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Knowledge of School-Age Children About Mitigation of Mount Kelud Disaster in Disaster-Prone Areas (KRB-III) Ring 1

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ABSTRACT

The impact of disasters is considered more concerning for elementary school-age children, as they are unable to rescue themselves at such a young age. It is highly meaningful for elementary school-age children to have an understanding of disaster mitigation. This study aims to determine the knowledge of school children regarding the mitigation of Mount Kelud's disaster in a highly prone disaster zone. The research method used is descriptive quantitative with a population of 112 students and a sample size of 60 respondents selected through purposive sampling. Data collection was done using a questionnaire consisting of 15 questions that were validated, with a calculated value of r > r table, which is 0.602, and the reliability test result of Cronbach's alpha greater than 0.600. This research was conducted in March 2023 at SDN 02 Penataran. The research results show that the respondents' knowledge of disaster mitigation is 33.3% categorized as good, 45% as sufficient, and 21.6% as lacking. Meanwhile, knowledge in the pre-disaster phase is 31.6% good, 46.7% sufficient, and 21.6% lacking. Knowledge during a disaster is 33.3% good, 48.3% sufficient, and 18.3% lacking, while knowledge after a disaster is 26.6% good, 31.6% sufficient, and 41.6% lacking. It can be concluded that the majority of knowledge regarding disaster mitigation falls under the sufficient category, accounting for 45% with an age range of 10-13 years, and children obtain information about disaster mitigation from their families and social media. It is recommended that educational institutions incorporate disaster mitigation learning into the school curriculum to deepen students' understanding of this matter.

Keywords: knowledge, school-age children, disaster mitigation.

Background

Disasters are events or a series of events that threaten and disrupt the lives and livelihoods of communities, caused by natural and/or non-natural factors, as well as human factors, resulting in human casualties, environmental damage, material losses, and psychological impacts (1). There are several disasters that commonly affect Indonesia, one of which is volcanic eruptions. Indonesia is located within the Pacific Ring of Fire (2), which means it is situated along a series of active volcanic belts. In East Java, one recent volcanic disaster was the eruption of Mount Kelud in 2014, which was a significant eruption (3).

Disasters such as volcanic eruptions have severe detrimental impacts on communities and are one form of natural disaster. One area highly susceptible to the impacts of Mount Kelud's eruption is Candi Sewu Village, Dsn. Pacuh, Ds. Penataran, located within a radius of

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±5-10 km from the volcano's crater. As a result, this area is prone to the effects of Mount Kelud's eruption and serves as a disaster-affected village within the Kelud Volcano Risk Zone III (KRB III). During the eruption of Mount Kelud in 2014, Candi Sewu Village, Dusun Pacuh, was hit by hot stones/gravel and ashfall, covering the entire area with thick sand and rocks.

The impact of disasters is considered more worrisome for children, and they are categorized as vulnerable in child protection laws [4]. Elementary school-age children are a group particularly vulnerable to the risks and impacts of disasters. Based on disaster incident data from various regions, many school-age children become victims of disasters both during and outside of school hours [4]. This is due to the fact that elementary school-age children are unable to save themselves and have limited understanding of the risks posed by disasters in their surroundings, resulting in a lack of preparedness to face such events. Therefore, it is crucial for elementary school-age children to have an understanding of disaster mitigation.

Disaster mitigation refers to a series of efforts to reduce disaster risks, through both physical infrastructure development and awareness-raising and capacity-building to face disaster threats [8]. Enhancing students' knowledge and skills in dealing with disasters involves providing mandatory disaster mitigation education from an early age [4]. One primary school directly affected by the eruption of Mount Kelud is SDN 02 Penataran, as it is located within a five to ten-kilometer radius and falls within one of the disaster-supporting villages in KRB III, Ring I of Mount Kelud.

Research Methodology

The research method used was a quantitative descriptive approach with a population size of 112 students and a sample size of 60 respondents selected through purposive sampling (9). Data collection was done using a questionnaire consisting of 15 questions that were validated to measure the effectiveness of a measurement tool or instrument in obtaining data [10]. The results of the validity test showed that the calculated value (r) was greater than the table value (r) and amounted to 0.602. In addition to the validity test, the questionnaire was also tested for reliability [10] with the results of the reliability test showed that Cronbach's alpha was greater than 0.600. This research was conducted in March 2023 at SDN 02 Penataran.

Result

Characteristics of respondents

Table 1 Characteristics of Research Respondents Knowledge of School-Age Children About Mount Kelud Disaster Mitigation

Characteristics		Amount	%
Age	9 years	1	1,6
	10 years	10	16,6
	11 years	12	20
	12 years	24	40
	13 years	13	21,6
Gender	Man	25	41,6
	Women	35	58,3
Obtaining Information About Disaster Mitigation	Home Family	17	28,3
	School	30	50
	Neighbor	0	0

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	Playmates	0	0
	Social media	13	21,6

Based on Table 1, it can be seen that the majority of respondents are 12 years old, namely 40% (24 respondents). As for gender, the majority of respondents were women, as much as 58.3% (35 respondents). Most of the sources of information about disaster mitigation were obtained from 50 schools (30 respondents).

