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The Relationship Between Digital Disaster Literacy and Disaster Preparedness at the Gatot Soebroto Army Hospital Health College Students

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Abstract

Background: Indonesia is a country with a high level of disaster risk, so good preparedness is needed to reduce the impact of disasters. In the digital era, disaster information can be obtained quickly through various digital platforms. The ability to access, understand, evaluate, and utilize disaster information is known as disaster digital literacy which is thought to play a role in improving individual preparedness. Objective: To determine the relationship between disaster digital literacy and disaster preparedness among STIKES RSPAD Gatot Soebroto students. Method: This study used a quantitative analytical design with a cross-sectional approach. The research sample consisted of 120 students selected using proportional random sampling technique. Data collection was carried out using a questionnaire on disaster digital literacy and disaster preparedness. Data analysis used the Chi-Square test with a significance level of 95%. Results: Most respondents had good disaster digital literacy (65.0%) and ready disaster preparedness (60.0%). The analysis results showed that students with good disaster digital literacy had more good preparedness (67.9%) compared to students with poor digital literacy (45.2%). The Chi-Square test showed a p-value of 0.020 ($p < 0.05$). Conclusion: There is a significant relationship between disaster digital literacy and disaster preparedness among STIKES RSPAD Gatot Soebroto students. Improving disaster digital literacy is necessary as an effort to strengthen student preparedness in facing disasters.

Keywords: *disaster digital literacy, disaster preparedness, students, disaster.*

BACKGROUND

Indonesia is one of the countries with the highest disaster risk levels in the world because it is located in the Ring of Fire region. Its geographical conditions at the meeting of three major tectonic plates, tropical climate, and archipelagic characteristics make Indonesia vulnerable to various types of disasters, both geological and hydrometeorological disasters. According to the 2024 Indonesian Disaster Data Book published by the National Disaster Management Agency (BNPB), disasters throughout 2024 resulted in 540 deaths, 63 people missing, 11,531 people injured, and more than 8.1 million people affected and

displaced. In addition, disasters also caused damage to more than 80,304 houses, 612 educational facilities, 82 health facilities, and various other public infrastructure. [1]

BNPB data shows that hydrometeorological disasters still dominate disaster events in Indonesia. In December 2024 alone, 226 disasters were recorded, of which 99.12% were hydrometeorological disasters such as floods, extreme weather, and landslides. Floods were the most frequent type of disaster, accounting for approximately 65% of all disasters during that period. This situation demonstrates that the threat of disasters is a real problem that can

occur at any time and affects all levels of society, including students.[1]

The high risk of disasters demands increased community preparedness. According to Law Number 24 of 2007 concerning Disaster Management [2], preparedness is a series of activities carried out to anticipate disasters through appropriate and efficient organization and steps. Preparedness is one of the main factors in reducing casualties and losses due to disasters. Experience with various disaster events shows that communities with good knowledge and preparedness tend to be able to take faster and more appropriate action when facing an emergency. This is reinforced by various disaster reports that emphasize the importance of community education and preparedness as part of a disaster risk reduction strategy.

In the era of digital transformation, access to disaster information has become increasingly easy through the internet, social media, early warning apps, and various other digital platforms. Information on disaster mitigation, evacuation, first aid, and early warnings can be obtained quickly through digital media. However, this ease of access also increases the risk of spreading inaccurate information, hoaxes, or unverified information. Research on digital media literacy in Indonesia shows that improving digital literacy skills influences individuals' ability to identify false or misleading information. Therefore, the public's ability to access, understand, evaluate, and use disaster information appropriately is crucial.[3]

This concept is known as disaster digital literacy, which is the ability of individuals to utilize digital technology to obtain, analyze, evaluate, and use disaster information effectively in mitigation, preparedness, emergency response, and post-disaster recovery efforts. Various studies have shown that digital media and social media play an

important role in disseminating disaster information, increasing risk awareness, and decision-making during disasters. Appropriate use of digital information can help individuals understand disaster threats and improve preparedness for emergencies. [4]

College students are a group closely associated with the use of digital technology. Based on the characteristics of the current generation, students access information through various digital platforms every day. For health students, the ability to understand disaster information is becoming increasingly important as they are prepared as future health workers who have the potential to be involved in disaster management efforts, emergency health services, public education, and humanitarian activities during disasters. Therefore, students are not only required to have disaster knowledge, but also the ability to filter and utilize disaster information obtained from digital media. [4]

As future healthcare workers, students at Gatot Soebroto Army Hospital (RSPAD) have a professional responsibility to respond to emergencies and disasters. However, their high level of digital media use does not necessarily reflect their high level of digital disaster literacy. While some students may be able to easily access disaster information, they may not be able to evaluate the credibility of sources, distinguish between valid and false information, and apply that information in appropriate preparedness measures. This can impact their ability to effectively respond to disaster situations.

