

POST-DISASTER ANXIETY AND DEPRESSIVE SYMPTOMS AMONG CHILDREN AND ADOLESCENTS AFFECTED BY FLOODING IN ACEH TAMIANG, INDONESIA: A DESCRIPTIVE SCREENING STUDY

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ABSTRACT

Flood disasters can disrupt children's safety, education, family routines, and social environments and may consequently affect their psychological well-being. Children and adolescents are particularly vulnerable to emotional distress following exposure to disasters. This study aimed to describe anxiety and depressive symptoms identified through mental health screening among children and adolescents affected by flooding in Aceh Tamiang, Indonesia. A descriptive screening study was conducted among 195 children and adolescents in flood-affected areas of Aceh Tamiang. The screening was conducted from February 20 to 29, 2026, approximately three months after the flood disaster that began on November 26, 2025. Mental health screening was performed using the MMYS screening form as part of the Ministry of Health of the Republic of Indonesia Health Reserve Personnel (Tenaga Cadangan Kesehatan/TCK) Volunteer Program Batch 3. Data were analyzed descriptively using frequencies and percentages. Anxiety symptoms ranging from mild to severe were identified in 125 participants (64.1%), including 44 (22.6%) with mild, 36 (18.5%) with moderate, and 45 (23.1%) with severe symptoms. Depressive symptoms were identified in 122 participants (62.6%), comprising 46 (23.6%) with mild, 46 (23.6%) with moderate, and 30 (15.4%) with severe symptoms. The findings indicate a substantial burden of post-disaster emotional symptoms among the screened children and adolescents. Systematic follow-up, psychological first aid, school- and community-based psychosocial support, family involvement, repeated screening, and timely referral for children with severe or persistent symptoms are recommended.

Keywords: *adolescents; anxiety; children; depression; flooding; mental health; psychosocial support; disaster*

INTRODUCTION

Flooding is one of the most common natural hazards worldwide and can have consequences that extend beyond physical injury and damage to infrastructure. For children and adolescents, disaster exposure may disrupt education, family routines, social relationships, housing conditions, and access to health services. Such disruptions may occur alongside fear, uncertainty, displacement, and concerns about family safety, creating conditions that can adversely affect psychological well-being.

Children and adolescents are particularly important in post-disaster mental health responses because psychological difficulties during these developmental periods may interfere with emotional regulation, social functioning, educational participation, and healthy development.

Mental health conditions frequently emerge during childhood and adolescence, yet many affected young people do not receive adequate mental health services. The World Health Organization (WHO) and UNICEF therefore emphasize the importance of accessible, age-appropriate, community-based mental health services for children and young people.

Disasters can generate multiple and overlapping stressors. Children may experience displacement, disruption of schooling, loss of belongings, changes in living arrangements, separation from familiar environments, and uncertainty about recovery. WHO identifies emergencies as circumstances that can worsen pre-existing mental health conditions and contribute to new psychological and social problems. Recommended responses include community-based support, psychological first aid (PFA), clinical mental health care, and effective referral networks.

Recent evidence also indicates that the psychological consequences of disasters may persist beyond the immediate emergency period. A systematic review of longitudinal studies found that anxiety and depression can remain elevated following disaster exposure, with children and adolescents representing an important population requiring sustained attention. Evidence specific to flooding similarly indicates an increased risk of adverse mental health outcomes, including anxiety and depression.

The importance of addressing the psychological consequences of flooding has also been highlighted in children affected by major flood disasters. For example, evidence from flood-affected communities has emphasized the need for mental health support for children following disaster exposure.

In Aceh Tamiang, Aceh Province, Indonesia, a major flood disaster began on **November 26, 2025**, affecting communities and disrupting normal activities. Children and adolescents living in affected communities represented an important population for post-disaster psychosocial assessment.

As part of the health response, the Ministry of Health of the Republic of Indonesia Health Reserve Personnel (Tenaga Cadangan Kesehatan/TCK) Volunteer Program Batch 3 conducted mental health screening among children and adolescents in flood-affected areas of Aceh Tamiang. The activity was designed to identify children who demonstrated symptoms requiring psychosocial attention and to provide a basis for appropriate follow-up and referral. Mental health screening should not be interpreted as a clinical diagnosis. Rather, screening provides an opportunity to identify individuals who may benefit from further assessment, psychosocial support, monitoring, or referral. This distinction is particularly important in disaster settings, where screening is often conducted rapidly and under field conditions.

