

PERCEPTION OF NURSING STUDENTS TOWARD NATURAL DISASTER MANAGEMENT: A DESCRIPTIVE STUDY IN PADANG CITY

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Abstract

Understanding nursing students' perceptions of natural disaster management is essential to assess their preparedness for potential disasters in their environment. This study aimed to examine the perceptions of nursing students in Padang City regarding natural disaster management. A descriptive survey design was employed, utilizing proportional random sampling, with 288 respondents from Andalas University, Mercubaktijaya University, Alifah Padang University, and Syedza Saintika University, between March and April 2025. Data were collected using a demographic questionnaire and the Disaster Preparedness Evaluation Tool (DPET). The findings showed that most nursing students had a moderate level of perception regarding natural disaster management (85.8%). In specific phases, students demonstrated moderate perceptions in preparedness (66.7%), emergency response (92%), and recovery (76.4%). The study recommends that nursing education institutions in Padang City strengthen their curricula by integrating comprehensive disaster management content, implementing practical simulations, developing modules on post-traumatic stress disorder (PTSD) management, and establishing sustainable disaster preparedness programs to enhance student competence and readiness.

Keywords: disaster management, nursing students, perception, preparedness, Padang City

1. BACKGROUND

Natural disasters are catastrophic events caused by natural phenomena such as earthquakes, tsunamis, volcanic eruptions, floods, droughts, hurricanes, and landslides (BNPB, 2023). Among the provinces in Indonesia, West Sumatra is considered one of the most disaster-prone regions due to its location along the Pacific Ring of Fire, where the Eurasian and Indo-Australian tectonic plates converge (Effendy, 2023). This geographical position makes the region, particularly Padang City, highly susceptible to earthquakes, tsunamis, and volcanic activity, as it lies near the Mentawai and Semangko fault zones.

Padang City, the capital of West Sumatra Province, experiences frequent natural disasters. Data from

the Regional Disaster Management Agency (BPBD Kota Padang, 2023) show that in 2021 the city faced 24 floods, 11 landslides, one tornado, nine earthquakes, 29 droughts, and one case of coastal erosion. In 2022, similar patterns persisted, with 10 floods, 21 landslides, seven tornadoes, 33 earthquakes, four droughts, and one coastal erosion event recorded. These data highlight the urgent need to strengthen disaster preparedness at both institutional and community levels.

According to Law No. 24 of 2007 of the Republic of Indonesia, disaster management is a dynamic, continuous, and integrated process that includes prevention, mitigation, preparedness, emergency response, rehabilitation, and reconstruction. Assessing

perceptions of disaster management is essential for evaluating readiness, particularly among groups expected to play critical roles during disaster response. Nursing students represent one such group, as they are being prepared to provide professional health care not only in clinical settings but also during emergencies and disaster situations (Kanita, 2019). Nursing, by nature, is a flexible and adaptable profession that requires the ability to respond effectively in crises.

Nursing students play an essential role in natural disaster management, including providing first aid, supporting evacuations, and addressing urgent health needs (Yari, 2021). Therefore, they must possess sufficient knowledge, skills, and attitudes related to disaster preparedness, response, and recovery. Their understanding of these components influences how they behave and contribute to disaster risk reduction and response efforts.

Previous studies emphasize the importance of disaster preparedness among nursing students. Hasan et al. (2022) found that nursing students in Bangladesh lacked adequate knowledge and information to manage disasters such as earthquakes, floods, and tropical cyclones. Similarly, Kaviani et al. (2022) reported that nursing students in Western Iran demonstrated limited competence in handling disasters due to insufficient training and exposure. In Indonesia, Adriani et al. (2024) identified low levels of disaster management knowledge among nursing students, highlighting the need to integrate comprehensive disaster content into nursing curricula. Likewise, Tulungen et al. (2024) revealed that most nursing students in Bandung exhibited only a moderate level of awareness regarding

earthquake and landslide preparedness, suggesting a gap between theoretical knowledge and practical readiness. Moreover, Rahmat et al. (2023) noted that disaster literacy and preparedness during the emergency response phase remained low, indicating a lack of practical capability to manage crises effectively.