Disaster Mitigation Knowledge

Table 2 Knowledge of School-Age Children About Mount Kelud Disaster Mitigation, March 2023

Knowledge level	Amount	%
Good	23	38,3
Enough	24	40
Not enough	13	21,6
Amount	60	100

Based on Table 2, it is known that the most knowledge about disaster mitigation is in the sufficient category of 40% (24 respondents).

Knowledge of Disaster Mitigation During Pre-Disaster

Table 3 Knowledge of School-Age Children About Disaster Mitigation During Pre-Disaster

Knowledge level	Amount	%
Good	19	31,6
Enough	28	46,7
Not enough	13	21,6
Amount	60	100

Based on Table 3, it is known that the level of knowledge about disaster mitigation during the pre-disaster period was mostly in the sufficient knowledge category of 46.7% (28 students).

Knowledge of Disaster Mitigation When a Disaster Occurs

Table 4 Knowledge of School-Age Children About Disaster Mitigation When a Disaster Occurs

Knowledge level	Amount	%
Good	20	33,3
Enough	29	48,3
Not enough	11	18,3
Amount	60	100

Based on Table 4, it is known that the level of knowledge about disaster mitigation when a

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disaster occurs is mostly in the sufficient knowledge category of 48.3% (29 students).

Knowledge of Disaster Mitigation in the Aftermath of a Disaster

Table 5 Knowledge of School-Age Children About Disaster Mitigation During a Post-Disaster

Knowledge level	Amount	%
Good	16	26,6
Enough	19	31,6
Not enough	25	41,6
Amount	60	100

Based on Table 5, it is known that the level of knowledge about disaster mitigation after a disaster occurs is mostly in the less knowledge category of 41.6% (25 students).

Discussion

Disaster Mitigation

The research results indicate that out of 60 respondents, their knowledge of Mount Kelud disaster mitigation falls into three categories. 38.3% fall under the good category, 40% fall under the sufficient category, and 21.6% fall under the lacking category. Frequency data regarding pre-disaster knowledge of disaster mitigation shows that 31.6% fall under the good category, 46.7% fall under the sufficient category, and 21.6% fall under the lacking category. Frequency data regarding knowledge of disaster mitigation during a disaster shows that 33.3% fall under the good category, 48.3% fall under the sufficient category, and 18.3% fall under the lacking category. Frequency data regarding knowledge of disaster mitigation post-disaster shows that 26.6% fall under the good category, 31.6% fall under the sufficient category, and 41.6% fall under the lacking category.

In addition to these factors, age, education, sources of information/media, experience, and socio-cultural factors also influence a person's knowledge (5). The research results show that only 38.3% of respondents have good knowledge of disaster mitigation, with an age range of 12-13 years, and they primarily obtain information from school. Furthermore, 40% or 24 students have sufficient knowledge of disaster mitigation, with an age range of 10-13 years, and they primarily obtain information from social media and family. Lastly, 21.6% or 13 students have lacking knowledge of disaster mitigation, with an age range of 9-11 years, and they primarily obtain information from family.

From the data on respondent characteristics with good, sufficient, and lacking knowledge of disaster mitigation, it can be interpreted that age significantly influences children's knowledge of disaster mitigation. This is consistent with previous research that shows a correlation between age and knowledge level, as well as education (6). The average age of students is 12-13 years, which means they are in the early stages of puberty. The development of children is influenced not only by age but also by environmental factors that can affect their knowledge of disaster mitigation. This aligns with research findings that environmental factors also influence the knowledge and academic achievements of school-age children (7). Additionally, numerous studies have shown that the appropriate use of media information can help improve students' knowledge. This is in line with research findings that indicate the influence of information sources/media on students' knowledge in dealing with disasters (7). The data presented identifies respondents with good, sufficient, and lacking knowledge of disaster mitigation. Furthermore, it identifies the respondents' knowledge during pre-disaster, during a disaster, and post-disaster.

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Pre-Disaster

Respondents with good knowledge of disaster mitigation during the pre-disaster phase accounted for 31.6% or 19 students, aged 12-13 years, who obtained information primarily from school. Respondents with good knowledge were able to answer questions about disaster mitigation correctly, with all 19 students or 100% providing accurate responses. Furthermore, respondents with sufficient knowledge of disaster mitigation during the pre-disaster phase accounted for 46.7% or 28 students, aged 10-13 years, who obtained information mainly from school and social media. Respondents with sufficient knowledge were able to answer questions about disaster mitigation correctly, with 4 students or 14.2% providing accurate responses, while 22 students or 78.5% had sufficient knowledge but with some inaccuracies, and 2 students or 7.1% had insufficient knowledge. Lastly, respondents with insufficient knowledge of disaster mitigation during the pre-disaster phase accounted for 21.6% or 13 students, aged 9-11 years, who obtained information primarily from their families and social media. Respondents with insufficient knowledge were unable to answer questions about disaster mitigation correctly, with 2 students or 15.3% having sufficient knowledge and 11 students or 84.6% having insufficient knowledge.

