Knowledge and Self-Efficacy of Nursing Students in Disaster Management at Port Said Faculty of Nursing

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ABSTRACT

Background: Disasters pose global challenges to healthcare systems, and nurses are key frontline responders. Their effectiveness relies on their disaster management knowledge and self-efficacy. **Aim of the Study:** To evaluate knowledge and self-efficacy of nursing students in disaster management at port said faculty of nursing, Egypt. **Subjects and Method:** A convenience sample and descriptive cross-sectional design was employed, involving all 648 students from the four academic levels at the Faculty of Nursing, Port Said University. **Data collection tools** included the Disaster Management Knowledge Questionnaire and the Disaster Response Self-Efficacy Scale. **Results:** The study found that nursing students had a strong understanding of disaster types (Mean ± SD = 1.99 ± 0.94), moderate knowledge of disaster management (Mean ± SD = 8.33 ± 3.14), and lower knowledge of preventive and rehabilitation measures (Mean ± SD = 3.13 ± 1.62). Overall, 53% of students showed average knowledge, 45.7% scored unsatisfactorily, and only 0.8% achieved satisfactory knowledge. Regarding self-efficacy, 54.9% demonstrated positive self-efficacy, 39.4% had negative self-efficacy, and 5.7% showed moderate confidence. Moreover, a statistically significant positive correlation ($r = 0.137$, $p < 0.001$) was found between knowledge and self-efficacy. **Conclusion:** The study highlights a notable gap in disaster preparedness among nursing students, with a considerable proportion exhibiting only moderate knowledge. Although more than half reported high self-efficacy, a significant percentage still struggled with low confidence in their disaster response abilities. **Recommendations:** The findings emphasize the need for targeted educational interventions to improve both knowledge and confidence in disaster response, ensuring better preparedness for future nurses.

Keywords: Disaster Management, Knowledge, Nursing Students, Self-Efficacy.

INTRODUCTION

In recent years, the world has witnessed a noticeable rise in the frequency and severity of both natural and man-made disasters, highlighting nurses' indispensable role in disaster preparedness and response. Given their future role as frontline healthcare providers, nursing students must be adequately prepared with both theoretical knowledge and a strong sense of self-efficacy to effectively manage disaster situations. Consequently, incorporating disaster nursing education into undergraduate curricula has become increasingly essential (Veenema et al., 2020).

self-efficacy, defined by Bandura (1997) as believing one can achieve what one sets out to do results in a healthier, more effective, and generally more successful life. one’s belief in their ability to perform specific tasks, is a key factor influencing a student's willingness and readiness to act in disaster scenarios. Higher levels of self-efficacy have been consistently associated with improved clinical decision-making, greater resilience, and more effective performance in crisis settings (Kim & Choi, 2022). Disaster knowledge has emerged as a vital component in preparing nursing students for emergency response. This includes understanding various disaster types, appropriate response strategies, and the specific roles that nurses play during relief efforts (Hermansyah et al., 2023; Hasan et al., 2024). Research consistently links higher self-efficacy in disaster response to increased confidence and readiness, even if the actual level of preparedness remains unchanged (Ciris Yildiz & Yildirim, 2022; Hung et al., 2021).

The growing number of global disasters has profoundly impacted economies, environmental safety, and human health. The World Health Organization (2022) reported that over 2.6 billion people have experienced natural disasters such as earthquakes, tsunamis, landslides, storms, heat waves, floods, and extreme cold over the past decade alone. Despite increasing global recognition of the importance of disaster preparedness, there remains significant variation in how disaster-related content is integrated into nursing curricula across different countries. Therefore, assessing nursing students’ current level of knowledge and self-efficacy is crucial for identifying educational gaps and informing the development of targeted interventions to enhance disaster readiness.

In the Egyptian context, interest in integrating disaster management into nursing education has grown, particularly in response to recent regional health emergencies. However, existing evidence suggests that many Egyptian nursing students still lack sufficient knowledge and demonstrate low confidence in their ability to respond effectively to disaster situations (Saleh et al., 2023). This deficiency is often attributed to limited curricular coverage, inadequate practical training opportunities, and the absence of structured inter-professional education.