Accordingly, this study aimed to **describe the distribution of anxiety and depressive symptoms identified through mental health screening among children and adolescents affected by the November 2025 flood in Aceh Tamiang, Indonesia**. The findings are intended to provide practical evidence for strengthening post-disaster mental health and psychosocial support services for children and adolescents.

METHODS

Study Design and Setting

A descriptive screening study was conducted among children and adolescents affected by flooding in Aceh Tamiang, Aceh Province, Indonesia. The flood disaster occurred beginning on **November 26, 2025**. Mental health screening was subsequently implemented as part of the post-disaster health response. Screening data included in the present analysis were collected during **February 20–29, 2026**, approximately three months after the disaster. The screening was conducted through community and service locations in flood-affected areas, including villages, schools, temporary shelters, mosques, and health service points.

Participants

The analytic sample comprised **195 children and adolescents** who participated in the mental health screening. The screening population included school-aged children and adolescents aged approximately 7–18 years, based on the age categories used in the screening records. The geographical coverage included several affected areas of Aceh Tamiang, including Sriwijaya, Kota Lintang Bawah, Bundar, Sukajadi, Benua Raja, Lubuk Sedup, Kampung Durian, Landuh, Kebun Tanjung Seumantoh, Kuala Simpang, Rantau, Simpang Tiga, Babo, and Huntara Upah. The screening was implemented by volunteers of the Ministry of Health of the Republic of Indonesia Health Reserve Personnel Volunteer Program Batch 3 under the coordination of the activity coordinator, Dr. Ns. Arbaiyah, MPH.

Screening Instrument

Mental health screening was conducted using the **MMYS screening form**, as specified in the operational screening report. The instrument was used to categorize participants according to anxiety and depressive symptom levels. Anxiety was classified into four categories: no anxiety, mild, moderate, and severe. Depressive symptoms were similarly classified as no depression, mild, moderate, and severe. Because the activity was a **screening program rather than a diagnostic clinical assessment**, the results are reported as *screening-indicated anxiety and depressive symptoms*. They should not be interpreted as confirmed psychiatric diagnoses.

Data Collection

Data were collected during field-based post-disaster screening activities from **February 20 to 29, 2026**. Information available in the screening records included sex, age category, screening location, and date of screening. Personal names were not included in the present manuscript in order to protect participant confidentiality.

Data Analysis

Descriptive analysis was performed using frequencies and percentages. For anxiety, the proportion of participants with screening-indicated anxiety symptoms was calculated by combining the mild, moderate, and severe categories. The same approach was used for depressive symptoms by combining the mild, moderate, and severe categories. Percentages were calculated using the analytic sample of 195 participants.

RESULTS AND DISCUSSION

Results

Anxiety Symptoms

Among the 195 children and adolescents screened, **70 participants (35.9%)** were categorized as having no anxiety symptoms. A total of **125 participants (64.1%)** demonstrated anxiety symptoms at mild, moderate, or severe levels. Specifically, 44 participants (22.6%) were categorized as having mild anxiety symptoms, 36 (18.5%) had moderate symptoms, and 45 (23.1%) had severe symptoms.

Table 1. Distribution of Anxiety Screening Categories Among Children and Adolescents ($n = 195$)

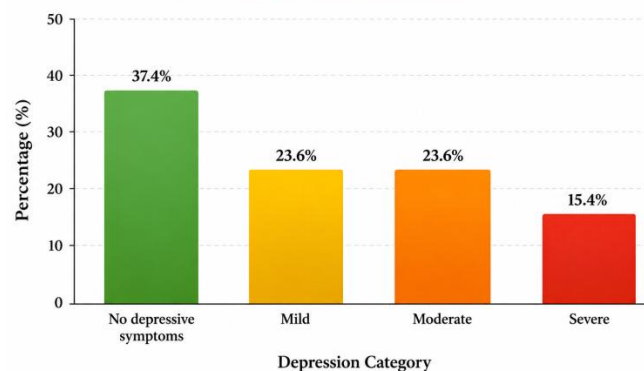
Anxiety category	n	%
 No anxiety symptoms	70	35.9
 Mild	44	22.6
 Moderate	36	18.5
 Severe	45	23.1
Total	195	100.0

Thus, approximately two-thirds of the screened participants had anxiety symptoms at least at the mild level. Particularly notable was the proportion with severe anxiety symptoms, which accounted for **23.1%** of the sample.

