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OVERVIEW OF UNDERSTANDING AND PREPAREDNESS FOR EARTHQUAKE DISASTERS FROM PERSPECTIVE OF VOCATIONAL HIGH SCHOOL STUDENTS

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Abstract

Knowledge of disaster mitigation is the most essential component and a key factor for preparedness. The possessed knowledge typically influences attitudes and concerns, fostering readiness to anticipate disasters. Vocational High School students should be informed about the various disasters that frequently occur in their areas, as well as the procedures to face sudden disasters. The significant loss of lives and various damages to buildings and facilities in the vicinity underscore the need for a deeper examination of mitigation efforts. The objective of this study is to assess the level of understanding and preparedness of Vocational High School students regarding earthquake natural disasters. The research method employed is quantitative, with descriptive statistics as the analytical technique. The instruments used include test instruments and non-test instruments utilizing Google Forms to collect data from several Vocational High Schools in various cities in DKI Jakarta, Sukabumi, and Tangerang. The research findings reveal that 42% of students are unaware of earthquake disaster mitigation measures. Additionally, 69% of students lack knowledge about minimizing damage from earthquakes in terms of building construction. Furthermore, 65% of students are unfamiliar with images related to earthquake-resistant construction. Moreover, 52% of students still do not know the local earthquake resilience features of earthquake-resistant houses. Lastly, 52% exhibit a panicky attitude, hastily evacuating buildings during an earthquake. The conclusion drawn from this research is that the knowledge of Vocational High School students regarding earthquake disasters and their mitigation measures is still low.

Keywords: Earthquake Disasters, Preparedness, Disaster Mitigation, Knowledge, Vocational High School Students

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Introduction

Indonesia is a vast country filled with natural beauty that can captivate anyone who sees it. However, behind the beauty that Indonesia possesses, there are numerous issues related to natural disasters (Thoha, 2017; Hamit et al., 2023). Many experts liken Indonesia to a giant disaster laboratory because we cannot predict when natural disasters will occur. The geographical location of Indonesia is one of the primary reasons for the high potential vulnerability to disasters in the country (Adiyoso, 2018).

A disaster is essentially viewed as a highly negative event. However, if we analyze more comprehensively, disaster events do not always have significant bad or negative consequences. Disaster events can provide a positive impetus for the formation of a change in disaster prevention practices (O'Mathuna & Dranseika, 2018; Ilyasa, 2023). Disasters can also trigger deeper social reflections that have positive impacts (Setyowati, 2019). Disasters are a natural cycle that must be faced by humanity, especially those living in disaster-prone areas. The sudden arrival of disasters cannot be avoided but must be confronted. Humans do not need to fear the occurrence of disasters, but they must be able to confront them to prevent significant impacts on human life.

The number of disaster occurrences and the overall losses due to disasters have consistently increased over time. Improvement is largely influenced by the level of human resilience to disasters. The occurrence of natural disasters is greatly influenced by climate change, and its impacts are increasingly significant for humans (Yokomatsu & Hochrainer, 2020).

Indonesia is considered slow in handling disasters, awareness of disaster mitigation is also low, and there is a lack of school involvement in introducing disaster mitigation education, resulting in a high number of casualties during disasters (Hayudityas, 2020). Mitigation skills are highly needed in facing various disaster situations (Ichsan et al., 2020). All Indonesian citizens, especially students, should have readiness knowledge when it comes to disasters, as disasters can occur at any time and anywhere (Rosida & Adi, 2017).

Vocational High Schools (SMK) play a crucial role in preparing skilled and agile workforce, with the expectation of continuously adapting to the developments in market demand (Wibowo, 2016). Currently, there is a new curriculum known as the independent curriculum. The improvement in the quality of education is realized through the independent learning curriculum. The Independent Learning Curriculum fundamentally incorporates the implications of every societal development that has occurred thus far (Indarta et al., 2022). The independent curriculum is a series of learning designs that provide students with the opportunity to learn calmly, relaxed, enjoyable, stress-free, and pressure-free, allowing them to showcase their natural talents. Independent learning emphasizes freedom and creative thinking (Mulyati, 2022).

