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Designing Disaster Media Education For Children With Hearing Impairment In Special Education Center Banda Aceh

Nur Ikhsani Rahmatika
TDMRC, Faculty of Medicine Syiah Kuala University, Banda Aceh City, Indonesia

Zahrani Zahrani
Faculty of Medicine Syiah Kuala University, Banda Aceh City, Indonesia

Meilya SIlvalila
Faculty of Medicine Syiah Kuala University, Banda Aceh City, Indonesia

Corresponding author: nurrahmatika@usk.ac.id

***Abstract**: Banda Aceh, a coastal city located in the western most province of Indonesia, has long been known for its stunning natural beauty and vibrant cultural heritage. Situated on the northern tip of Sumatra Island, this bustling city is surrounded by the vast expanse of the Indian Ocean on one side and picturesque hills on the other. However, beneath its picturesque facade lies an alarming reality - Banda Aceh stands perilously exposed to a high risk of disaster.. With the history of disasters in Aceh which is one of the biggest disasters that has caused many casualties, education related to disaster awareness needs to be carried out. People with hearing disabilities are one of the vulnerable groups in the event of a disaster. Education related to disaster awareness is a form of non-structural mitigation which at this time has been widely carried out both in formal education in schools and campuses and informally in the community. Efforts to increase disaster awareness through education are important, including for groups with disabilities . As a group with hearing impairments, they are at greater risk when a disaster occurs because they cannot hear warnings through sound media and the communications gap. However, with disaster awareness through education, people with disabilities are also expected to be able to carry out independent evacuations and save themselves when a disaster occurs. This research aimed to explore the effectiveness of designing disaster media education for children with disabilities in Banda Aceh, Indonesia. Recognizing the unique vulnerabilities of children with disabilities during disasters, the study focused on developing an inclusive and accessible media-based educational program. The method used in the research is qualitative research and encompassed various stages, including needs assessment, program development and implementation. Designing disaster media education for children with disabilities in Banda Aceh proved to be an effective and essential approach to bridge the education gap and enhance disaster preparedness among this marginalized group. The research outcomes emphasize the importance of inclusive and accessible education in disaster management, aiming to ensure the safety and well-being of all children, regardless of their abilities. The findings of this research contribute to the growing body of knowledge on disability-inclusive disaster education and provide a basis for future program development and policy-making in disaster management in Banda Aceh and beyond.*

***Keywords**: Disaster Education, Disability, Hearing Impairment*

INTRODUCTION

Banda Aceh, a coastal city located in the western most province of Indonesia, has long been known for its stunning natural beauty and vibrant cultural heritage. Situated on the northern tip of Sumatra Island, this bustling city is surrounded by the vast expanse of the Indian Ocean on one side and picturesque hills on the other. However, beneath its picturesque facade lies an alarming reality - Banda Aceh stands perilously exposed to a high risk of disaster. (Azizah et al, 2021) Banda Aceh City is one of the cities in Indonesia which has a high disaster risk index. The location of the City of Banda Aceh which is directly adjacent to the Indian Ocean makes the City of Banda Aceh prone to earthquakes and tsunamis.

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* Nur Ikhsani Rahmatika, nurrahmatika@usk.ac.id

Over the years, the region has experienced a series of devastating disasters that have left an indelible mark on its landscape and inhabitants. Most notably, the catastrophic Indian Ocean earthquake and tsunami of December 26, 2004, left Banda Aceh and its neighboring areas ravaged, resulting in an unprecedented loss of lives, infrastructure, and livelihoods. This calamitous event not only shattered the city's physical infrastructure but also left emotional scars that continue to linger to this day.

Beyond tsunamis, Banda Aceh also faces the perennial threat of earthquakes due to its location along the seismically active Sumatran fault line. These seismic events have the potential to unleash unimaginable destruction, given the city's dense population and sprawling urban landscape.