Despite the increasing frequency of disasters in Padang City, limited research has explored nursing students' perceptions and readiness toward natural disaster management in this region. Understanding these perceptions is vital for strengthening disaster education and developing targeted interventions in nursing curricula. Therefore, this study aims to examine the perceptions of nursing students in Padang City regarding natural disaster management as a basis for improving preparedness and resilience among future nurses.

2. METHODS

This research is quantitative in nature, using descriptive methods and a survey approach. This study aims to examine perceptions of natural disaster management among nursing students in Padang City. The population in this study consisted of 1,030 nursing students in Padang City, comprising the 2020 and 2021 cohorts from Andalas University, Mercubaktijaya University, Alifah Padang University, and Syedza Saintika University between March and April 2025. Sampling in this study was conducted using the *Proportional Random Sampling* technique, with a total sample of 288 nursing students. The instrument used was the *Disaster Preparedness Evaluation Tool*.

The Disaster Preparedness Evaluation Tool is an instrument used in this study to measure the stages of disaster management. This instrument,

created by Bond and Tichy in 2007, contains questions about the stages of disaster management applicable to all groups. It was then developed by Hasan et al. (2022) to assess the stages of disaster management in the field of nursing, especially the knowledge and skills of nursing students who will become professional nurses in the future. DPET questionnaire assessment uses a Likert scale with a score range of 1-5 for the provided answers. The answer options are: Strongly Agree (SS) is given a score of 5, Agree (S) is given a score of 4, Somewhat Agree (AS) is given a score of 3, Disagree is given a score of 2, and Strongly Disagree is given a score of 1.

This study has been registered with the Health Research Ethics Committee (KEPK) of the Faculty of Nursing, Andalas University, and has received ethical approval with the following ethical approval number: No. 515.layaketik/KEPKFKEPUNAND.

3. RESULT

The results study showed the characteristic demography and perception of nursing students in Padang City regarding natural disaster management.

Table 1 Frequency of Demographic Characteristics of Respondents (n=288)

Demographic Characteristics	f	%
Age		
21 years	66	22.9
22 years	96	33.3
23 years	92	31.9
24 years	33	11.5
25 years	1	0.3
Gender		
Male	26	9
Female	262	91
Academic Year		
2020	42	49.3
2021	146	50.7

Experience of Directly Facing Natural Disasters

Yes	262	91
No	26	9

Based on Table 1, it is evident that most students (33.3%) are 22 years old, with a majority of female students (91%), and the majority of academic years are from the 2021 batch (50.7%). Most respondents have experienced natural disasters directly (91%).

Table 2 Frequency Distribution of Nursing Students' Perception Levels in Padang City Across Disaster Management Phases (n = 288)

Phase / Question Item	Perception Level	f	%
Preparedness Phase (Overall)	Moderate	192	66.7
	Strong	96	33.3
Preparedness Subcomponents			
Natural Disaster Knowledge	Moderate	221	76.7
	Strong	67	23.3
Natural Disaster Skills	Moderate	45	15.6
	Strong	243	84.4
Family Preparedness	Weak	3	1.0
	Moderate	65	22.6
	Strong	220	76.4
	Weak	1	0.3
Emergency Response Phase (Overall)			
	Moderate	265	92.0
	Strong	22	7.6
Emergency Response Subcomponents			
Knowledge	Weak	5	1.7
	Moderate	268	93.1
	Strong	15	5.2
Patient Management	Weak	2	0.7
	Moderate	275	95.5
	Strong	11	3.8
Recovery Phase	Moderate	220	76.4

(Overall)			
	Strong	68	23.6
Recovery Subcomponents			
Knowledge	Moderate	89	30.9
	Strong	199	69.1
Recovery Phase Management	Weak	260	90.3
	Strong	28	9.7

Table 2 showed that nursing students in Padang City generally demonstrated a moderate perception across all phases of natural disaster management, preparedness, emergency response, and recovery. In the preparedness phase, two-thirds of the respondents (66.7%) had a moderate perception, while 33.3% had a strong perception. Within the subcomponents, the majority showed a strong perception in natural disaster skills (84.4%) and family preparedness (76.4%), though understanding of natural disaster knowledge remained moderate (76.7%). This indicates that while students possess practical

4. DISCUSSION

The findings of this study show that most nursing students in Padang City had a moderate perception of natural disaster management (85.8%), while only 14.2% demonstrated a strong perception. This pattern indicates that although nursing students are aware of the importance of disaster management, their understanding and confidence in implementing disaster management principles remain limited. These results are consistent with the study by Hasan et al. (2022), which found that most nursing students in Bangladesh had moderate levels of perception regarding disaster preparedness.

