Implementing The “P3KU Mertion” Mobile App in Improving The Senior and Rover Scout’s Disaster Preparedness

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Abstract. Indonesia’s geographical area which is vulnerable to various kinds of disasters remains a major concern. Given the extent of the dangers, disaster management is a critical issue that goes beyond the scope of single entities or institutions, requiring a comprehensive and inclusive approach including all sectors of society. Unfortunately, present disaster management systems are mostly focused on engagement from designated agencies, and there needs to be more active community involvement in emergency disaster response. This study aims to investigate the impact of disaster response training on the disaster preparation levels of the Senior and Rover scouts in the Special Region of Yogyakarta, Indonesia. This study used a quasi-experimental approach with pre and post-training assessments without a control group. A total of 25 scouts participated in disaster response training, and their disaster readiness was evaluated both before and after the program. A disaster preparation questionnaire, a disaster response module, and a Simple Emergency Management (SEM) mobile app called “P3KU Mertion” were utilized in this study. The non-parametric Wilcoxon Signed-Rank Test was used to evaluate the data. The study findings showed that disaster response training significantly impacted disaster readiness, with the Wilcoxon Signed-Rank Test providing a p-value of 0.000 (p < 0.05), indicating statistical significance. These findings have the potential to serve as an innovative model for disaster response programs targeted at improving catastrophe preparedness. The study emphasizes the importance of active involvement and community engagement in disaster response programs to supplement the work of authorized organizations and institutions, establishing an all-inclusive approach to disaster management in Indonesia.

Keywords: disaster management, emergency, scenarios necessitate

1 Introduction

Indonesia's climate is substantially influenced by its geographical location and characteristics, which span the Pacific and Indian Oceans. This country has three major

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climatic trends: monsoonal, equatorial, and localized climate systems, which result in substantial variances in rainfall patterns (1). This complication is exacerbated by the challenges given by global warming and climate change impacts, such as rising temperatures and sea levels, particularly in Indonesian equatorial regions (2). Such conditions increase the likelihood of different hydrometeorological disasters, such as floods, flash floods, droughts, extreme weather, severe waves, erosion, and forest and land fires (3,4).

Every individual is at risk of being affected by catastrophic events, making disaster management a collective obligation. As a result, it is vital to distribute duties and responsibilities to improve preparedness at all levels, from youngsters to adults (5). This approach is demonstrated by countries prioritizing catastrophe preparedness education, such as Japan (6). In general, the primary causes leading to many casualties, damage, and losses caused by disasters include a lack of understanding and awareness of disaster risks in their area among communities and natural resource managers (7). Adequate structural mitigating assistance is also essential. As a result, there needs to be more awareness, vigilance, and preparedness in crises. Only now, disaster management in communities has primarily engaged appropriate agencies, with little active community participation in emergency catastrophe response (8). Community empowerment in anticipation and adaptation in the case of a disaster has yet to be implemented, and activities have been primarily focused on post-disaster conditions (9,10).

According to the National Agency for Disaster Management (BNPB) Indonesia rules, disaster management should actively involve the community. It is expected to allow communities to adjust to possible disaster threats and recover quickly from disaster damage (11). Hydrometeorological disasters, such as floods, landslides, droughts, tornadoes, and storm surges, are another common possible hazard. Over the previous decade, the frequency of hydrometeorological disasters in Indonesia has significantly increased. Previous research has found that disaster preparedness training can boost disaster readiness in rural populations (12,13). Given these facts, disaster response cadres with disaster preparedness capacities must be established, and preventative, curative, and rehabilitative measures must be undertaken at each crisis phase (14,15). Scouts can play an important part in crisis management due to their substantial training in leadership, problem-solving, and outdoor survival abilities. Involving scouts in disaster response operations capitalizes on their skills and gives them a platform to use and improve their knowledge practically (16,17).

Disaster scenarios require quick thinking, resource management, teamwork, and adaptability. All of which are cultivated within the scouting movement. Furthermore, frequently, scout members have local expertise that can be essential during calamities. Their participation in disaster management also creates a sense of social responsibility and adds to the development of their entire character. As a result, incorporating scouts into disaster response tactics benefits individuals and the larger community. For these reasons, the Community Service Institute of Muhammadiyah University Yogyakarta (LPM UMY) has conducted a community service program in collaboration with the Regional Scouts Movement of the Yogyakarta Special Region (Kwarda DIY) to have a better understanding of the impact of disaster response training on scout disaster preparedness.

