

## Trauma Healing Therapy for Post-Earthquake Children Using Traditional Randai Approach

Jumilia Jumilia<sup>1,2</sup>, Jayasree S. Kanathasan<sup>1</sup>

<sup>1</sup>Lincoln University College, Malaysia

<sup>2</sup>Indonesian College of Health Sciences, Padang, Indonesia

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### ABSTRACT

Earthquake disasters can significantly impact the psychological well-being of victims across all age groups, particularly children. As a vulnerable group, children face unique challenges in coping with disaster situations due to their limited abilities, resources, and immature psychological adaptations. Various interventions have been explored to address disaster-related trauma in children. In Indonesia, Randai, a traditional cultural performance, is believed to help reduce psychological trauma in children. This study aims to evaluate the effectiveness of Randai therapy in alleviating psychological trauma among children affected by earthquakes. A quantitative approach was employed using a pre-experimental study design with pretest-posttest assessments. The sample size is 202 respondents, consisting of 101 for the Randai intervention group and 101 for the control group. The results of this study showed a pretest score for trauma level of 25.61 before Randai therapy and a posttest score of 20.96 after Randai therapy. There is a significant difference between the psychological trauma of respondents before and after being given Randai therapy, with an average value of 25.61 with a standard deviation of 7.800 and an average value of 20.96 with a standard deviation of 7.511 respectively. It was found that Randai therapy had positively reduced psychological trauma among children after the earthquake ( $p$ -value < 0.05). Randai therapy is significant in reducing psychological trauma in children after the earthquake in Kajai West Pasaman, West Sumatra. This study contributes by revealing the effectiveness of traditional Randai therapy as a non-pharmacological therapy to reduce post-disaster children's psychological trauma. In addition, it enriches the culture-based approach to safe, affordable, and sustainable psychological recovery.

**Keywords:** Post-earthquake Children, Psychological Trauma, Randai Therapy, Trauma Healing Therapy, Mental Health Care



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### Corresponding Author:

Jayasree S. Kanathasan

Lincoln University College, Malaysia

Email: [k.jayasree@lincoln.edu.my](mailto:k.jayasree@lincoln.edu.my)

## 1. INTRODUCTION

Indonesia, as a country located on the Pacific Ring of Fire, continues to face the consequences of earthquakes. One of the biggest threats is a megathrust earthquake, an earthquake with a very large magnitude that can trigger a devastating tsunami. Megathrust earthquakes occur when the tectonic plates pressing against each other. When this pressure suddenly releases energy, a devastating earthquake occurs. The Indonesian region, especially along the west coast of Sumatra, southern Java, and Nusa Tenggara, are known for its high risk for earthquakes (Syahda, 2024). Geologically, Indonesia is located at the confluence of 4 active tectonic plates in the world, where Indonesia is located between the Indo-Australian plate, the Eurasian plate, the Philippine plate, and also the Pacific plate (Hukubun et al., 2023). Earthquake incidents in Indonesia for the year 2023 were scaled up to 10.789. The sudden release of

energy during the earthquake is characterized by fractures of the rock layers in the earth's crust. (Eva et al., 2022). The Disaster Risk Index in Indonesia shows that 59.14% of cities or regencies in Indonesia have a high risk class for earthquake, 39.88% in the medium risk class, and 0.97% of districts or cities have a low risk index for earthquake (Nadzir et al., 2024).

An earthquake is defined as the shaking or trembling of the ground caused by a sudden release of energy inside the earth, usually associated with faulting or breaking of rocks. The occurrence of an earthquake is a simple sliding of a block of rock mass over another along a plane. Most earthquakes are caused by geological or tectonic causes, and are referred as tectonic earthquakes. Another type of earthquakes is those due to volcanic activity in conjunction with tectonic forces, which are known as volcanic earthquakes. Earthquakes can cause property damage, natural and socio-economic damage and loss of life. Apart from that, earthquakes can also cause psychological effects such as deep trauma and sorrow for victims. Trauma is closely related to a person's psychological and mental condition. Psychological trauma is an emotional, cognitive and physical fatigue experienced by an individual that he loses his ability to deal with the life situation (Eva et al., 2022).