The independent curriculum utilized in the field of education accommodates information on disaster mitigation. In this curriculum, knowledge about disasters and their mitigation is incorporated into the lessons, Ilmu Pengetahuan Alam Sosial (IPAS). However, it still includes general knowledge of disasters. Knowledge of disaster mitigation is the most essential component and a key factor for preparedness. The possessed knowledge typically influences attitudes and concerns, fostering readiness to anticipate disasters. Vocational High School students should be informed about the various disasters that frequently occur in their areas, as well as the procedures to face sudden disasters (Aryana, 2021).

One of the natural disasters that is difficult to predict and occurs suddenly is an earthquake. Earthquakes are the most destructive natural disasters throughout human history and pose a potential cause of casualties and infrastructure damage in densely populated regions. In recent years, earthquakes have occurred frequently, damaging many inhabited areas worldwide and causing numerous issues. The threat of earthquakes to human life and its economic impact is also a crucial aspect that requires mitigation (Abbas et al., 2021; Ali et al., 2009; Liu et al., 2011; Elbaz et al., 2016; Bansal, B & Verma, 2018). Studies in various countries conclude that earthquakes have significant and widespread impacts, but they also vary, even in different

locations affected by earthquakes. The most significant reason behind these varied earthquake impacts is the resilience or ability of different communities or societies. Therefore, it can be said that even though a community or society in a certain area has a higher vulnerability to disasters, the impacts can vary depending on the resilience of the community and its people (Barua et al., 2020; Choudhury et al., 2016; Jimée, G et al., 2012; Goda et al., 2015; Shi et al., 2018).

The correct mitigation process for earthquake natural disasters must be understood to aid in formulating future risk reduction strategy plans. Naturally, this can also assist policymakers in developing such plans, ultimately enhancing understanding and disaster preparedness (Gupta, et al., 2020; Wyss et al., 2017; Prihantini et al., 2022). Therefore, efforts must be made to reduce the impact of losses resulting from natural disasters, especially earthquakes, by implementing earthquake disaster mitigation measures. Earthquake disaster mitigation is one of the most effective ways to reduce its impact on human life and local infrastructure. This involves accurate hazard mapping, potential assessment, monitoring, early warning systems, geotechnical handling, design of crucial infrastructure facilities, knowledge enhancement, preparedness, and increased awareness at the local level (Bansal, B et al., 2022; Alam, 2016). One mitigation measure that can be undertaken is non-structural mitigation, which focuses on enhancing understanding and preparedness. Improving understanding and preparedness can be achieved through the educational process, which is currently an integral part of the overall strategy to minimize losses and destruction caused by earthquake disasters (Bansal, B & Verma, 2012; Guzetti et al., 2020).

Other research related to disaster mitigation conducted by Djawad et al. (2019) explains that increasing awareness among students at SMKN 3 Bulukumba will protect the environment from flood disasters, enhancing the disaster responsiveness of SMKN 3 Bulukumba students. The next study by Hayudityas (2020) explained the implementation of disaster mitigation education in schools has shown quite positive results. The findings in the first cycle were 69%, which increased to 74% with an acquisition percentage of 8%. Research on other disaster mitigation has been conducted by Supriani (2009) explained the Study of Earthquake Mitigation in Bengkulu by Constructing Earthquake-Resistant Houses. In this research, socialization and technical training are conducted for construction workers, with the hope that this initiative can assist the community in constructing residential buildings that meet earthquake-resistant standards and cater to the specific needs of local residents. Thus, minimizing the impact of losses resulting from earthquakes, commonly interpreted as earthquake mitigation. Earthquake-resistant residential buildings must adhere to standard materials and construction methods.

The objective of this research is to determine the level of understanding and preparedness of Vocational High School students related to earthquake natural disasters.

Research Methodology

This research employs a quantitative approach with a survey method, meaning that the study aims to collect a significant amount of data from individuals simultaneously (Sugiyono, 2016; Sudaryono, 2018).

The data used in this research is based on primary data collected directly by the researcher through field surveys. Surveys were conducted to assess the knowledge, attitudes, and preparedness of students towards disasters in their surroundings. The survey sampled 43 student respondents. The research was conducted at several Vocational High Schools in DKI Jakarta, Sukabumi, and Tangerang.

In this research, the instruments were created in the form of a Google Form. The test instrument for this research consists of knowledge regarding minimizing such disasters. The non-test instrument comprises statements about attitudes during an earthquake disaster. These instruments provide answer options, namely "already aware" and "not yet aware," as well as short-answer responses. Next, a descriptive analysis is conducted. The technique of descriptive analysis is used to analyze data by describing or depicting the collected data as it is (Sugiyono, 2016; Sudaryono, 2018).