Several previous studies have examined the relationship between disaster knowledge and disaster preparedness, but research specifically examining the relationship between digital disaster literacy and disaster preparedness in health students is still relatively limited, particularly among students at STIKES RSPAD Gatot Soebroto. However, amid the

increasing use of digital technology in early warning systems and disaster information dissemination, digital disaster literacy is estimated to be a crucial factor in shaping individual preparedness.

Based on this description, research is needed to examine the relationship between digital literacy and disaster preparedness among students at Gatot Soebroto Army Hospital (RSPAD)'s Health Science College (STIKES). This research is expected to provide empirical evidence regarding the role of digital literacy in disaster preparedness among students, thus providing a basis for developing disaster education programs and increasing the capacity of health students to address various disaster risks.

RESEARCH METHODS

This study used a quantitative analytical design with a cross-sectional approach to determine the relationship between digital disaster literacy and disaster preparedness among STIKES RSPAD Gatot Soebroto students. The study population was all STIKES RSPAD Gatot Soebroto students, with a sample of 120 respondents selected using proportional random sampling technique. Data were collected using a questionnaire consisting of digital disaster literacy and disaster preparedness instruments. Data analysis was carried out univariately to describe the frequency distribution of each variable and bivariate using the Chi-Square test with a significance level of $\alpha = 0.05$ to determine the relationship between the two variables. The results of the study were declared significant if the p value < 0.05 .

RESEARCH RESULT

1. Univariate Analysis

Table 1. *Frequency Distribution of Digital Literacy in Disasters*

Disaster Digital Literacy	Frequency (n=120)	Percentage (%)
Good	78	65.0
Not enough	42	35.0
Total	120	100

Source: Primary Data 2024

Based on Table 1, the majority of respondents (78 students) had good disaster digital literacy, while 42 students (35.0%) had poor disaster digital literacy. These results indicate that the majority of students have fairly good skills in accessing, understanding, and evaluating disaster information through digital media.

Table 2. *Frequency Distribution of Disaster Preparedness*

Disaster Preparedness	Frequency (n=120)	Percentage (%)
Ready	72	60.0
Not Ready	48	40.0
Total	120	100

Source: Primary Data 2024

Based on Table 2, the majority of respondents (72 students) were in the disaster preparedness category, while 48 students (40.0%) were in the less prepared category. This finding indicates that more than half of the students are well prepared to face disaster situations.

2. Bivariate Analysis

Table 3. Relationship between Digital Disaster Literacy and Disaster Preparedness among Gatot Soebroto Army Hospital Health College Students

Disaster Digital Literacy	Ready (%)	Less Ready (%)	Total (%)	P-value
Good	53 (67.9)	25 (32.1)	78 (100)	0.020
Not enough	19 (45.2)	23 (54.8)	42 (100)	
Total	72 (60.0)	48 (40.0)	120 (100)	

Source: Primary Data 2024

Based on Table 3, of the 78 respondents with good disaster digital literacy, 53 (67.9%) were in the disaster preparedness category, and 25 (32.1%) were in the less preparedness category. Meanwhile, of the 42 respondents with poor disaster digital literacy, 19 (45.2%) were in the preparedness category, and 23 (54.8%) were in the less preparedness category.

The results of the analysis using the Chi-Square test showed a p value of 0.020 ($p < 0.05$). These results indicate a significant relationship between disaster digital literacy and disaster preparedness among STIKES RSPAD Gatot Soebroto students. Thus, the research hypothesis is accepted, which means that students with better disaster digital literacy tend to have a higher level of disaster preparedness than students with poor disaster digital literacy.

These findings indicate that the ability to access, understand, evaluate, and utilize disaster information through digital media contributes to students' preparedness in facing disaster situations. Therefore, strengthening digital disaster literacy needs to be one strategy to improve the preparedness capacity of health students.