Several symptoms of psychological trauma may persists for some time or up to at least 6 months since the individual experiences the event which caused the trauma. Sometimes, if trauma is not handled well, it can lead to post traumatic syndrome disorders (McNally, 2023). The symptoms of psychological trauma experienced by individuals include increased and unpredictable intensity of anger, mood swings, anxiety, depression, clear and recurring memories of the traumatic event, clinical symptoms such as rapid heartbeat, headaches, nausea, chest pain, confusion, difficulty in concentrating, fear that the traumatic event will happen again, poor appetite, and inability to concentrate (Fayed A et al., 2023). If not addressed, it can have an impact on growth and development of the victims. Psychological changes for earthquake experienced victims usually marked by the onset of psychotic symptom and Post Traumatic Symptom Disease (PTSD). Children are at a higher risk for experiencing psychotic symptoms. The effects of traumatic symptoms among children can last up to 30 years as fear, anxiety depression, difficulty in thinking and impaired concentration (Srimulyani, 2022).

This trauma if cannot be healed for too long it may lead to negative impacts on the victim's life. Earthquakes are not only proven to be associated with physical damage, but also linked to psychosocial problems such as depression and post-traumatic stress. A survey shows that after a disaster event, an estimated 15–20% of the victim population would experience mild or moderate mental disorders such as depression, anxiety or post-traumatic stress disorder (PTSD), while 3–4% would suffer from disorders like psychosis, severe depression and severely forms of anxiety disorders (Sherchan et al., 2017). Based on a study by Yuliatin (2020), playback theater was seen as a method of releasing tension by children after the Lombok earthquake by sharing the stories they have.

The psychological impact on child victims is greater than the physical impact due to factors such as loss of parents, family, friends, education, joy and happiness. If this psychological impact is not immediately addressed, it may lead to serious psychological complications that can interfere with the child's social life, work and development (Widyastuti et al., 2019).

Handling of recovery from the impacts caused by disasters should be as quick as possible after the disaster occurs. This is because the faster the recovery is, the smaller the negative impacts is (Latif, 2020). Efforts to improve recovery from trauma due to earthquakes include Randai as a play therapy for children to reduce the impact of psychological trauma after the earthquake. Randai is a traditional form of play therapy which combines the arts of music, dance, drama and martial arts into a beautiful blend of movements which is also believed to be one of trauma healing therapies (Basrowi, 2019). Randai is a form of Minangkabau folk theater in the form of stories and movements which can be a form of play therapy for children (Zulkifli, 2020). Randai is played in groups by forming a circle, then stepping slowly, while telling the story in the form of songs alternately. The main actor will be in charge of telling the story (Kemenparekraf, 2024)

Based on the previous studies, children who experienced earthquake observe changes in attitude and cognitive abilities, such as running around in fear. Children were also reported to have the fear of the earthquake happening again, difficulty to forget the earthquake incident. They trembled when remembering the earthquake incident, experienced sleep disorders, nightmares, difficulty in concentrating, afraid of hearing roars and heart palpitations, panicking, crying easily, cold sweats, getting angry easily, likes to be alone and stays quiet. These experiences bring attention to the role of Randai in healing psychological trauma among post earthquake children. Therefore, the purpose of this study is to determine the effectiveness of Randai therapy in healing psychological trauma among post earthquake in Kajai, West Pasaman, West Sumatra, Indonesia.

## 2. METHOD

This is a quantitative study consist of pre experimental design with pretest-posttest design. In this research design, psychological trauma assessment was carried out on Randai intervention group and control group. The duration of the study is from November 2023 until July 2024. The sample size is 202 respondents in Kajai, West Pasaman, West Sumatera which consist of 101 for Randai intervention group

and 101 for control group. The sample was determined using a simple random sampling technique. The inclusion criteria were children aged 7 to 12 years, living in the Kajai area, West Sumatra who has experienced earthquake. Meanwhile, the exclusion criteria of this study include children with physical trauma injuries as well as mentally disable patients.