Research Results and Discussion

The results of this study indicate that 42% of students are not aware of earthquake disaster mitigation measures before, during, and after an earthquake.

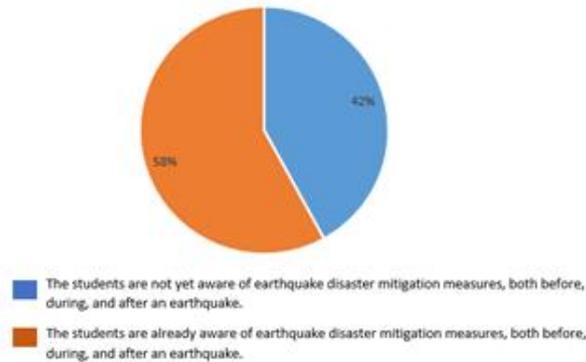


Figure 1. Percentage of Students Aware of Earthquake Disaster Mitigation

Furthermore, 69% of students are not aware of ways to minimize damage caused by earthquakes in terms of building construction.

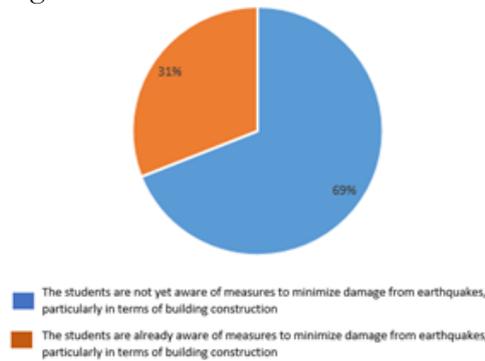


Figure 2. The Percentage of Students in Minimizing Earthquake-Induced Damages

65% of students are not familiar with images of earthquake-resistant construction for residential houses.

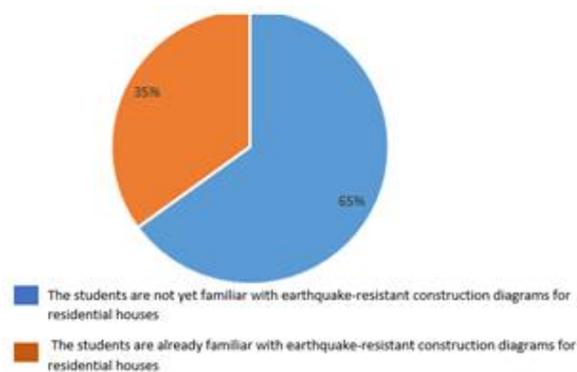


Figure 3. Students are Aware of Earthquake-Resistant Construction Images for Residential Houses

Meanwhile, 52% of students are not familiar with the local wisdom of earthquake-resistant houses in Indonesia.

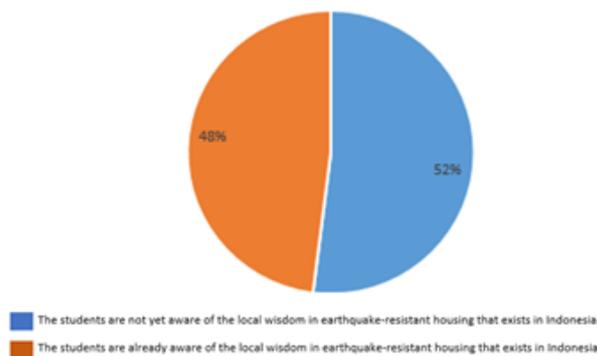


Figure 4. Percentage of Students who are Aware of the Local Wisdom of Earthquake-Resistant Houses in Indonesia

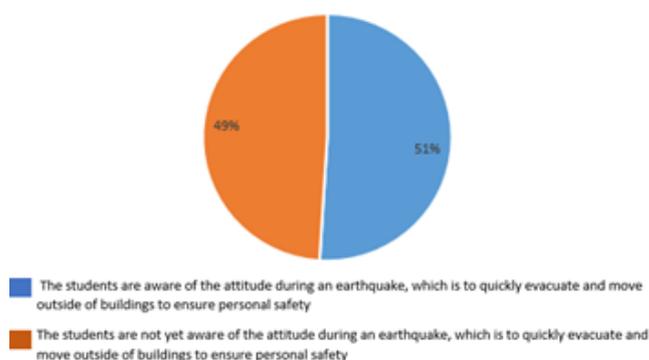


Figure 5. Percentage of Students who are Aware of the Appropriate Actions During an Earthquake

Then, the attitude during an earthquake, 51% of them panicked, rushing to save themselves by evacuating from the building.

