strong>Impact</strong>&lt;br&gt;Higher risk of mental health</td>
</tr>
<tr>
<td>5</td>
<td>(Morden, 2018)</td>
<td>Flooding</td>
<td>225 children and adolescents in Philippines</td>
<td>1. <strong>Stressor</strong>&lt;br&gt;The centrality of trauma event 2. <strong>Impact</strong>&lt;br&gt;Acute stress disorder and depression</td>
</tr>
<tr>
<td>6</td>
<td>(Schwind et al., 2018)</td>
<td>Earthquake</td>
<td>62 children and adolescents in Nepal</td>
<td>1. <strong>Stressor</strong>&lt;br&gt;Experiencing a family member or friend being seriously injured or killed, severe damage or destruction to the home or environment. 2. <strong>Impact</strong>&lt;br&gt;Depression and PTSD symptomatology</td>
</tr>
<tr>
<td>7</td>
<td>(Sangraula et al., 2020)</td>
<td>Earthquake</td>
<td>121 adults in Nepal</td>
<td>1. <strong>Interventions</strong>&lt;br&gt;Brief psychoeducation and provides referral options to primary care services with health workers trained in the mental health Gap Action Program (GAP-IG) Intervention Guide 2. <strong>Outcomes</strong>&lt;br&gt;The intervention and trial procedures were acceptable to participants, family members, and program staff. The community and participants found the intervention beneficial.</td>
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<td>8</td>
<td>(Giarratano et al., 2019)</td>
<td>Hurricane</td>
<td>402 pregnant women in New Orleans</td>
<td>1. <strong>Stressor</strong>&lt;br&gt;Poor social support 2. <strong>Impact</strong>&lt;br&gt;Depression symptomology, post-traumatic stress disorder, anxiety, and stress.</td>
</tr>
<tr>
<td>9</td>
<td>(Chen et al., 2020)</td>
<td>Earthquake</td>
<td>589 mother-child dyads in China</td>
<td>1. <strong>Impact</strong>&lt;br&gt;PTSD and anxiety symptoms 2. <strong>Additions</strong>&lt;br&gt;Maternal chronic PTSD symptoms were associated with increased risk of child PTSD and anxiety 10 years after the earthquake.</td>
</tr>
<tr>
<td>10</td>
<td>(He et al., 2021)</td>
<td>Pandemic</td>
<td>177 pregnant women in China</td>
<td>The psychological health of pregnant women is indirectly influenced by the epidemic and the availability of medical resources, as well as work-related factors. Medical staff should provide family support means and social resources to ensure the accessibility of medical services to reduce the stress of pregnant women and further improve their psychological health.</td>
</tr>
<tr>
<td>11</td>
<td>(Silk et al., 2022)</td>
<td>Pandemic</td>
<td>93 adolescent girls in U.S.</td>
<td>Girls are reported to be involved in many activities that can contribute to well-being. Girls have more time for family and relaxation and less pressure from school/activities. Negative impacts associated with poorer same–day emotional health included problems with online school, lack of space/privacy, lack of a regular schedule, and family conflict.</td>
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<tr>
<td>12</td>
<td>(Magson et al., 2021)</td>
<td>Pandemic</td>
<td>248 Adolescents in Australia</td>
<td>1. <strong>Stressor</strong>&lt;br&gt;Anxiety, difficulty learning online, and increased conflict with parents. 2. <strong>Impact</strong>&lt;br&gt;Increased anxiety and depressive symptoms, and decreased life satisfaction.</td>
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Research by Itagaki et al. (2018) stated that Supporting factors for psychological problems in children are influenced by the child’s rest time and the mental health condition of the parents. Children aged 4–6 years have a higher risk of psychological problems when they have less or less sleep. In children aged 7–15 years, the opposite is true, those who sleep longer actually have a higher mental health risk (Itagaki et al., 2018). Furthermore, post–disaster mental health outcomes in children are related to the mental health response of the child’s parents (Lee et al., 2021). Fathers’ anxiety appears to have the strongest influence on children’s psychological symptoms (Ma et al., 2021).