This study used the CPSS (Child PTSD Symptom Scale for DSM-V) instrument to measure the level of psychological trauma. The Child PTSD Symptom Scale for DSM-V (CPSS-V SR) questionnaire consists of 20 questions about children's post-earthquake events with answers using a Likert scale. Each answer is given a value from 0 to 4 : Not at all (0), Once a week (1), 2 to 3 times a week (2), 4 to 5 times a week (3), dan 6 or more times a week (4). Respondents were asked to fill in the frequency of symptoms such as recalling traumatic events, avoiding traumatic triggers, emotional changes, and hypervigilance during the past month. In addition, this questionnaire evaluates the extent to which these symptoms affect daily activities, such as studying, socializing, and enjoying activities. The final scores of the questions CPSS-V SR (Child PTSD Symptom Scale for DSM-V) were categorized based on the scale: Minimal Level trauma (0-10), Mild level of trauma (11-20), Moderate level of trauma (21-40), Severe level of trauma (41-60), Very Severe level of trauma (61-80) (The National Child Traumatic Stress Network, 2022). Questionnaire results provide an initial overview to assist mental health professionals in diagnosis and intervention. Table 1 below is the CPSS-V SR Instrument used to assist in the screening process.

**Table 1**  
*The Child PTSD Symptom Scale for DSM-V Instrument*

No	Statements CPSS-V SR
1	Having upsetting thoughts or pictures about it that came into your head when you didn't want them to
2	Having bad dreams or nightmares
3	Acting or feeling as if it was happening again (seeing or hearing something and feeling as if you are there again)
4	Feeling upset when you remember what happened (for example, feeling scared, angry, sad, guilty, confused)
5	Having feelings in your body when you remember what happened (for example, sweating, heart beating fast, stomach or head hurting)
6	Trying not to think about it or have feelings about it
7	Trying to stay away from anything that reminds you of what happened (for example, people, places, or conversations about it)
8	Not being able to remember an important part of what happened
9	Having bad thoughts about yourself, other people, or the world (for example, "I can't do anything right", "All people are bad", "The world is a scary place")
10	Thinking that what happened is your fault (for example, "I should have known better". "I shouldn't have done that", "I deserved it")
11	Having strong bad feelings (like fear, anger, guilt, or shame)
12	Having much less interest in doing things you used to do
13	Not feeling close to your friends or family or not wanting to be around them
14	Trouble having good feelings (like happiness or love) or trouble having any feelings at all)
15	Getting angry easily (for example, yelling, hitting others, throwing things)
16	Doing things that might hurt yourself (for example, taking drugs, drinking alcohol, running away, cutting your-self)
17	Being very careful or on the lookout for danger (for example, checking to see who is around you and what is around you)
18	Being jumpy or easily scared (for example, when someone walks up behind you, when you hear a loud noise)
19	Having trouble paying attention (for example, losing track of a story on TV, forgetting what you read, unable to pay attention in class)
20	Having trouble falling or staying asleep

There are two statistical hypotheses in this study to evaluate the effectiveness of Randai therapy in alleviating psychological trauma among children affected by earthquakes. The first hypothesis for the intervention group is the significance of Randai therapy in reducing psychological trauma among post-earthquake children in Kajai West Pasaman, West Sumatra. The first hypothesis is accepted if the P-value <0. The second hypothesis for the control group is that there is no significant effect on reducing psychological trauma among post-earthquake children in Kajai West Pasaman, West Sumatra. The first hypothesis is accepted if the P-value >0.

### 3. RESULTS AND DISCUSSION

#### 3.1. Results

Table 2 shows the respondents' demographic characteristic (age), out of 202 children 80 respondents (39%) were from 11-12 years old. Table 2 shows the distribution of 85 (42%) male respondents and 117 (58%) female respondents.

**Table 2**  
*Demographic Characteristic of Respondents: Age and Gender*

Respondents Characteristic	Frequency	Percentage
Age		
7-8	58	28.7
9-10	64	31.7
11-12	80	39.6
Total	202	100
Gender		
Male	85	42
Female	117	58
Total	202	100

Table 3 shows that there is a difference between the psychological trauma of respondents before and after given randai therapy with an average value of  $25.61 \pm 7.800$  to an average value of  $20.96 \pm 7.511$  respectively. The T-test obtained a P-value of 0.000 ( $P < 0.05$ ), which means that there is a significance in Randai therapy on reducing psychological trauma among post earthquake children in Kajai West Pasaman, West Sumatra.