From the research findings, it is evident that overall, Vocational High School students lack knowledge on minimizing earthquake-induced damage in terms of building construction. Students are also unfamiliar with images related to earthquake-resistant residential construction and local wisdom. Additionally, students panic and hastily evacuate buildings during earthquakes. Consequently, the students' understanding of earthquake disasters is limited to the description of the earthquake itself, and there is a low level of awareness regarding mitigation and preparedness in facing earthquakes.

These results align with research conducted by These results are consistent with the research conducted by Rosida & Adi (2017), which states that student's knowledge related to natural disasters is still low, along with a low level of preparedness. Knowledge becomes crucial as disaster mitigation actions require sufficient understanding from individuals. This knowledge is an individual process obtained through sensory interactions with the situations and conditions of the surrounding environment where individuals reside. Over time, various interactions between society and their living environment can influence the enhancement of knowledge and innovatively optimize various ways of reducing disaster risks in the future (Bwambale, 2020; Noviana et al., 2019).

The current low level of student's knowledge must be improved, as an increase in disaster knowledge can support more effective disaster risk reduction actions (Spiekermann et al., 2015). Knowledge related to disasters contains information that can be utilized to make decisions and take actions, enabling individuals to enhance their capacity to respond to various disaster risk reduction efforts in a timely manner (Coll, et al., 2018). The importance of knowledge related to preparing for earthquake disasters can provide significant benefits for vulnerable communities.

The improvement of knowledge and preparedness is part of a global disaster risk reduction program. It cannot be ignored that there are still issues in the community during the risk reduction process, such as insufficient understanding and preparedness. This has been confirmed by various studies related to disaster risk reduction efforts in enhancing community resilience, indicating that basic knowledge related to natural disasters is still relatively low in some communities, particularly those at higher risk of disasters (Elliott, 2020; Kreemer et al., 2014; Hussain et al., 2020; Jolivet & Frank, W, 2020; Wallace, et al., 2016).

Then, a preparedness attitude is an activity and steps taken in advance to ensure an effective response to hazard impacts, including timely and effective announcement of early warnings. Temporary evacuation of people and property from the threatened location (Sadeka et al., 2015). Preparation is typically seen as consisting of activities aimed at enhancing response activities and coping abilities. However, there is an increasing emphasis on recovery preparation, focusing not only on responding effectively during and immediately after a disaster but also on successfully navigating challenges associated with short-term and long-term recovery (Sutton & Tierney, 2006). Basically, a preparedness attitude is crucial to be applied because it can reduce the negative impacts of disasters, such as moral and material losses. An individual living in an environment prone to natural disasters is highly vulnerable to helplessness, weakness, and disability, placing them at a much greater risk of danger (Cefalu, 2014).

The implementation of a preparedness mindset in a vulnerable group is considered more effective and efficient in preparing them before an earthquake occurs. This preparedness mindset program is an innovative initiative designed to assist in self-preparation and disaster response, reducing vulnerability levels, and building longer-term resilience. The application of a preparedness mindset also depends on these vulnerable groups, as the scope and extent of actions may change over time given the uncertainty. Disaster preparedness mindset can be determined by actively participating in preparation activities. Preparation activities consist of tangible and measurable actions that must be taken to achieve preparedness goals. Engaging in preparation activities is a constructive step that communities must take to minimize the risk of natural disasters (Hashim, et al., 2021; Aguirre et al., 2019; Ilyasa, 2023).

Conclusion

Based on the presentation presented in the results and discussion, the conclusion is that students' knowledge about earthquake disasters is still insufficient, as evidenced by their low understanding of mitigation and preparedness for earthquakes or the things that need to be done to minimize earthquake risks in terms of building construction. Furthermore, the attitude displayed by students in facing earthquakes is also low, as they experience panic and rush to save themselves by evacuating the building during an earthquake.

Suggestions that can be given related to students' preparedness for earthquake disasters include providing education about earthquake disasters, dangers, and ways to minimize damage from its impact in terms of building construction. There is a need for additional books or additional learning media specifically addressing earthquake-resistant building construction drawings.

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