Depressive Symptoms

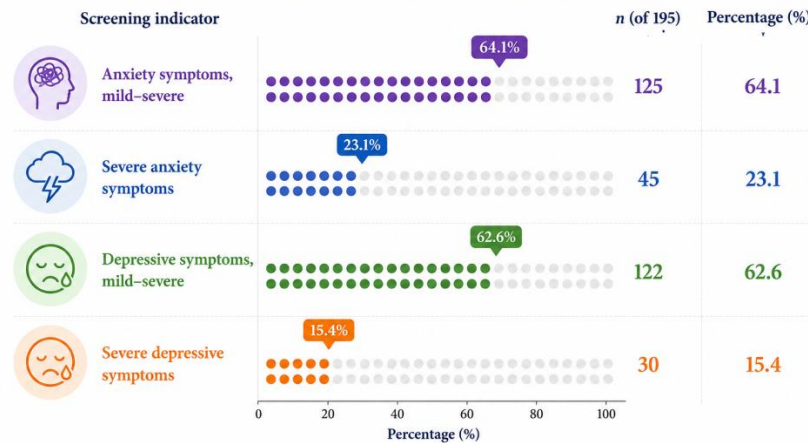
Regarding depressive symptoms, **73 participants (37.4%)** were classified as having no depressive symptoms. A total of **122 participants (62.6%)** demonstrated depressive symptoms ranging from mild to severe. Mild depressive symptoms were identified in 46 participants (23.6%), while 46 participants (23.6%) were categorized as moderate. Severe depressive symptoms were identified in 30 participants (15.4%).

Figure 2. Distribution of Depressive Screening Categories Among Children and Adolescents ($n = 195$)



Overall, **62.6%** of the screened participants had depressive symptoms at least at the mild level. The proportion categorized as having severe depressive symptoms was **15.4%**.

Table 3. Summary of Screening-Indicated Anxiety and Depressive Symptoms



The descriptive findings demonstrate a substantial burden of emotional symptoms among the screened population. Anxiety symptoms were slightly more frequently identified than depressive symptoms, while severe anxiety symptoms were also more common than severe depressive symptoms.

DISCUSSION

The present study identified a substantial proportion of children and adolescents with anxiety and depressive symptoms approximately three months after the November 2025 flood in Aceh Tamiang. Anxiety symptoms ranging from mild to severe were identified in **64.1%** of the screened participants, while depressive symptoms were identified in **62.6%**. Severe anxiety symptoms were identified in **23.1%**, and severe depressive symptoms in **15.4%**. These findings are important because they suggest that the psychological consequences of flooding may remain prominent during the post-disaster recovery period. Flood disasters can expose children to multiple stressors simultaneously, including displacement, disruption of education, changes in family routines, loss of belongings, uncertainty, and reduced access to familiar social environments. Recent evidence indicates that flood exposure is associated with elevated risks of depression and anxiety, reinforcing the importance of incorporating mental health into disaster preparedness, response, and recovery.

The proportion of anxiety symptoms identified in this screening is particularly noteworthy. More than six in ten screened participants were categorized as having at least mild anxiety symptoms, while almost one-quarter were categorized as severe. These findings should not be interpreted as evidence that 64.1% of the children had a clinical anxiety disorder. Instead, they indicate that a substantial proportion displayed symptoms sufficiently elevated to warrant attention through appropriate follow-up and, when indicated, professional assessment.

This distinction between **screening and diagnosis** is especially important in disaster research. Screening is valuable for identifying children who may require additional support, but diagnosis requires a more comprehensive clinical assessment, including consideration of symptom duration, functional impairment, developmental characteristics, and other relevant clinical factors.