**Table 3**  
*Average Psychological Trauma of Respondents Before and After Giving Randai Therapy among Post Earthquake Children in Kajai West Pasaman West Sumatera*

Variable	N	Mean	Category	SD	SE	P-value
Pre-test Randai	101	25.61	Moderate level of trauma	7.800	0.776	0.000
Post-test Randai	101	20.96	Mild level of trauma	7.511	0.747	

Table 4 shows that there is a difference between the psychological trauma of respondents before and after in control group with an average value of 23.78 with a standard deviation of 7.374 to an average value of 23.72 with a standard deviation of 7.327. The T-test obtained a P-value of 0.057 ( $P > 0.05$ ), which means that there was no effect of the control group on reducing psychological trauma among post earthquake children in Kajai West Pasaman, West Sumatra.

**Table 4**  
*Average Psychological Trauma of Respondents Before and After No Giving (Control Group) Randai Therapy among Post Earthquake Children in Kajai West Pasaman West Sumatera*

Variable	N	Mean	Category	SD	SE	P-value
Pre-test Randai	101	23.78	Moderate level of trauma	7.374	0.734	0.057
Post-test Randai	101	23.72	Moderate level of trauma	7.327	0.729	

#### 3.2. Discussion

The symptoms of trauma experienced by children is more impactful in their later stages of life (Goddard, 2021; Nelson et al., 2020). Trauma that occurs during extraordinary experiences such as war, natural disasters, or terrorist events can have huge impact (Victoria M. Follette, 2020). Psychological trauma is a condition that an individual experiences as a result of a traumatic event that he or she experiences (Kukreti et al., 2021). During an earthquake, children can experience psychological trauma, which is a deep emotional wound caused by a very stressful or terrifying event which include physical or sexual violence, accidents, natural disasters, death of a loved one and traumatic childhood experiences (Van Nuys, 2015). Psychological trauma causes an individual to feel emotionally, cognitively and physically overwhelmed so that the ability to cope with the condition is impaired (Salamor et al., 2020).

Traumatic conditions usually come from deep and ongoing stressful situations that the individual who experiences them cannot cope with. Long-term traumatic conditions usually arises as a consequence of heartbreaking bad events or experiences which then becomes a significant psychological burden and make it difficult for someone to adjust (Rahmat & Alawiyah, 2020). Psychological trauma has enduring impacts on the brain, leading to prolonged dysregulation of the norepinephrine and cortisol systems. Trauma mainly affects vulnerable regions, such as the hippocampus, amygdala, and medial prefrontal cortex, as well as areas like the prefrontal cortex, mid-anterior cingulate cortex, and right inferior frontal gyrus. These brain regions play crucial roles in fear conditioning, emotion regulation, and autonomic functions. Following a traumatic event, the brain's fear-response regions become excessively active, while the areas that help mitigate these responses exhibit reduced activity. This results in PTSD symptoms such as hypervigilance, distorted memories, and impulsive behavior (Barbini et al., 2022). The most common psychological impact is post-traumatic stress disorder (PTSD) which is accompanied by sadness, anxiety and suicidal thoughts in children after the earthquake (Jumilia & Kanathasan, 2024).

Impacts arises from earthquake include property damage, natural damage, social-economic damage and loss of life. Large-scale disasters, whether natural or man-made, can cause damage to property or life. These tragedies also leave victims with varying degrees of emotional trauma (Doğruel, 2024). Children with special needs are vulnerable compared to adults, mainly due to the dependence on others, owing to underdeveloped physical and mental abilities and lack of life experienced in solving various problems. It is also said that children who have experienced trauma is at risk for the development of post-traumatic symptoms in later life when individuals face the next traumatic stressor (Irwanto, 2020).