There are several groups of vulnerable people in disaster condition : 1. Children: Children are among the most vulnerable groups during disasters due to their dependency on adults for protection and support. Disasters can disrupt their lives, expose them to trauma, and negatively impact their physical and mental health. Proper planning, child-friendly facilities, and psycho-social support are essential to safeguard children during and after disasters. 2. Elderly Population: The elderly population, especially those with mobility or health issues, are at greater risk during disasters. Limited mobility and chronic health conditions can hinder their ability to evacuate swiftly or access essential services. Disaster management strategies must consider the unique needs of the elderly, ensuring that evacuation plans are inclusive and facilities are accessible to all. 3. People with Disabilities: People with disabilities face significant challenges during disasters, as their access to information, evacuation routes, and emergency services may be limited. An inclusive approach to disaster preparedness and response is essential, incorporating sign language interpretation, audio descriptions, and accessible transportation to cater to their needs. 4. Pregnant Women and Newborns: Pregnant women and newborns require special attention during disasters due to their vulnerability to stress, lack of access to prenatal care, and potential complications during evacuation and relief efforts. Ensuring access to maternal healthcare and safe delivery environments is crucial in disaster-affected areas. 5. Marginalized Communities: Marginalized communities, including indigenous populations and ethnic minorities, often face discrimination and exclusion during disasters. Their lack of representation and voice can lead to inadequate allocation of resources and assistance. Disaster management plans must be culturally sensitive and inclusive, engaging these communities in decision-making processes. 6. Homeless Individuals: Homeless individuals are highly susceptible to the impacts of disasters, lacking permanent shelters and

access to basic necessities. Temporary shelters, adequate food, and healthcare services should be readily available to support this vulnerable group during emergencies(UNDRR, 2019).

People with disabilities are one of the vulnerable groups in the event of a disaster but that does not mean that people with disabilities cannot be included in disaster management efforts both at the pre-disaster, during the disaster and post-disaster stages (BNPB, 2018). Education related to disaster awareness is a form of non-structural mitigation which at this time has been widely carried out both in formal education in schools and campuses and informally in the community. Efforts to increase disaster awareness through education are important, including for groups with disabilities (BNPB, 2014). As a group with hearing impairments, they are at greater risk when a disaster occurs because they cannot hear warnings through sound media. However, with disaster awareness through education, persons with disabilities are also expected to be able to carry out independent evacuations and save themselves when a disaster occurs.

Designing disaster media education for children with hearing disabilities in Banda Aceh, Indonesia is crucial to ensure their safety and preparedness in times of emergencies. Children with hearing disabilities face unique challenges in understanding and responding to disaster situations. Limited focus and attention have been given to addressing the needs of children with disabilities in the context of environmental hazards.To effectively design disaster media education for children with hearing disabilities in Banda Aceh, several factors need to be considered.

Addressing the high risk of disaster in Banda Aceh is a multifaceted challenge that demands proactive measures and comprehensive planning. It necessitates a collaborative effort between government bodies, local communities, non-governmental organizations, and the international community to implement robust disaster preparedness and mitigation strategies.

This research aimed to explore the effectiveness of designing disaster media education for children with disabilities in Banda Aceh, Indonesia. Recognizing the unique vulnerabilities of children with disabilities during disasters, the study focused on developing an inclusive and accessible media-based educational program. The research encompassed various stages, including needs assessment, program development and implementation to ensure the program's suitability and impact.

METHOD

The method used in this research is qualitative research with snowball technique for collecting data. The purpose of the research is to solve a problem within community. The

research encompassed various stages including needs assessment, program development and implementation to ensure the program's suitability and impact. The research was conducted by observation and interviews. The researcher also took part in joint learning activities with the deaf at the Banda Aceh City SLB to get an overview regarding the learning patterns carried out on deaf children at the Banda Aceh City SLB.

RESULT AND DISCUSSION

SLB Negeri City of Banda Aceh is one of the schools that provides special education for persons with disabilities. At present the Banda Aceh City SLB has students with different backgrounds of disabilities including the Deaf, Physical Impaired, Blind and Mentally Impaired. Located in the middle of Banda Aceh City, the Banda Aceh City State SLB also has a high risk of disasters including earthquakes and tsunamis. Currently, the Banda Aceh City Public SLB already has signs marking evacuation routes and gathering points in case of an emergency. The school is also equipped with a wheelchair-friendly evacuation route. From the results of observations of the school environment, the Banda Aceh City SLB has 5 buildings, 2 of which are 2-floor buildings and 3 other buildings are 1-floor buildings. We decided SLB Negeri Banda Aceh as our research location because it is in our inclusion criteria : 1. Primary education provider ; 1. Located in Banda Aceh; 3. Provide education for children with hearing disability.