DISCUSSION

1. Digital Literacy on Disasters for Students of Gatot Soebroto Army Hospital's Health College

The results of the study showed that the majority of respondents had good disaster digital literacy, namely 78 respondents (65.0%), while the poor category was 42 respondents (35.0%).

These findings indicate that the majority of students are able to utilize digital technology to effectively obtain disaster information. The high level of digital literacy among students may be influenced by the characteristics of the current generation, which is closely connected to the use of the internet, social media, and various digital information platforms.

According to Proboyekti [5], digital literacy is a person's ability to understand and use information from various digital sources effectively. Digital literacy includes not only the technical ability to use digital devices, but also the ability to think critically in evaluating the quality and validity of the information obtained.

In line with this theory, health students now have extensive access to various disaster information sources through digital media such as the official websites of the National Disaster Management Agency (BNPB) and the Meteorology, Climatology, and Geophysics Agency (BMKG), social media, early warning apps, and online learning platforms. The ability to access and evaluate this information enables students to gain better disaster knowledge.

The results of this study are also in line with research by Irsyad Maulana [6], which found that high intensity of digital media use is related to increased ability to obtain and process information critically, thus supporting better decision-making in various situations, including emergencies and disasters.

2. Disaster Preparedness for Students of STIKES RSPAD Gatot Soebroto

The results showed that 72 respondents (60.0%) were in the preparedness category for disasters, while 48 respondents (40.0%) were in the less prepared category. These results indicate that the majority of students have a fairly good level of disaster preparedness. As health students, respondents have a greater opportunity to receive education related to emergencies, safety, and disaster victim management.

According to the United Nations Office for Disaster Risk Reduction [7], disaster preparedness is the knowledge and capacity developed by individuals and organizations to anticipate, respond to, and recover from the impact of disasters effectively. The theory of preparedness developed by LIPI and UNESCO [8] explains that preparedness is influenced by knowledge and attitudes towards disaster risks, policies and guidelines, emergency response plans, early warning systems, resource mobilization. Students who have good disaster knowledge tend to be able to take appropriate actions when a disaster occurs, such as recognizing evacuation routes, understanding self-rescue procedures, and providing first aid to victims.

3. The Relationship between Digital Disaster Literacy and Disaster Preparedness

The results of the bivariate analysis showed that of the 78 students who had good disaster digital literacy, 53 respondents (67.9%) had good preparedness. Conversely, in the group of students with poor digital literacy, only 19 respondents (45.2%) had good preparedness. The Chi-Square test showed a p-value = 0.020, which means there is a significant relationship between disaster digital literacy and disaster preparedness among STIKES RSPAD Gatot Soebroto students because the p-value is smaller than 0.05.

The results of this study indicate that the better students' ability to access, understand, evaluate, and use disaster information through digital media, the higher their level of disaster preparedness. According to the Information Processing Theory proposed by Atkinson and Shiffrin[9], information received by individuals will be processed, understood, stored in memory, and then used as a basis for decision-making and action. In the context of disasters, students who are able to obtain correct and reliable information will have a better understanding of risks and thus be better prepared to face disaster situations.

In addition, the Protection Motivation Theory (PMT) developed by Ronald W. Rogers[10] explains that preparedness behavior is influenced by threat perception and an individual's ability to take protective action. Disaster information obtained through digital media can increase risk perception and encourage individuals to take preparedness actions.

The results of this study are also in line with Furi's research [11], which states that digital media plays an important role in disseminating disaster information, increasing risk awareness, and supporting decision-making during emergencies. Individuals who are able to utilize digital information effectively tend to have better preparedness than individuals with low digital literacy skills. These findings indicate that improving digital disaster literacy can be an important strategy in disaster risk reduction efforts in health education environments. Students who have good digital literacy skills will more easily obtain official information, understand mitigation steps, and implement appropriate preparedness measures when facing a disaster.

CONCLUSION

This study shows that the majority of students have good disaster digital literacy (65.0%) and good disaster preparedness (60.0%). The Chi-

Square test results obtained a p-value of 0.020, indicating a significant relationship between disaster digital literacy and disaster preparedness. The higher the disaster digital literacy possessed by students, the higher their level of disaster preparedness. Therefore,

strengthening disaster digital literacy through education, training, disaster simulations, and the use of official digital platforms needs to be increased as an effort to build health students' preparedness in facing various disaster risks.

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