Health services for children can be provided on a community scale by involving families and the community where the child lives. Health services include primary health services, psychological assistance services in crisis situations, home care and open services in collaboration with supporting activities. These health services are considered effective in restoring children’s psychological conditions and preventing the emergence of secondary stressors after exposure to natural disasters (Vusio et al., 2021).

**Adolescents**

Emergency situations or post–exposure to natural disasters do not cause all survivors to experience significant psychological problems. Some people show the ability to be resilient and overcome difficult situations well. Several factors influence the risk of mental health problems and the level of toughness or resilience in adolescents after experiencing a traumatic event, such as the type of event faced, level of education, family support, and gender.
Psychological problems often experienced by teenagers after experiencing traumatic events include depression, anxiety, compulsive, inattentive, sleep–related problems, and PTSD symptomatology (Mordeno, 2018). These psychological problems have the potential to be experienced by teenagers who have experienced very stressful events/trauma, for example, people who have lost close family members or lost means of supporting their daily activities due to a disaster (IASC, 2007).

Mordeno (2018) stated that when adolescents become deeply affected by a traumatic event, they tend to view the event as a central component of their identity, life story, and understanding of the world. These events become reference points for interpreting their life experiences and future hopes (events as a reference point). Extraordinary events are considered as turning points in a person's life story (event as a turning point) and thus have the potential to increase adolescents' psychological pressure (Mordeno, 2018).

Research by Ma et al. (2021) explained that the level of education contributes significantly to psychological health conditions. Middle school students reported greater changes in depression and anxiety than middle school and elementary school students (Ma et al., 2021). Students were more likely to have high scores on symptoms of depression and anxiety than non–students (Macalli et al., 2021). Furthermore, Adolescents who struggle with anxiety, learning challenges, and family disputes during or after a disaster may see an increase in anxiety and depression symptoms as well as a decline in life satisfaction (Magson et al., 2021).

A study by Silk et al. (2022) reported that adolescent girls are reportedly involved in many activities that can contribute to well-being. Activities that are often carried out by teenage girls include activities with family, relaxation activities, and academic support activities or school activities. These emotionally involved joint activities positively impact adolescent girls' emotional health (Silk et al., 2022).

**Adults**

The mental health conditions of adults after exposure to natural disasters have been most widely discussed by several journals. Many adults are involved as research subjects, namely breastfeeding mothers (Chen et al., 2020; Koyama et al., 2022), pregnant mother (Giarratano et al., 2019; He et al., 2021), caregiver (Li et al., 2021), and health experts (Suo et al., 2022). Several adults are a vulnerable group, according to the Inter–Agency Standing Committee organization Field (IASC) (2007), including pregnant women, single mothers, widows, and, in some cultures, unmarried adult women and teenage girls. Groups of men who are vulnerable include men who have lost the means to support their families and young men who are at risk of being detained, kidnapped or subjected to violence.

After facing a traumatic event such as a natural disaster, adults have the potential to experience a decline in mental health conditions. Psychological problems that are very likely to be experienced by adults include PTSD, Major Depression, Generalized Anxiety Disorder, Panic Disorder, Alcohol Use, and Drug Use (Lee et al., 2021). Maternal chronic PTSD symptoms were associated with increased risk of child PTSD and anxiety 10 years after the earthquake (Chen et al., 2020). This condition is influenced by several factors, such as social support, habits, economic status, education, and feelings of fairness in obtaining services.

For pregnant mothers, family support is needed, especially in difficult situations after a disaster. Research by Giarratano et al. (2019) explained several things that cause pregnant women's level of worry to increase after facing a disaster situation, namely related to the health of pregnancy, babies and birth; (2) family and parenting style; (3) housing and finance; (4) new–born health, care, and breastfeeding; (5) immigration and maternal separation; (6) mental health problems; and (7) death and loss. Insufficient social support given to pregnant women from family and people around them can increase the potential for pregnant women to experience depression symptoms, post–traumatic stress disorder, anxiety, and stress (Giarratano et al., 2019).

Previous research He et al. (2021) showed that the psychological health of pregnant women is indirectly influenced by the epidemic and the availability of medical resources, as well as work–related factors. Medical staff should provide family support and social resources to ensure the accessibility of medical services to reduce the stress of pregnant women and further improve their psychological health (He et al., 2021). A place to rest that is less safe and comfortable increases the mother’s level of awareness of situations and conditions, thus making the mother feel tired and stressed more quickly.