According to Irwanto (2020), the types of trauma include mass violence between individuals such as terrorism, brawls, massriots, inter-ethnic conflicts or armed military conflicts, trauma due to natural disasters such as tsunamis, flash floods, tornadoes, landslides, volcanic eruptions, forest/village fires; trauma due to land, sea or air transportation accidents; trauma due to interpersonal violence such as discipline using harsh physical punishment or harassing words, sexual violence; trauma due to acts of torture and trauma due to the type of work that provides access to events or stories of people's experiences of a traumatic nature such as firefighters, humanitarian work, soldiers, psychologists, psychiatrists, social workers and so on.

Children need more attention because they do not yet have the ability to articulate feelings. If left unchecked, the psychological impact of children can lead to feelings include loneliness, sadness, and difficult to sleep. Play therapy is one way of trauma healing that can be done to prevent children from prolonged trauma. Therefore, play therapy can be used as a psychotherapy medium. Trauma in children can interfere with their development, into adulthood. Play therapy can be a potential treatment model for people who have experienced trauma during childhood (McGuire et al., 2021). The use of play therapy can be a way for children to express what they feel as a result of the trauma that they have experienced, without having to express it verbally. Play therapy can help children share their traumatic experience through art (Woollett et al., 2020).

The findings of this study underscore the effectiveness of the traditional Randai approach as a culturally relevant intervention for addressing mental health needs among post-earthquake children. Cultural relevance is a cornerstone of adequate mental health interventions, particularly in West Sumatera populations. Integrating Randai, a traditional Minangkabau performance art, into therapeutic practices highlights the importance of leveraging cultural assets in post-disaster settings. Recent studies, such as Tembo et al. (2021), suggest that culturally grounded approaches improve engagement and outcomes by aligning with the community's values and norms. In this study, participants reported feeling a stronger sense of identity and connection to their cultural roots, which is consistent with findings that cultural continuity can buffer against the adverse effects of trauma (Burack et al., 2024; Tsethlikai et al., 2024)

Table 3 demonstrated a significant reduction in PTSD symptoms among children participating in the Randai intervention. These results align with contemporary research indicating that expressive and participatory arts interventions can facilitate emotional processing and cognitive restructuring (Barnett & Vasii, 2024; de Witte et al., 2021). The narrative and interactive elements in Randai may help children express their traumatic experiences. In addition, the communal aspect of Randai may enhance its therapeutic effectiveness by creating a supportive environment for sharing and healing.

Randai combines the arts of music, dance, drama and martial arts into one beautiful blend of movements, which can be used in trauma healing (Basrowi, 2019). Randai is one of the traditional performances from West Sumatra that has long existed as one of the cultural identities of Minangkabau. Randai's performance is carried out in conjunction with music, dance, singing, drama and martial arts performances in one group performance in a circle (Asmana, 2023).

One of the cultural treasures is the Randai dance which comes from Minangkabau. Randai is one of the traditional games in Minangkabau which is played in groups by forming a circle, then walking slowly while telling stories in the form of singing in turn. Randai is led by one person who is usually called a '*panggoreh*', who participate in the movement during the festival and has the task of making a distinctive shout, such as '*hep tah tih*' which determines the speed of the movement along with the song or

gurindam. The goal is that the Randai that is played looks compact and in tune. Usually in one group, Randai has one '*panggoreh*' who is trusted by all team members, but can be replaced with other members if the previous '*panggoreh*' is too tired because staging a single story can take 1 to 5 hours or even more (Zulkifli, 2020). The value of Randai arts education can be integrated into the learning model as an effort to improve the communication skills (Arsih, 2019).

Pramardika, et al.(2020) conducted a study about the effect of play therapy on trauma healing among children affected by natural disasters. The results of research conducted by this study indicate that the difference in the average value of the experimental group is 17.6056 while the difference in the mean value of the control group is 0.0000. It can be concluded that there is a significant difference between children who were given play therapy and the control group ( $p=0.000$ ). These activities carried out, namely trauma healing in post-earthquake children requires a continuous process, an approach that we can do by playing, dancing and telling stories with children in refugee camps (Pramardika et al., 2020).