The moderate perception among students in this study may be influenced by various factors, including differences in the nursing curriculum

readiness and family-based awareness, their theoretical knowledge of disasters still requires reinforcement.

During the emergency response phase, most respondents (92.0%) demonstrated a moderate perception, with only 7.6% categorized as strong. Subcomponent analysis revealed that nearly all students perceived their knowledge (93.1%) and patient management (95.5%) abilities during emergencies at a moderate level, suggesting confidence in awareness but limited practical mastery.

In the recovery phase, 76.4% of students had a moderate perception and 23.6% had a strong perception. While their knowledge in recovery was relatively strong (69.1%), their perception of recovery phase management was weak for most (90.3%), reflecting limited understanding and experience in post-disaster care and rehabilitation processes.

among institutions, limited exposure to disaster management topics, irregular participation in training or simulations, and the lack of emphasis from educators on disaster preparedness. Although Padang City is located in a disaster-prone area frequently affected by earthquakes, tsunamis, and floods, students' understanding of disaster management is still not optimal, suggesting a gap between theoretical awareness and practical readiness.

In the preparedness phase, most students (66.7%) had a moderate perception, and 33.3% had a strong perception. While students showed strong skills (84.4%) and family preparedness (76.4%), their knowledge of disaster preparedness remained moderate (76.7%). These findings align with Tulungen et al. (2024), who reported that students tend to have

adequate readiness but lack in-depth theoretical understanding. The limited participation of students in continuing education, seminars, and simulations on disaster management contributes to this condition. As stated by Herawati and Putri (2023) and Kurniadi (2021), leadership and simulation-based training are essential components in strengthening nursing students' preparedness and their ability to make quick and accurate decisions in emergency situations.

In the emergency response phase, almost all students (92%) demonstrated a moderate perception, while only 7.6% had a strong perception. Most respondents had moderate knowledge (93.1%) and moderate perceptions of patient management (95.5%). Similar results were found by Martono et al. (2019), who noted that students' knowledge and confidence during the emergency response phase were generally moderate. This limited confidence may stem from a lack of hands-on experience and reliance on supervision-based learning, where students are accustomed to following instructions rather than taking independent decisions. Consequently, nursing students may feel uncertain about leading evacuation efforts or managing patients without direct supervision from a doctor. To address this issue, nursing education should integrate scenario-based simulations and leadership exercises to enhance self-efficacy, autonomy, and decision-making skills in disaster situations.

In the recovery phase, most students also had a moderate perception (76.4%), and only 23.6% had a strong perception. Although knowledge related to post-disaster recovery was relatively high (69.1%), students' understanding of recovery

management was still low (9.7%). This finding supports Martono et al. (2019), who explained that nurses in Indonesia often lack clarity about their roles in post-disaster rehabilitation.

Furthermore, many nursing students in this study expressed low confidence in managing psychological problems such as acute stress and post-traumatic stress disorder (PTSD). More than half (56.2%) felt unprepared to manage PTSD using a multidisciplinary approach. Hasan et al. (2022) also found similar challenges among nursing students in Bangladesh, who were less confident in identifying and managing post-disaster psychological disorders. This may result from limited collaboration with mental health professionals, minimal practical experience, and a lack of training related to psychosocial recovery. Including structured modules on mental health, PTSD assessment, and multidisciplinary coordination in the nursing curriculum is crucial to strengthen students' ability to handle long-term post-disaster care.

When viewed from demographic characteristics such as age, gender, year of study, and disaster experience, the results consistently show moderate perception levels. Although students with direct disaster experience tended to have slightly stronger perceptions, the difference was not significant, suggesting that experience alone does not guarantee competency without systematic education and practice. These findings highlight the need for integrating comprehensive disaster management education into the nursing curriculum, especially in disaster-prone regions like Padang City.

Educational institutions are encouraged to implement continuous training, interprofessional simulations, and leadership development programs

to enhance the readiness of nursing students in all disaster management phases, preparedness, response, and recovery, so they can become competent, confident, and responsive nurses in future disaster events.