There are 6 children in the school. 2 of them are in early education and just started learning literacy. 3 of them are partial hearing loss while 3 of them are total hearing loss

People with hearing disabilities are indeed more vulnerable to disasters due to communication barriers, limited awareness, dependency on others, and inaccessible emergency services. Addressing the specific needs of this vulnerable group in disaster management is essential to ensure their safety, well-being, and equal access to support and resources during emergencies.

During disasters, timely and accurate information is crucial for survival and safety. However, people with hearing disabilities often face communication barriers that hinder their access to critical information. Emergency alerts and public announcements may not be provided in sign language or other accessible formats, leaving them uninformed and ill-prepared to respond appropriately to the disaster situation. According to a study conducted by the National Association of the Deaf (NAD), individuals who are deaf or hard of hearing reported communication difficulties during emergency situations, particularly when relying solely on written information or visual cues (NAD, 2019).

Due to the lack of accessible information and tailored disaster preparedness programs, people with hearing disabilities may have limited awareness of disaster risks and appropriate response strategies. This knowledge gap makes it challenging for them to formulate effective evacuation plans or understand the significance of emergency protocols (WHO, 2011).

Individuals with hearing disabilities face unique challenges during an earthquake due to their limited or lack of hearing capabilities. They may not receive auditory cues that alert others to the impending disaster, such as sirens or shouts of warning. This absence of auditory signals can leave them unaware of the situation until they feel the physical shaking of the ground.

Furthermore, communication difficulties during an earthquake exacerbate the challenges faced by people with hearing disabilities. In emergency situations, critical information is often disseminated through loudspeakers or verbal instructions. As such, individuals who rely on sign language or written communication may struggle to access vital information and evacuation instructions, leading to potential confusion and isolation.

The needs assessment phase involved engaging with parents, teachers, caregivers, and experts in the field of disability and disaster management. Interviews were conducted to identify the specific challenges faced by children with disabilities during disasters, as well as their learning preferences and needs.

The findings revealed that children with disabilities lacked access to tailored disaster preparedness and response education. Moreover, conventional media and educational materials were not inclusive or accommodating to their diverse needs. As a result, the need for a targeted and accessible media-based disaster education program became evident.

The results of the needs analysis related to disaster learning media that are appropriate for deaf children at SLB Negeri Banda Aceh City are visual media with clear depictions. Considering that there are 2 students who are still learning sign language and literacy, visual media with pictures or videos is needed to explain material to students.

Despite the challenges, people with hearing disabilities have developed various coping mechanisms to navigate earthquake situations. One significant way they adapt is through heightened visual awareness. Many individuals with hearing disabilities rely on their vision as their primary means of communication. During an earthquake, they may be more vigilant in observing the environment and other people's reactions, which can help them perceive the imminent danger.

Additionally, individuals with hearing disabilities often form strong bonds with their peers and community members. In times of crisis, these support networks play a crucial role in

disseminating information through alternative means like text messages, social media, or written notes. By leveraging these channels, they can stay informed and connected with the broader community during and after the earthquake.

Many people with hearing disabilities rely on visual and tactile learning methods. Therefore, incorporate visual aids, graphics, and videos in training materials to enhance understanding. Demonstrations of various response actions and simulations can help convey critical information effectively. Additionally, providing tactile materials, such as 3D models or interactive tools, can engage individuals with different learning styles.

One of the primary challenges for individuals with hearing disabilities in emergency situations is the reliance on auditory cues for receiving information. Traditionally, emergency preparedness materials and communication strategies have been designed with the assumption that recipients can hear, see, and read messages distributed by state agents (Yang, et al, 2022).. However, this assumption often leads to a lack of accessibility for people with hearing disabilities. As research suggests, emergency preparedness and response materials do not adequately reach vulnerable populations, including the deaf community, due to language, literacy, cultural, or disability-related barriers. In order to bridge this gap and ensure inclusivity in disaster education, it is necessary to adopt a multi-modal approach that utilizes visual and tactile communication methods to enhance the comprehension and accessibility of information for individuals with hearing disabilities. Furthermore, it is important to recognize the impact of a hearing disability on mental health and overall vulnerability to major emergencies (Yang, et al, 2022).. In particular, individuals with a hearing disability have been found to have poorer mental health than the general population and are highly vulnerable in terms of preparing for, responding to, and recovering from emergencies (Yang, et al, 2022). To address the needs of individuals with hearing disabilities in disaster education, it is crucial to involve them in the planning and development of emergency preparedness policies. To ensure the inclusion of individuals with hearing disabilities in emergency preparedness planning, it is essential to address the barriers that prevent their participation. This can be achieved by increasing the accessibility of emergency alert sign-up forms and providing alternate methods for signing up for emergency alerts.