Furthermore, the smoking habit and lack of proper use of personal protective equipment among working adults can increase the risk of contact with pandemic survivors and, in the case of other disasters, the potential for injury. Supported by feelings of helplessness, the possibility of experiencing injury or death with physical health symptoms in adults can increase the risk of experiencing symptoms of anxiety, depression, stress and sleep problems, anxiety–depression comorbidity, acute stress, and quality of life (QOL) (Li et al., 2021; Suo et al., 2022; Vujčić et al., 2021).

Working women with low educational status are vulnerable to experiencing psychological problems (Li et al., 2021). Meanwhile, high socioeconomic status is significantly associated with low levels of depression, anxiety and stress (Vujčić et al., 2021). Furthermore, dissatisfaction and inequality in obtaining perceived rights predict parents’ level of happiness (Koyama et al., 2022). Perceived inequality and levels of parental happiness were associated with children's depressive symptoms directly and indirectly through parental mental health and social capital (Koyama et al., 2022).
Intervention services to reduce or prevent the development of psychological problems in adults are urgently needed in post-disaster situations. Brief psychoeducation and providing the option of referral to primary care services with health workers trained in the Mental Health Gap Action Program Intervention Guide (GAP-IG) were felt to be particularly beneficial. Intervention procedures and experiments conducted by some researchers are acceptable to participants, family members, and some employees (Sangraula et al., 2020).

**Elderly**

Parents with physical and mental health problems, as well as elderly or elderly parents, are vulnerable groups, both in normal conditions and in abnormal conditions, such as after a disaster. After exposure to natural disasters, older people have a higher risk of experiencing mental health problems. Mental health conditions in the elderly are influenced by several supporting factors, such as physical condition, economic status, family conditions, and retirement.

Elderly people with congenital chronic diseases, physical illnesses, personal health status that is considered to be poor, and physical and psychological characteristics can affect the psychological health condition of the elderly. After exposure to natural disasters, elderly people have the potential to experience psychological problems such as anxiety and depression. Fear and sadness of earthquakes and negative economic events such as economic losses, reduced income, and life security can increase the risk of experiencing anxiety and depression in older people (Gao et al., 2023).

Parents who lose family members and/or people who care for them are at high risk of experiencing psychological problems (IASC, 2007). Furthermore, elderly people who do not have a partner, elderly people who live alone, divorced or middle-aged widows, elderly people without a partner and single residents have a higher potential for experiencing psychological health problems. In addition, lack of family care functions and emotional support, sleep quality, facing the problem of decreasing economic income, inappropriate retirement, and helping their children to take care of the next generation are also the main factors in deteriorating mental health conditions in the elderly (Gao et al., 2023).

**Conclusion**

The results of this research conclude and underline that natural disaster survivors have the potential to experience mental health problems. Children, teenagers, adults and the elderly have the potential to experience symptoms of stress, anxiety and depression. Several factors supporting the occurrence of psychological problems in natural disaster survivors can include family conditions, social support, economic status, educational status, previous health history and physical condition.

The stressors for having mental problems such as smoking status, feelings of helplessness, likelihood of impending death, and presence of COVID-19 symptoms, sleep time (shorter and oversleeping), the centrality of trauma event, experiencing a family member or friend being seriously injured or killed, severe damage or destruction to the home or environment, poor social support, difficulty learning online, and increased conflict with family members. Those stressors can impact the symptoms of severe depression, anxiety, stress symptoms or acute stress disorder, and PTSD symptomatology. The moderators of that mental condition are chronic diseases, physical illness, self-rated health status, physical and psychological characteristics, living partner, divorced or widowed, lack of family care and support functions, emotions, an unsuitable retirement, gender, and level of education.

Psychological and non-psychological intervention programs of fast and appropriate duration are needed during the emergency response and/or rehabilitation and reconstruction periods. Psychological interventions are expected to target vulnerable groups and groups according to age and education levels. Humanitarian institutions engaged in disaster management need to plan psychosocial support service programs and provide volunteers who are competent in providing these services.

**References**


