



## KNOWLEDGE AND PREPAREDNESS IN DEALING WITH EARTHQUAKE DISASTER IN NURSING STUDENTS IN SURABAYA AND BANGKALAN

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ABSTRACT (200 kata)	Keywords
<p><b>Introduction</b> : Knowledge in dealing with disasters is one part of disaster mitigation in the application of disaster preparedness in the campus environment. The death toll from an earthquake will increase along with the knowledge of the community and the level of preparedness they have. This study aims to see the significance of the relationship between knowledge and student preparedness in dealing with earthquake disasters in the campus environment.</p> <p><b>Method</b> : Research design with descriptive correlational cross sectional approach. Sampling using non-probability sampling technique random sampling The research sample was 237 students at STIKES Hang Tuah Surabaya &amp; STIKES NHM with questionnaires in the period of June- July 2022. Test data analysis using ChiSquare.</p> <p><b>Results</b> The results showed that the majority of STIKES Hang Tuah Surabaya students had good knowledge of 205 (86.9%) and moderate preparedness of 226 (95.4%). Statistical test results show the value of <math>\rho=0.011</math> (<math>\rho&lt;\alpha=0.05</math>) which means that knowledge has a close relationship with preparedness in the face of earthquakes.</p> <p><b>Conclusion</b> The implications of this research can be concluded that increasing knowledge is an important part of mitigation in increasing preparedness in the campus environment in dealing with disaster threats, especially earthquakes in particular</p>	<p><b>Knowledge, Preparedness, Earthquakes</b></p>

### INTRODUCTION

Disaster incidents have recently increased, especially in Indonesia. This is because Indonesia is an archipelagic country which is prone to disasters, especially earthquakes. (Widyastuti et al., 2021). The large number of fatalities that occurred due to earthquakes

occurred due to a lack of public knowledge and the level of earthquake disaster preparedness, this shows the importance of knowledge and earthquake disaster preparedness (Manulu, 2019). Preparedness is important and needs to be owned by everyone because disaster preparedness

is useful for anticipating disasters (Dewi & Satria, 2018). Professional nurses are expected to be ready for emergency and disaster situations. Therefore, it is necessary to prepare nursing students to create a disaster-resilient campus (Juanita, Suratmi, & Maghfiroh, 2017)

Disaster knowledge related to disaster mitigation is one of the things that needs to be done in implementing disaster preparedness in the campus environment. Oktarina, Nurhusna and Saputra, (2019) explained that using an application could be an effort to increase the motivation of student nurses in increasing their knowledge in the disaster area. Therefore, research is still needed regarding the study of the knowledge of nursing students with the level of earthquake disaster preparedness to create a disaster resilient campus.

According to data from the Disaster Management Agency (BNBP) it is noted that the incidence of natural disasters will continue to increase every year, in the last 10 years (2009-2019) there have been 216 cases of earthquakes with a total of 637 missing and dead victims, 8,687 injured. - injured, 495,855 refugees, 602,223 residential units were damaged and 131 public facilities (public facilities) were damaged (BMKG, 2021). The latest earthquake occurred in Surabaya, East Java on January 15 2022, according to the Meteorology, Climatology and Geophysics Agency (BMKG) this earthquake was a tectonic earthquake of magnitude 4.1 which had no potential for a tsunami, real earthquake vibrations were felt in people's homes in Juanda, East Surabaya and North Surabaya (Pratama, 2022)

In this regard, the study of knowledge and level of disaster preparedness is one of the most important things that every student must know, supported by government regulations related to disaster preparedness campuses which have the aim of increasing knowledge and increasing student capacity in disaster preparedness efforts (Mahsyar et al., 2012). Based on the disaster event data above, knowledge of STIKES Hang Tuah Surabaya students is needed in disaster preparedness, both individual and even community knowledge. Disaster preparedness is a series of activities that are useful for anticipating disaster hazards through organization and through appropriate and effective steps so as to minimize the adverse effects arising from disasters, both physical damage and loss of life (Budimanto, 2017).