During a Disaster

Respondents with good knowledge of disaster mitigation during a disaster phase account for 33.3% or 20 students, with an age range of 12-13 years, and they primarily obtain information from school. Respondents with good knowledge during a disaster were able to correctly answer questions about disaster mitigation, with 14 students or 70% in the good category, 6 students or 30% in the sufficient category, and 0% in the lacking category. Furthermore, respondents with sufficient knowledge of disaster mitigation during a disaster phase account for 48.3% or 29 students, with an age range of 11-13 years, and they primarily obtain information from family and school. Respondents with sufficient knowledge during a disaster were able to correctly answer questions about disaster mitigation, with 10 students or 34.4% in the good category, 12 students or 41.3% in the sufficient category, and 7 students or 24.1% in the lacking category. Lastly, respondents with lacking knowledge of disaster mitigation during a disaster phase account for 18.3% or 11 students, with an age range of 10-11 years, and they primarily obtain information from family and social media. Respondents with lacking knowledge during a disaster were unable to correctly answer questions about disaster mitigation, with 5 students or 45.4% in the sufficient category and 6 students or 54.5% in the lacking category.

Post-Disaster

Respondents with good knowledge of disaster mitigation in the post-disaster phase account for only 31.6% or 19 students, with an age range of 12-13 years, and they primarily obtain information from school. Respondents with good knowledge in the post-disaster phase were able to correctly answer questions about disaster mitigation, with 14 students or 73.6% in the good category, 4 students or 21% in the sufficient category, and 1 student or 5.2% in the lacking category. Furthermore, respondents with sufficient knowledge of disaster mitigation in the post-disaster phase account for 26.6% or 16 students, with an age range of 11-13 years, and they primarily obtain information from family and school. Respondents with sufficient knowledge in the post-disaster phase were able to correctly answer questions about disaster mitigation, with 8 students or 50% in the good category, 6 students or 37.5% in the sufficient category, and 2 students or 12.5% in the lacking category. Lastly, respondents with lacking knowledge of disaster mitigation in the post-disaster phase account for 41.6% or 25 students, with an age range of 10-12 years, and they primarily obtain information from family and social media. Respondents with lacking knowledge in the post-disaster phase were able to correctly

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answer questions about disaster mitigation, with 1 student or 4% in the good category, 14 students or 56% in the sufficient category, and 10 students or 40% in the lacking category.

From the research data, efforts need to be made to enhance students' understanding and awareness of disaster mitigation. These efforts can be carried out through educational programs, training, and the use of appropriate media. It is important to note that disaster mitigation is not solely the responsibility of the government but also the responsibility of all individuals in preparing for potential disasters in the future.

In this regard, the role of schools and families is crucial in providing education and information about disaster mitigation to students. Schools can organize educational programs and training related to disaster mitigation, such as first aid training, evacuation drills, and the use of safety equipment. Additionally, schools can conduct disaster simulation activities to provide students with firsthand experience in dealing with emergency situations.

Meanwhile, families can educate children about disaster mitigation through various means, such as teaching them about the actions to take during a disaster, creating evacuation plans, and preparing safety equipment. Families can also involve children in activities related to disaster mitigation, such as volunteering or participating in community awareness campaigns.

Furthermore, the use of appropriate media can also help enhance students' knowledge and awareness of disaster mitigation. Schools and families can utilize various media, such as books, videos, and mobile applications, that provide easily understandable and engaging information for children.

To improve students' understanding and awareness of disaster mitigation, collaboration among the government, schools, families, and the community is essential. Through effective cooperation, it is hoped that a more prepared and responsive environment can be created to face potential disasters in the future.

Conclusion and Recommendations

Based on the research and discussion conducted in Chapter 4, it can be concluded that the knowledge of school-age children about Mount Kelud disaster mitigation in the high-risk disaster area (KRB-III) Ring 1 in SDN 02 Penataran for grades 4, 5, and 6 is as follows:

The knowledge of disaster mitigation is most commonly categorized as sufficient, accounting for 40%. This is because the respondents are within the age range of 11-13 years and have obtained information about disaster mitigation from their families and social media, which enhances their comprehension and thinking patterns, resulting in better knowledge. Additionally, the knowledge of pre-disaster and during a disaster is mostly categorized as sufficient, accounting for 46.7% and 48.3%, respectively. This is because the respondents are within the age range of 11-13 years and have obtained information about disaster mitigation from school, their families, and social media. However, the knowledge of post-disaster is mostly categorized as lacking, accounting for 41.6%. This is because the respondents are within the age range of 9-12 years and have obtained information about disaster mitigation from their families and social media.

In this study, it is recommended for institutions to integrate education about disaster mitigation into the school curriculum regarding disasters, in order for students to gain a better understanding. It is also recommended for the village authorities to provide more frequent education and socialization about disasters to schools, so that students have a better understanding of the risks associated with Mount Kelud eruptions. Furthermore, the village authorities should develop strategies to minimize the risks that can occur to elementary school children (SD) and ensure their safety when facing volcanic eruptions.

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Confession

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