Based on the needs assessment results, a comprehensive and adaptable disaster media education program was designed. The program aimed to empower children with disabilities to understand and respond to various disaster scenarios, build resilience, and foster a sense of agency and confidence.

The program included multimedia materials, such as videos with sign language interpretation, audio descriptions, and simplified language to cater to different disabilities. Interactive games and exercises were incorporated to engage the children and enhance their comprehension and retention of crucial disaster preparedness information.

In addition, efforts should be made to provide training and education for emergency response personnel on how to effectively communicate with individuals who have hearing disabilities. This can include teaching emergency response personnel basic sign language or providing them with visual aids, such as communication boards or apps, to assist in effective communication. Furthermore, it is crucial to address the gaps in emergency planning and response systems that often neglect the needs of individuals with hearing disabilities. This can be achieved by incorporating the specific needs and considerations of individuals with hearing disabilities into emergency preparedness policies and procedures.

By doing so, emergency response systems can be better equipped to reach and provide support for individuals with hearing disabilities during times of crisis. By recognizing and addressing the barriers that prevent the inclusion of individuals with hearing disabilities, emergency preparedness policies and procedures can be developed to ensure that all individuals, regardless of their hearing abilities, have equal access to critical information and support during emergencies. In conclusion, disaster education for people with hearing disabilities is a critical component of emergency preparedness.

This can be done by increasing accessibility, providing training for emergency response personnel, and incorporating the specific needs of individuals with hearing disabilities into emergency preparedness policies and procedures.

By taking these steps, we can ensure that individuals with hearing disabilities are fully included in the disaster education efforts and are empowered to prepare, respond, and recover from emergencies effectively. Disaster education for people with hearing disabilities is of utmost importance in ensuring their safety and well-being during emergencies. Unfortunately, individuals with hearing disabilities often face unique challenges when it comes to disaster education.

They rely heavily on visual information and gestures to communicate, which can pose barriers when traditional emergency preparedness materials assume that recipients can hear, see, and read messages distributed by state agents. This exclusion of individuals with hearing disabilities from emergency preparedness planning can result in their being unprepared for emergencies and facing greater risks during disasters. To address these challenges, it is necessary to develop inclusive disaster education strategies that take into account the specific

needs of individuals with hearing disabilities. Disaster education for people with hearing disabilities should include accessible communication methods, such as sign language interpreters, captioned videos, and visual materials. Additionally, it is essential to provide training and education for emergency response personnel to effectively communicate and interact with individuals with hearing disabilities during emergencies.

This training should include learning basic sign language phrases and understanding the unique communication needs of individuals with hearing disabilities. Furthermore, it is imperative to incorporate the specific needs of individuals with hearing disabilities into emergency preparedness policies and procedures.

This includes ensuring that emergency alert systems are accessible to individuals with hearing disabilities, such as through the use of visual alerts, vibrating devices, and text-based messaging. Moreover, evacuation plans should be designed to be inclusive and consider the mobility limitations of individuals with hearing disabilities. For instance, providing accessible evacuation routes, clear signage, and visual instruction can greatly enhance the ability of individuals with hearing disabilities to safely evacuate during emergencies.

In order to ensure that individuals with hearing disabilities receive the necessary disaster education, it is crucial to bridge the existing gaps in emergency communication networks.