Although some nursing faculties in Egypt have initiated disaster preparedness programs, often supported by governmental or international bodies, a unified and comprehensive approach is still lacking. Hence, there is a pressing need to enhance the educational infrastructure through curriculum reform, faculty development, and the incorporation of simulation-based training to foster students' self-efficacy and readiness in disaster response.

Crucially, nurses occupy a central role across all phases of disaster management, including mitigation, preparedness, response, and recovery. As the largest sector of the healthcare workforce, they are often the first responders and remain on the frontlines throughout the duration of a crisis. Their responsibilities span a wide range of critical functions, such as triage, emergency care, mental health support, care coordination, and health education (International Council of Nurses [ICN], 2022). To perform these duties effectively, nurses must be equipped not only with clinical competence but also with the ability to make rapid decisions, communicate clearly, and operate in high-stress, resource-limited environments.

Therefore, investing in disaster preparedness education is not merely beneficial; it is essential. Empowering nursing students through structured training and realistic simulation exercises enhances their confidence, builds their capacity, and ensures they are well-prepared to respond with competence and compassion when disasters occur. Encouragingly, more recent evidence suggests that students who express a desire for disaster-related education tend to report higher self-efficacy levels, emphasizing the beneficial impact of targeted training on confidence and response capabilities (Imdat & Tastan, 2023).

Significance of the Study

The frequency and severity of both natural and man-made disasters have risen dramatically in recent years, leading to widespread destruction of economies, communities, and public health systems, particularly in developing countries (WHO, 2022). Egypt is under mounting pressure from climate-induced water insecurity, deadly floods, and a surging refugee influx. By April 2023, over 255,000 Sudanese crossed the border, adding to 6 million migrants from 65 nations. With 104.4 million citizens, Egypt ranks 15th globally in population, intensifying strains on security, economy, and resources (IFRC, 2023).

Disaster readiness is essential. As frontline responders, nurses play a pivotal role in crisis management. Equipping nursing students with strong knowledge, skills, and confidence is vital for effective disaster response. Identifying gaps in their preparedness is key to advancing future education and training strategies. To address this pressing need, this study aim to evaluate knowledge and self-efficacy of nursing students in disaster management at port said faculty of nursing.

AIM OF THE STUDY

This study aimed to evaluate knowledge and self-efficacy of nursing students in disaster management at port said faculty of nursing through

the following objectives:

1. To assess the nursing students' knowledge about different types of disasters and appropriate response strategies.
2. To assess self-efficacy of nursing students in responding to disaster situations.
3. To identify the factors influencing the preparedness of nursing students in disaster management, including the impact of curriculum and training opportunities.

SUBJECTS AND METHOD

Study Design:

Descriptive cross-sectional design.

Setting:

The study was carried out at the Faculty of Nursing, Port Said University, Egypt. The faculty is located on Al-Arabi Street and Al-Ittihad Street, across from Choban Al-Muslimeen. The faculty is housed in a single building with five floors, which includes various educational laboratories and lecture classrooms.

Study Subjects:

The study subjects consisted of nursing students enrolled in all four levels at the Faculty of Nursing, Port Said University. The ***inclusion criteria*** for participants were nursing students who were enrolled in the academic program at the Faculty of Nursing, had completed at least one semester of the nursing program, and were willing to participate in the study by providing informed consent. There were no ***exclusion criteria*** applied in this study to ensure that comprehensive representation of target population.

Sample Size:

The target population for this study included all students in the four levels of the Faculty of Nursing, Port Said University, with a total population of N=648.