The urgency of this research is related to examining student knowledge about disasters with preparedness in dealing with natural disasters, in this case, earthquakes. So that it can become one of the basic studies in creating a disaster-resilient campus and be included in the curriculum for disaster courses for nursing students.

## RESEARCH METHODS

The design of this research is correlation analytic with cross sectional research design. The population in this study were all nursing students at STIKes Hangtuah Surabaya and STIKES Ngudia Husada Madura Bangkalan. The sample in this study were all nursing students at STIKes Hangtuah Surabaya and STIKES Ngudia Husada Madura Bangkalan with a total of 237 students. The independent variable in this study is student knowledge about earthquake

disasters and the dependent variable in this study is student preparedness in dealing with earthquake disasters. The research instrument used a knowledge questionnaire and a disaster preparedness questionnaire. The instrument has been tested for validity and reliability. The validity test value was 0.444 and the reliability test value obtained a Cronbach's Alpha value above 0.6 so that it can be said that the questionnaire used in the study was reliable. This research was conducted on Hang Tuah Surabaya STIKES students and Bangkalan NHM students in June - July 2022. Before data collection, respondents were given an explanation of the intent, purpose and benefits of this research. This study carried out ethical eligibility tests at KEPK Stikes Hang Tuah Surabaya to obtain ethical clearance and obtain ethical certificates PE/18/VI/2022/KEP/SHT

## RESEARCH RESULT

General data results in this study is a description of the characteristics of respondents consisting of gender, age, level and information owned by respondents about earthquake disaster preparedness.

Table 1 Characteristics of Respondents based on age, gender, level and information about earthquake disaster preparedness (n=237)

Characteristics Respondent	Frequency	Prosentase
Age		
18-19 years old	81	34,2%
20-21 years old	86	36,3%
22-23 years old	70	29,5%
Semester		
2	42	18%
4	64	27,%
6	90	38%
8	40	17%

Experience Participating in Disaster Seminars		
Yes	75	32%
No	162	68%
Experience Following a self-rescue Simulation		
Ever	60	25%
Never	177	75 %

In the research data, it was found that 75 respondents (31.7%) had attended various disaster nursing seminars. The majority of respondents had participated in the disaster simulation but the majority of students in semester 2 had not participated in the earthquake disaster simulation activity with the number of respondents being 42 (18%) but having a moderate level of knowledge of 32 (13.5%) respondents and good knowledge of 10 (4.2%) respondents. From the research data above, 177 (75%) respondents had never taken a disaster nursing course and 60 (25%) respondents had taken a disaster nursing course, while for the data of respondents who had attended a disaster nursing seminar, there were 162 (68.3%) respondents never attended a seminar and 75 (31.7%) of respondents had attended various kinds of emergency nursing seminars.

Table 2. Knowledge and Earthquake Disaster Preparedness for Nursing Students (n= 237)

Knowledge	Earthquake Disaster Preparedness		
	Poor(n=0)	Moderate (n=32)	High (n=205)
Poor	0	1 (3,1%)	7 (3,4%)
Moderate	0	8 (25%)	16 (7,8%)
High	0	23 (71,9)	182 (88,8%)

The results of the research analysis using the Chi Square test between knowledge and earthquake disaster preparedness obtained a value of  $\rho = 0.011$  ( $\rho = 0.05$ ) so that it was concluded that there was a relationship between the two variables. According to the static test measurements, data obtained from 182 (88.8%) students who had good knowledge with less preparedness. Knowledge is an important factor in earthquake disaster preparedness. Student experience in earthquake disaster preparedness is also very important to increase student preparedness in dealing with earthquake disasters in nursing students

## DISCUSSION

In general, the results of the research that has been conducted show that the majority of respondents have good knowledge about earthquake disasters. The results of this study are the same as the results of research conducted by previous researchers, namely by Rofifah, (2019) who examined the relationship between

knowledge level and disaster preparedness in nursing students at Diponegoro University Semarang. The level of student knowledge is usually influenced by several factors such as experience attending seminars, experience participating in disaster simulations, and formal or non-formal education (Fauzi et al., 2017). In this research data, most of the respondents had been involved in an earthquake disaster simulation that was held at the Hang Tuah Surabaya STIKES campus, but there were also respondents, especially in semester 2 respondents who had not participated in the earthquake disaster simulation activity.