5. CONCLUSION

The results of this study indicate that most nursing students in Padang City demonstrated a moderate perception of natural disaster management (85.8%). Across all phases preparedness, emergency response, and recovery- students consistently showed moderate levels of perception, suggesting that while they recognize the importance of disaster management, their understanding and practical readiness remain limited. In the preparedness phase, 66.7% of students had a moderate perception, reflecting adequate awareness but limited participation in training and simulations. Similarly, during the emergency response and recovery phases, 92% and 76.4% of students, respectively, displayed moderate perceptions, highlighting the need for stronger confidence, leadership, and psychosocial competence in real disaster contexts.

These findings emphasize the importance of enhancing disaster-related education in nursing curricula. Nursing students should receive comprehensive and practical training that integrates simulation-based learning, interprofessional collaboration, and community engagement to strengthen their readiness across all disaster phases. Moreover, nurses should be equipped with psychosocial care competencies and evidence-based interventions, such as progressive muscle relaxation and psychological first aid, to manage stress and trauma during post-disaster

recovery. Strengthening these aspects will help produce nursing graduates who are not only clinically competent but also resilient, adaptive, and capable of leading effective disaster response efforts in their communities.

REFERENCES

- Addiarto W & Yunita R. (2019). *Textbook on Disaster Management and Strategies for Creating Disaster-Ready Campuses from a Nursing Perspective*. Takalar: Yayasan Ahmar Cendekia Indonesia.
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*. Washington, DC: American Psychiatric Publishing.
- Meteorology, Climatology, and Geophysics Agency. (2023). *Information on El Niño-Southern Oscillation*. Accessed on 30 October 2024
<https://iklim.bmkg.go.id/id/enso/>
- Meteorology, Climatology, and Geophysics Agency. (2020). *Earthquake Statistics in West Sumatra*. Jakarta: BMKG.
- National Disaster Management Agency. (2024a). *Disaster Data*.
<https://gis.bnpb.go.id/>
- National Disaster Management Agency. (2024b). *Indonesian Disaster Information Data*.
<https://dibi.bnpb.go.id>
- Padang City Disaster Management Agency. (2023). *Disaster Data for the Last 10 Years*.
<https://bpbd.padang.go.id/publikasidata/kategori/Bencana>
- CFE-DM. (2018). *Disaster Management Reference Handbook*. Hawaii: Center for Excellence in Disaster Management & Humanitarian Assistance.

- Donsu Tine D.J. (2022). *Nursing Methodology*. Yogyakarta: Pustaka Baru Press.
- Grimes, A., Sparke, V., Rouen, C., & West, C. (2020). Preparedness and resilience of student nurses in Northern Queensland, Australia for disasters. *International Journal of Disaster Risk Reduction*, 48(1), 1–6.
- Hasan, M. K., Uddin, H., & Younos, B.T. (2022). Bangladeshi Nursing Students' Perceived Preparedness and Readiness for Disaster Management. *International Journal of Disaster Risk Reduction*, 8(1), 2–15.
- Herawati, T., & Putri, A. F. (2023). Disaster Preparedness of Nurses in Referral Hospitals in Disaster-Prone Areas in Indonesia: A Descriptive Study. *Journal of Bionursing*, 5(2), 128-137.
- Hidayat R. (2018). *Geography of Natural Disasters: Theory and Practice in Indonesia*. Yogyakarta: Andi Publishers.
- Kurniadi, A. (2021). The Role of the Nursing Profession in Disaster Management in Indonesia. *IPS Education*, 5(2), 46–55.
- Martono, S., Nursalam, E., F., & Bushy, A. (2019). Indonesian Nurses' Perception of Disaster Management Preparedness. *Chinese Journal of Traumatology*, 22(1), 41–46.<https://doi.org/10.1016/j.cjtee.2018.09.002>
- Mujiyati. (2023). *Textbook on Natural Disaster Management*. Lombok: Indonesian Center for Education and Research Development.
- Notoatmodjo, S. (2018). *Health Research Methodology*. Jakarta: Rineka Cipta.
- Tulungen, A. A., & Rantung, J. A. G. (2024). Preparedness of Indonesian Adventist University Nursing Students in Disaster Management. *Nutrix Journal*, 8(1), 48–56.
- Law of the Republic of Indonesia No. 24 of 2007. (2007). *Law of the Republic of Indonesia No. 24 of 2007 on Disaster Management*. Law.