2 Methodology

The community service engagement used a methodological approach that combined community empowerment and active participation. This strategy specifically included delegates from the Rover Scout and Venture Scout members of the Special Region of Yogyakarta's Regional Scout Quarter (Kwarda). The key activities included disseminating
information about the Scout's Disaster Response program and providing disaster response training. The training included several steps. First, a preliminary test was administered to assess baseline knowledge and abilities. Then, educational content was provided, theoretically and practically, focusing on disaster response techniques and medication management strategies. The program ended with a post-training exam and a follow-up to verify that the knowledge was reinforced and used. Professional pharmacists from the Indonesian Pharmacist Association (IAI) Special Region of Yogyakarta and the Tim Bantuan Obat (TBO) Sedatif from the Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta, Indonesia, carefully led the entire process.

![Figure1. Submission of grants in the form of medical devices](image)

A comprehensive disaster readiness questionnaire, a disaster response module, and a unique mobile app for Simple Emergency Management (SEM) known as “P3KU Mertion” were used for this training. This engagement drew 25 scouts, including representatives from four districts (Sleman, Gunungkidul, Kulonprogo, and Bantul) and one city (Yogyakarta). This training lasted a single day, on Sunday, January 15, 2023. This event was held at the Hall of the Regional Scout Quarter in Yogyakarta's Special Region, located within the Kompleks Bumi Perkemahan Taman Tunas Wiguna, Babarsari, Sleman, Special Region of Yogyakarta, Indonesia. The training’s goal was not only to provide information but also to implant practical skills for crisis management and medication administration among scout representatives from various locations.

More evaluations are planned to measure the long-term impact of this training and the extent to which the learned tactics are implemented throughout the scouting community in dealing with emergency scenarios. The comments from these evaluations will be incorporated into future iterations of this training program, aiming to achieve continuous disaster preparedness development among scout members and their communities.

### 3 Results and discussion

According to the preliminary assessment of the training participants (Table 1), the majority (60%) indicated sufficient knowledge, owing to their limited grasp of the required procedures to take during a disaster—in this case, an earthquake. In the event of an earthquake, respondents stated that their first response was generally self-preservation—specifically, avoiding potential risks such as falling structures and finding refuge in wide
places to reduce the risk of being crushed. After the training, however, post-assessment results revealed a significant improvement in the participant’s knowledge, with 88% demonstrating an effective comprehension of disaster response tactics.

Table 1. Results of Pre and Post-test Assessment of Disaster Response Scout Training

<table>
<thead>
<tr>
<th>Scores</th>
<th>Pretest</th>
<th>Posttest</th>
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<tbody>
<tr>
<td>Good (76 – 100)</td>
<td>9 (36)</td>
<td>22 (88)</td>
</tr>
<tr>
<td>Sufficient (56 – 75)</td>
<td>15 (60)</td>
<td>3 (12)</td>
</tr>
<tr>
<td>Poor (&lt; 56)</td>
<td>1 (4)</td>
<td>0 (0)</td>
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Following the course, participants got a more comprehensive grasp of their prospective role in such critical situations. Rather than focusing primarily on personal protection, they learned the value of supporting others in need. The ability to assist injured individuals during a disaster emerged as a key takeaway from the training, showing a transition from a strictly self-centered perspective to one that considers communal wellness during disasters. This shift reflects personal development and a deeper sense of community responsibility and collaborative crisis response. It indicates that the training session improved the participant’s comprehension and developed a broader view of catastrophe management.

Figure 2. Mini-lectures of Simple Emergency Management led by members of TBO Sedative

Participants in the community service program were exposed to a comprehensive curriculum covering all aspects of emergency planning and response. The program covered fundamental areas of disaster management, such as disaster preparedness foundational concepts, basic first aid principles, and methods to stop bleeding, which are necessary to prevent life-threatening hemorrhages. Participants were also taught to use splints, an important skill for immobilizing fractures and preventing additional harm.

Participants were also taught about evacuation planning and protocols, which included identifying and establishing effective and safe evacuation routes. They were instructed in stabilization and evacuation protocols, emphasizing the need to keep people safe during the evacuation process. This section of the curriculum also covered vital sign assessment, which taught participants how to monitor and analyze important health metrics, including
pulse, respiration, and consciousness level, improving their capacity to assess a patient's medical status in emergencies. Furthermore, the training session included the foundations of Simple Emergency Management, a streamlined approach to disaster management that equips individuals to respond effectively and efficiently in times of crisis.

The curriculum was delivered using a variety of approaches to offer an interesting and comprehensive learning experience. Lecture-based methodologies, simulations, and practical exercises facilitated theoretical knowledge and actual learning. The educational materials were delivered using various pedagogical tools, including Microsoft PowerPoint for clear and concise information delivery, videos for visual representation and demonstration of procedures, and the innovative “P3KU Mertion” mobile app, which provided an accessible and interactive learning platform. This multidimensional educational method provided a multifaceted learning experience that accommodated different learning styles while ensuring full knowledge and retention of the content.