This research is in line with research by Rofifah (2019) which states that the formation of knowledge, skills and attitudes that must be mastered by students as predetermined competency standards. Learning methods that have been applied such as seminars or lectures with earthquake disaster simulations as a learning evaluation process are easily understood by students. However, there is still limited access to information related to earthquake disasters in campus facilities such as booklets, posters and videos about earthquake disasters which attract students' interest to see and understand related disasters. With this in mind, there is still a need for more interesting learning media that will arouse students' interest in understanding earthquake disasters, therefore researchers will load interesting booklets so that students' interest in understanding more about earthquake disaster preparedness must be carried out either before or after disaster, researchers will also suggest showing videos related to earthquake evacuation at certain times.

Behavior that will last a long time is created with awareness related to knowledge and a positive attitude. Student awareness and willingness to learn is also one of the things that determines the level of knowledge each individual has. With this there is still a need to increase earthquake disaster preparedness for students. Several factors affect the level of earthquake preparedness, namely education, experience, age, environment, and economy (Novi, 2017). Most of the inaccuracies in the answers from respondents were in questions about how to take shelter during an earthquake, evacuation routes during an earthquake and efforts to restore environmental conditions after an earthquake.

Most of the respondents chose the answer how to take cover with the answer Protect (Cover), kneel (Drop), hold (Hold) the correct answer about how to take cover was Kneel (Drop), protect (Cover), hold (Hold), while for the question of the path earthquake evacuation many respondents misread the symbol so they are wrong in answering the question. This result shows that the awareness and willingness of STIKES Hang Tuah Surabaya students in dealing with earthquake disasters on campus is still lacking. Awareness about the dangers and risks of disasters both knowledge and potential impacts and losses have a major influence on the level of disaster preparedness (Husna, 2012). With other journals that are aligned with disaster education, the aim is to instill a responsive and responsive attitude, not just to know and understand about disasters (Setyowati, 2019). Thus the researchers strongly suggest to increase

the reading on disaster preparedness, especially earthquakes in the library such as illustrated booklets that explain campus evacuation routes in the event of an earthquake. The limitation in this study is data collection using a questionnaire via Google form which is distributed to class administrators, so it is possible for respondents to answer dishonestly but it is certain that the data provided is valid besides that the characteristics of the respondents have not been homogeneous regarding whether they have ever received a disaster nursing course.

## CONCLUSION

Based on the results of the research findings and the results of the tests that have been carried out, it can be concluded that the knowledge about the earthquake disaster of the majority of students is good. As for preparedness in dealing with earthquake disasters, the majority of respondents have a moderate level of preparedness. Thus it can be concluded that knowledge has a relationship with preparedness in dealing with earthquake disasters

## RECOMMENDATION

From this research, it can be recommended that all academics are very important to increase knowledge about disaster insight in learning and understanding self-rescue techniques during earthquake disaster situations. Some strategies that can be done are by participating in seminars and workshops as well as simulating self-rescue during a disaster. And for further research, other methods can be developed to increase insight and disaster preparedness as an act of earthquake disaster mitigation.