Depressive symptoms showed a similar pattern. More than 60% of participants were categorized as having mild to severe depressive symptoms, and 15.4% were classified as severe. Depression-related symptoms during childhood and adolescence can affect school participation, interpersonal relationships, motivation, sleep, and daily functioning. Consequently, children with persistent or severe symptoms should not simply be observed without follow-up.

The findings are consistent with the broader literature demonstrating that children and adolescents may experience significant psychological consequences following natural disasters. A 2024 network meta-analysis of psychological interventions involving children and adolescents exposed to natural and human-made disasters found evidence that several psychological interventions can reduce post-disaster psychological symptoms, including depression and post-traumatic stress symptoms. Similarly, recent evidence indicates that school-based interventions can be useful for children and adolescents following natural disasters. A systematic review and meta-analysis published in 2025 found beneficial effects of school-based interventions on post-traumatic stress symptoms, depression, and anxiety among children and adolescents exposed to natural disasters. These findings are particularly relevant to Aceh Tamiang because schools can provide a structured environment for psychosocial support, monitoring, referral, and restoration of daily routines.

The results also support the implementation of **multilevel mental health and psychosocial support (MHPSS)**. WHO recommends a multisectoral and multilayered approach to mental health responses during emergencies. Such responses may range from community-based support and psychological first aid to specialized psychological interventions and clinical mental health care. Establishing effective referral networks is particularly important for individuals experiencing severe or persistent psychological difficulties. Psychological First Aid is an appropriate component of the early post-disaster response. PFA provides humane, supportive, and practical assistance to people experiencing distress after a crisis. Evidence from a systematic review suggests that PFA interventions have generally been associated with improvements in psychological outcomes, although the evidence base remains heterogeneous and further rigorous evaluation is needed.

For children and adolescents, psychosocial interventions should be developmentally appropriate and should involve parents, caregivers, teachers, health professionals, and community members. UNICEF emphasizes integrated and multisectoral MHPSS programming across health, education, child protection, and community systems. Based on the present findings, a **stepped-care pathway** may be appropriate for children affected by flooding in Aceh Tamiang. At the first level, universal psychosocial support and psychological first aid can be provided to affected children. At the second level, children with mild or persistent symptoms can receive structured psychosocial interventions, family support, and school-based monitoring. At the third level, children with severe symptoms or significant functional impairment should receive professional mental health assessment and referral.

The particularly high proportion of severe anxiety symptoms warrants priority attention. The 45 participants classified as severe anxiety should be considered a high-priority group for follow-up, subject to clinical assessment. Similarly, the 30 participants categorized as having severe depressive symptoms require appropriate follow-up and assessment. Screening results alone should not determine diagnosis or treatment; rather, they should initiate a pathway for further assessment and care.

Family involvement is also essential. Parents and caregivers can help restore routines, provide emotional reassurance, observe behavioral changes, and facilitate access to health services. Teachers and community health workers can complement this role by monitoring children's functioning and facilitating referral when necessary. The study also has important implications for disaster preparedness. Mental health services should not be added only after a disaster occurs. Disaster preparedness plans should incorporate child and adolescent mental health screening, trained responders, referral pathways, school-based psychosocial services, and mechanisms for monitoring psychological well-being during the recovery period.

Limitations

Several limitations should be considered when interpreting the findings. First, the study used a descriptive screening design without a pre-disaster baseline or non-exposed comparison group. Therefore, the findings cannot establish a causal relationship between flooding and anxiety or depressive symptoms. Second, the study relied on the MMYS screening form used in the operational response. Because the present manuscript is based on the screening report, detailed psychometric characteristics, scoring procedures, and diagnostic validity of the instrument were not available for independent evaluation. The findings should therefore be understood as screening results rather than clinical diagnoses. Third, the participants were screened through disaster-response activities rather than selected through probability sampling. Consequently, the results should not be generalized to all children and adolescents in Aceh Tamiang.

Finally, the analysis was descriptive and did not examine associations between psychological symptoms and age, sex, location, or other potentially relevant factors. Future studies should use validated age-specific instruments, longitudinal follow-up, and analytical designs to investigate risk and protective factors.