Studies on Randai in Minangkabau are still dominated by the ethical and aesthetic aspects as dance and theater performance arts. Studies on local wisdom of Minangkabau culture in Randai are still little explored (Bahardur, 2018). Randai as a traditional Minangkabau folk theater has complete artistic elements to represent the Minangkabau cultural identity. Minangkabau performing arts represent Randai as performance unit, especially with the unique and distinctive combination of various creative processes, namely movement, music, literature, and acting, as well as dialogue (Harun, 2014).

Randai stories are usually taken from the realities of life that exist in the community. Randai is a combination of movement, music, literature and dialogue. Randai has individual and collective creativity. Randai performances are usually held in an open field in the form of an arena. The lighting is not worked on like modern drama performances which function to build the atmosphere of the event (Indrayuda, 2020).

The study on art of Randai from the aesthetics of Minangkabau dance was carried out by Rustiyanti (2014), who stated that, from the aesthetic aspect of dance, Randai for the Minangkabau people is interpreted as a movement and feeling of exercise known as '*pamenan*' (game). Randai therapy can play a role in reducing psychological trauma in children after an earthquake as play therapy and culture in Minangkabau. Randai contains a story (Kadir, 2020). The story used is about an earthquake which is displayed in an open field so that the audience can see it by watching the Randai story about the earthquake, with a hope that it can reduce the children's psychological trauma after the earthquake. The players will deliver songs that tell stories. There is also a singer who conveys the story line through movements and the story that is played has a lesson or moral message.

The results of this study advocate for the inclusion of culturally tailored interventions in disaster mental health policies. Governments and NGOs should consider incorporating traditional arts into mental health care frameworks, particularly in regions with rich cultural heritage. Such integration addresses the immediate psychological needs of disaster-affected populations and fosters long-term resilience by preserving and celebrating cultural identity. Training local facilitators enhances the sustainability of such programs and empowers communities by leveraging their cultural knowledge and resources. Moreover, partnerships with educational institutions and community organizations could facilitate the dissemination of these interventions, making them more accessible and impactful. Comprehensive support systems that integrate cultural and psychological dimensions are essential for ensuring holistic recovery for affected children.

#### 4. CONCLUSION

There is a difference between the psychological trauma of respondents before and after Randai therapy with an average value of  $25.61 \pm 7.800$  to an average value of  $20.96 \pm 7.511$ . The T-test obtained a P-value of 0.000 ( $p < 0.05$ ), which means that there is a significant difference in Randai therapy on reducing psychological trauma among post earthquake children in Kajai West Pasaman, West Sumatra. While control group shows that there is a difference between the psychological trauma of respondents before and after study duration with an average value of  $23.78 \pm 7.374$  to an average value of  $23.72 \pm 7.327$ . The T-test obtained a P-value of 0.057 ( $p > 0.05$ ), which means that there was no effect of the control group on reducing psychological trauma among post earthquake children in Kajai West Pasaman, West Sumatra. It can be assumed that there is a significant difference between psychological trauma before and after Randai is carried out. Earthquake can impact the child's growth and development if it is not addressed immediately. This requires immediate therapy for children post earthquake. Role of Randai as play therapy can reduce psychological trauma in children post earthquake, therefore Randai can be used by the community as therapy in earthquake situations for children. Children are able to relax themselves from the psychological trauma of the earthquake.

This study provides empirical evidence for the effectiveness of traditional Randai therapy as a non-pharmacological intervention for mitigating psychological trauma in children affected by disasters. Furthermore, it underscores the value of culture-based approaches to promoting safe, affordable, and sustainable psychological recovery. Despite its promising outcomes, implementing the Randai approach presents several challenges. Facilitator training requires significant investment to ensure both cultural

authenticity and therapeutic effectiveness. Additionally, this study's focus on a single cultural group may limit its generalizability. Future research should explore adaptations of Randai or similar culturally embedded practices for other regions and ethnic groups affected by disasters. Comparative studies with other interventions, such as mindfulness-based approaches, could further validate its efficacy and scalability. Future research should build on these findings by examining its applicability across different cultural and disaster contexts, employing longitudinal designs to assess long-term outcomes, and exploring synergies with other therapeutic modalities.

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