## REFERENCE

- BMKG (2021) ‘Gempa 6,7 SR di Malang Termasuk Gempa Dangkal’. Available at: <https://www.suarasurabaya.net/kelompok/akota/2021/bmkg-gempa-67-sr-di-malang-termasuk-gempa-dangkal/>.
- BNPB (2016) ‘Risiko Bencana Indonesia (Disasters Risk of Indonesia)’, *International Journal of Disaster Risk Science*, 22. Available at: <https://doi.org/10.1007/s13753-018-0186-5>.
- Budimanto (2017) ‘Hubungan Pengetahuan , Sikap Bencana Dan Keterampilan Basic Life Support Dengan Kesiapsiagaan Bencana Gempa Bumi Pada Mahasiswa Keperawatan Poltekkes Banda Aceh’, *Jurnal Ilmu Kebencanaan*, 4(2), pp. 53–58.
- Dewi, S. P. and Budi, S. (2018) ‘Earthquake And Tsunami Disaster Preparedness On Family With Children Disability’, III(3), pp. 215–222.
- Hartono, D. *et al.* (2021) ‘Analisis Sejarah, Dampak, Dan Penanggulangan Bencana Gempa Bumi Pada Saat Pandemi Covid-19 Di Sulawesi Barat’, *PENDIPA Journal of Science Education*, 5(2), pp. 218–224. doi: 10.33369/pendipa.5.2.218-224.
- Husna, C. (2012). Faktor-Faktor Yang Mempengaruhi Kesiapsiagaan Bencana Di RSUZA Banda Aceh. *Idea Nursing Journal*, 3(2), 17.
- Juanita, F., Suratmi, S. and Maghfiroh, I. L. (2018) ‘The Effectiveness of Basic Training on Disaster Management Pilot Program for Disaster Preparedness in Community’, *Indonesian Nursing Journal of Education and Clinic (Injec)*, 2(2), p. 126. doi: 10.24990/injec.v2i2.157.
- Mahsyar, A. *et al.* (2012) *Panduan Kampus Siaga Bencana*. 1st edn. Edited by D. Prasetyo and F. Malau. Jakarta: Palang Merah Indonesia.
- Manulu, H. and Elon, Y. (2019) ‘Peningkatan Kesiagaan Bencana Gempa Bumi Melalui Pendekatan Drilling’, *Jurnal Keperawatan Galuh*. doi: 10.25157/jkg.v1i2.2634.
- Novi, W. (2017). *Tingkat Kesiapsiagaan Keluarga Terhadap Bencana Banjir Di Kelurahan Nglorog Kecamatan Sragen Kabupaten Sragen*. issn 2580-297–299.
- MDC, T. (2016) *Keperawatan Kegawatdaruratan dan Manajemen Bencana*. 1st edn. Jakarta: Kementerian Kesehatan Republik Indonesia.
- Oktarina, Y., Nurhusna, N. and Saputra, M. A. A. (2019) ‘Implementation of Blended Learning Through Smartphone-Based Applications in Disaster in Nursing Courses’, *Indonesian Nursing Journal of Education and Clinic (Injec)*, 3(2), p. 113. doi: 10.24990/injec.v3i2.208.
- Pangesti, A. (2012) *Gambaran Tingkat Pengetahuan dan Aplikasi Kesiapsiagaan Bencana Pada Mahasiswa Fakultas Ilmu Keperawatan Universitas Indonesia*.
- Pratama, G. (2022) ‘Gempa Lagi, Kali Ini di Surabaya Sebesar 4,1 Magnitudo. CNBC Indonesia’, *CNBC Indonesia*.
- Randa, Y. (2016) ‘Peraturan Menteri Kesehatan’, (May), pp. 31–48.
- Rofifah, R. (2019). Hubungan antara pengetahuan dengan kesiapsiagaan bencana pada mahasiswa keperawatan universitas diponegoro skripsi. *Departemen Ilmu*



*Keperawatan Fakultas Kedokteran  
Universitas Diponegoro Semarang,  
2019, 1–124.*

Richter and Mercalli (2011) ‘Earthquake Scale’, *The Online Knowledge Magazine*. Available at: <http://mistupid.com/geology/richter.htm>.

Setyowati, D. L. (2019). Pendidikan Kebencanaan. *Urgensi Pendidikan Mitigasi Bencana*, 1–14.

Sungkawa, D. (2016) ‘Dampak Gempa Bumi Terhadap Lingkungan Hidup’, *Jurnal Geografi Gea*, 7(1). doi: 10.17509/gea.v7i1.1706.

Widyastuti, M. *et al.* (2021) ‘Motivasi dan Pengetahuan Relawan Tentang Penanggulangan Bencana’, *Jurnal Ilmiah Keperawatan Stikes Hang Tuah Surabaya*, 16(1), pp. 1–6.