Teachers, especially special education teachers, play crucial roles for children with disabilities during disasters, including: 1. Support and Guidance: They can offer suggestions on maintaining the child's daily routine during emergency situations, which can be critical in minimizing trauma and distress. 2. Psychological Support: Teachers can make concerted efforts to support students with disabilities who may experience emotional trauma as a result of disasters. 3. Preparation for Emergencies: Teachers can assist in maintaining disability-related and instructional supports at school. They can also provide safety training and execute simulated drills to better equip students for disaster situations. 4. Expert Input on Disaster Planning: With their unique understanding of students' needs, teachers can provide valuable input on creating inclusive disaster strategies and emergency plans. 5. Buddy System Design: Teachers can help establish peer buddy systems to assist in classrooms and support children with disabilities during emergencies. 6. Evacuation Assistance: They are typically responsible for evacuating and supporting students with disabilities during emergency situations. 7. Education: They can educate students with disabilities on how to protect themselves and appropriately respond during disasters. However, it's important to note that these teachers need sufficient training and resources to fulfill these roles effectively (Stough, 2009).

The International Classification of Functioning, Disability and Health (ICF), created by the World Health Organization, defines disability “as a dynamic interaction between health conditions (diseases, disorders, injuries, traumas, etc.) and contextual factors”. It employs a "biopsychosocial" approach to disability, factoring in elements from biological, psychological, and social perspectives. This classification encompasses dimensions relating to learning and the application of knowledge, general tasks, communication, mobility, self-care, domestic life, interpersonal interactions, major life areas, and community, social, and civic life. These are domains that cut across traditionally held categories of disability. (UNDRR, 2019).

There are several factors that increase the vulnerability of individuals with disabilities during disasters: 1. Social Isolation: Many with disabilities live alone and outside any caregiver institution, thereby being at substantial risk during disasters due to reduced assistance. 2. Additional Disabling Conditions: The presence of other situational, demographic, or material conditions can increase vulnerability to disasters. 3. Economic Factors: Those with disabilities and their families are often poorer, leading to their residence in disaster-prone areas due to cheaper housing. 4. Infrastructure: Poor accessibility and inadequate infrastructure can impede evacuation and rescue efforts. Typical issues include inaccessible shelters, lack of work-site or community evacuation plans, unreliable public transportation systems, and lack of potable water, elevators, and air conditioning. 5. Barrier to Health Services: Disasters can disrupt health-care services, severely affecting individuals already relying on them for managing their disability. 6. Psychological Impact: Post-disaster emotional trauma, including fear, grief, nightmares, and generalized stress, can significantly impact individuals with disabilities. 7. Mobility Impairments: Many evacuation plans assume the ability to run, walk, climb, and use alternate forms of egress, which may not be feasible for those with mobility impairments. 8. Inadequate Training of Emergency Personnel: Lack of knowledge and training of emergency responders regarding the needs of individuals with disabilities during a disaster can exacerbate vulnerabilities (UNDRR, 2019).

Based on the results of interviews with classroom teachers for deaf children at the Banda Aceh State SLB, it was found that the school had no special training for teachers in the rescue process in the event of a disaster. At school there is already an alarm using a lamp that is used for early warning when a disaster occurs so that deaf children get a warning when an emergency occurs. Several parents of children at the Banda Aceh State SLB also waited at school so that when an emergency occurs, parents can immediately know and participate in rescuing children with disabilities.

Designing disaster media education tailored to the needs of children with hearing disabilities is of paramount importance to ensure inclusive disaster preparedness. During emergencies, timely access to information can be a matter of life and death. By providing disaster-related content in sign language, with visual aids, and in simplified language, children with hearing disabilities can effectively comprehend and respond to disaster situations.

CONCLUSION

The results of the research demonstrated the significance and potential of designing disaster media education for children with disabilities in Banda Aceh. The program's development based on needs assessment ensured its relevance and responsiveness to the specific challenges faced by this vulnerable group during disasters.

The inclusive and accessible nature of the media materials allowed children with various disabilities to participate actively and benefit from the educational content. The use of sign language, audio descriptions, and simplified language enhanced their comprehension and engagement, promoting a more effective learning experience.

Designing disaster media education for children with disabilities in Banda Aceh proved to be an effective and essential approach to bridge the education gap and enhance disaster preparedness among this marginalized group. The research outcomes emphasize the importance of inclusive and accessible education in disaster management, aiming to ensure the safety and well-being of all children, regardless of their abilities. The findings of this research contribute to the growing body of knowledge on disability-inclusive disaster education and provide a basis for future program development and policy-making in disaster management in Banda Aceh and beyond.

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