CONCLUSION

Mental health screening conducted among 195 children and adolescents affected by the November 2025 flood in Aceh Tamiang identified a substantial burden of anxiety and depressive symptoms. Anxiety symptoms at mild to severe levels were identified in **64.1%** of participants, while depressive symptoms were identified in **62.6%**. Severe anxiety and depressive symptoms were identified in **23.1%** and **15.4%**, respectively. These findings indicate an important need to integrate child and adolescent mental health into post-disaster recovery programs. A coordinated continuum of care involving psychological first aid, community- and school-based psychosocial support, family engagement, repeated screening, professional assessment, and timely referral should be strengthened for affected children and adolescents.

The findings should be interpreted as **screening evidence rather than diagnostic prevalence estimates**. Future research should employ validated age-appropriate instruments and longitudinal designs to determine how psychological symptoms evolve during recovery and to identify factors that promote resilience among children and adolescents affected by flooding.

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REFERENCES

- Cheema, H. A., Rehan, S. T., Shahid, A., Head, M. G., Jawad, M. Y., & Shah, J. (2023). The mental health of children in flood-affected areas in Pakistan needs urgent attention. *The Lancet Psychiatry*, 10(1), 7. [https://doi.org/10.1016/S2215-0366\(22\)00381-9](https://doi.org/10.1016/S2215-0366(22)00381-9)
- Hermosilla, S., Forthal, S., Sadowska, K., Magill, E. B., Watson, P., & Pike, K. M. (2023). We need to build the evidence: A systematic review of psychological first aid on mental health and well-being. *Journal of Traumatic Stress*, 36(1), 5–16. <https://doi.org/10.1002/jts.22888>
- Luo, Y., et al. (2022). Long term mental health trajectories after disasters and pandemics: A multilingual systematic review of prevalence, risk and protective factors. *Journal of Affective Disorders*.
- Shah, H., Somaiya, M., Chauhan, N., & Gautam, A. (2023). Clinical practice guidelines for assessment and management of children and adolescents presenting with psychiatric emergencies. *Indian Journal of Psychiatry*, 65(2), 159–174. https://doi.org/10.4103/indianjpsychiatry.indianjpsychiatry_494_22
- UNICEF. (2024). *Global annual results report 2023: Mental health*. UNICEF.
- UNICEF. (2025). *Global annual results report 2024: Humanitarian action*. UNICEF.
- UNICEF. (2025). *Thematic spotlight on mental health 2024: For every child, mental health and psychosocial wellbeing*. UNICEF.
- World Health Organization. (2024). *Mental health in emergencies*. WHO.
- World Health Organization. (2024). *Mental health of children and young people: Service guidance*. WHO.
- World Health Organization. (2024). *Psychological first aid during Ebola virus disease outbreaks* (2nd ed.). WHO.
- World Health Organization. (2024). *Mental health and substance use: Emergencies—response*. WHO.
- Xie, Y., Zhu, X., Wang, L., Wan, Z., Yang, J., Su, C., Duan, S., Xu, C., & Kan, B. (2024). A network meta-analysis of psychological interventions for children and adolescents after natural and man-made disasters. *BMC Psychiatry*, 24, 468. <https://doi.org/10.1186/s12888-024-05924-8>
- Yani, D. I., Chua, J. Y. X., Wong, J. C. M., Pikkariainen, M., & Shorey, S. (2025). The effects of universal educational interventions in improving mental health literacy, depression, and anxiety among adolescents: A systematic review and meta-analysis. *International Nursing Review*, 72(1), e13494

APPENDIX

Appendix 1. Mini MindHEAR Youth Scale V.1 domains

Domain	Indicator
Anxiety – Item 1	Worry, restlessness, tension, nervousness, or fear concerning negative possibilities
Anxiety – Item 2	Excessive thinking and difficulty controlling negative thoughts
Anxiety – Item 3	Sleep and concentration difficulties associated with negative thoughts
Depressive symptoms – Item 1	Sadness or feeling emotionally pressured without a clear cause
Depressive symptoms – Item 2	Reduced interest in previously enjoyable activities
Depressive symptoms – Item 3	Fatigue, sleep difficulties, and difficulty concentrating

The MMYS V.1 uses six dichotomous items, with three items addressing anxiety and three addressing depressive symptoms, and asks respondents to consider symptoms during the preceding two weeks.