Figure 3. Mini-lectures of disaster medicine management led by members of TBO Sedative

This community service initiative provides a substantive contribution towards the enrichment of participants' knowledge base and practical skills, particularly concerning providing immediate assistance to victims of natural disasters, such as earthquakes. Furthermore, it imparts an integral understanding and applications of disaster medication management to preclude wastage and maximize utility.

Knowledge is frequently conceived as a construct resulting from the cognitive integration of perceptual inputs acquired from external objects. Such assimilation is primarily mediated by sense modalities, particularly vision, and audition, which serve as the principal channels for information intake. Knowledge significantly impacts an individual's behavior and actions. Disaster-related information is critical for communities living in disaster-prone locations. It includes a thorough awareness of prospective hazards, disaster typologies, accompanying symptoms, and the geographical reach of each probable disaster type. It also includes procedural knowledge about self-preservation strategies, recommended evacuation locations, and other pertinent information needed at various stages of a disaster's lifecycle, such as pre-disaster preparation, during the event, and post-disaster recovery and reconstruction.
The acquisition and implementation of such knowledge can greatly reduce disaster risk. By leveraging this knowledge, communities can better anticipate, respond to, and adapt to diverse crisis scenarios, reducing related risks and increasing resilience. Disaster knowledge can assist in bridging the gap between bare survival and sustainable life, emphasizing its importance in disaster-prone areas.

Disaster mitigation education for the Scout community is a critical technique to lessen the danger of catastrophic disasters. By contemplating the ability to reduce the consequences of casualties and losses, the critical importance of earthquake preparedness among adolescents becomes clear. Preparedness becomes a critical defense measure given the unpredictability of such seismic events' temporal recurrence. A series of planned operations arranged to anticipate potential crises is called preparedness. These strategies are driven by a thorough grasp of disaster management and are carried out through effective and relevant approaches. The effectiveness of these measures is determined by the agility and flexibility of the solutions employed in response to the chaotic and unpredictable nature of disasters.

![Figure 4. Closing ceremony of disaster response scout training](image)

The level of preparedness for earthquake-related events can be determined by carefully examining numerous indicators, such as disaster preparedness understanding and attitude, emergency response strategy, early warning systems, and resource mobilization. Among these, knowledge and attitude are important components of disaster preparedness. These factors include facts regarding earthquakes and their impacts and the proper mental attitude that stimulates pre-emptive actions. When an earthquake strikes, established protocols such as evacuation routes, shelter places, and first aid procedures are implemented. Early warning systems are technical technologies that provide notifications of approaching earthquakes, allowing for faster response. Finally, resource mobilization refers to using available resources effectively during a disaster, whether labor, equipment, or supplies. A solid earthquake preparedness strategy can be developed by carefully considering these variables.
Knowledge is a primary factor in disaster preparedness and a critical determinant. The breadth and depth of knowledge an individual or a community possesses can have a major impact on their attitude toward catastrophe preparedness. Preparedness is a critical component of the disaster management process, a term that has evolved in today's hazard and risk management landscape.

The importance of preparedness goes beyond simply being reactive; it also plays an important role in proactive measures aimed at disaster prevention and risk reduction. It is based on putting plans in place before a disaster happens. This paradigm shift recognizes that pre-emptive approaches, rather than traditional reactive responses after a disaster, provide a more effective strategy for minimizing the unfavorable effects of disasters. The science of disaster management has progressed beyond focusing on response and recovery to a more holistic approach that highlights the need for anticipation, prevention, preparedness, and mitigation. Knowledge and preparedness within this framework showed a more strategic, scientifically grounded approach to disaster management. It emphasizes the nature of disaster understanding and ramifications to improve preparedness and reduce risk.

This viewpoint reflects a respect for the intrinsic complexity of disasters and the situations in which they occur, emphasizing the necessity for scientifically based, multifaceted disaster preparedness and resilience solutions. As a result, this integrated approach is critical for enhancing the effectiveness and efficiency of disaster management techniques and improving our understanding of the many facets of disaster risk reduction.

4 Conclusion

Enhancing community resilience through training dissemination results in a significant increase in the knowledge of “Pramuka Tanggap Bencana” - a disaster response scout troop, showing that a regular supply of such instruction can be quite advantageous. Furthermore, it is planned to create a peer education system in this domain to impart information and action plans to important participants. This project focuses on how to provide timely and effective first aid to victims of natural catastrophes, such as earthquakes. Doing so will improve their preparation and capacity to respond quickly and effectively when such disasters arise.

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References