Sampling strategy:

A convenience sampling method was employed due to practical considerations beyond logistical constraints, including political instability, which frequently disrupts academic schedules, making probability sampling difficult (Aryuwat et al.2022); and ensuring a high response rate (95.8%), capturing a broad representation of nursing students across different academic years

Data Collection Tools:

To collect data for this study, two main tools were used to achieve the purpose of the current study as follows:

Tool I: Disaster Management Knowledge Questionnaire:

This tool, originally developed in English by Arun Jothi (2015) and translated into Arabic language adapted for use in the current study, aimed to assess the nursing students' understanding of disaster-related concepts, their response strategies, and their overall readiness to handle emergency situations in their future healthcare roles. The questionnaire was divided into five sections, each focusing on different aspects of disaster management knowledge.

Section 1: Demographic Information for Nursing Students

The first section collected basic demographic data about the students, including their age, gender, academic level, place of residence, prior participation in disaster training courses, and the duration of these courses. This information helped provide context for understanding the participants' backgrounds and previous exposure to disaster management concepts.

Section 2: Concept of Disasters

This section assessed the students' understanding of the concept of disasters. It comprised 11 multiple-choice questions designed to evaluate their ability to define and distinguish between various types of disasters. This section was crucial for determining whether students had a solid foundational knowledge of what constitutes a disaster and its impact on public health and safety.

Section 3: Types of Disasters

Section 3 included three multiple-choice questions that assessed the students' knowledge of natural disasters, slow-onset disasters, and man-made disasters. These questions aimed to gauge the students' understanding of the different categories of disasters and their ability to identify examples of each.

Section 4: Disaster Management

This section contains 19 multiple-choice questions focused on the core aspects of disaster management, including preparedness, response, recovery, and mitigation. The goal was to evaluate the students' knowledge and comprehension of the critical stages in disaster management, encouraging a comprehensive approach to handling disaster situations effectively.

Section 5: Preventive and Rehabilitative Measures for Disasters

The final section comprised seven multiple-choice questions aimed at evaluating the students' knowledge of preventive and rehabilitative measures that can be implemented during and after a disaster. This section was designed to assess their understanding of the strategies and actions necessary to reduce disaster risks and aid in recovery efforts.

The scoring system:

For each question, a score of 1 was given for a correct answer, while a score of 0 was assigned for an incorrect answer. The students' overall performance was then categorized into three levels: a score between 76-100% was classified as ***Satisfactory***, indicating a strong grasp of disaster management concepts; a score between 51-75% was considered Average, reflecting ***moderate*** knowledge; and a score of 50% or below was deemed ***Unsatisfactory***, indicating inadequate understanding of the subject matter.

Tool (II): The Disaster Response Self-Efficacy Scale (DRSES):

The Disaster Response Self-Efficacy Scale (DRSES), developed by Cruz et al. (2022) in its Arabic version, is a 5-point Likert scale designed to assess nursing students' confidence in their ability to respond effectively during disaster situations. This scale specifically measures students' self-assurance in their readiness and competence to handle various aspects of disaster response. The scale consists of 19 items, which are categorized into three subscales: On-site rescue self-efficacy, psychological nursing self-efficacy in disasters, and Quality of the role taken on in disasters and adaptation competence. These subscales aim to evaluate students'

abilities across different disaster response domains, including physical rescue operations, psychological care, and overall adaptability to disaster scenarios.

The scoring system:

The scoring system for the Disaster Response Self-Efficacy Scale (DRSES) is structured on a 5-point Likert scale, where each item is rated from 1 to 5. A score of 1 signifies "Have no confidence at all," 2 means "Basically have no confidence," 3 represents "Have a little confidence," 4 indicates "Basically have confidence," and 5 reflects "Have complete confidence." To calculate the total score for each participant, the frequency of each response selected is multiplied by its corresponding Likert scale value. The cumulative score helps determine the overall level of self-efficacy in disaster response, with higher scores reflecting a greater perceived ability to effectively manage and respond to disaster situations. The higher the total score, the greater the students' perceived ability to effectively respond to disasters.

Tool 1: Face Validity:

Face validity was assessed by a jury of five experts in the field of family and community health nursing. These experts reviewed the Disaster Management Knowledge Questionnaire to determine if the items appeared relevant, clear, and appropriate for assessing the nursing students' knowledge of disaster management. Their feedback helped refine the questionnaire, ensuring that it addressed the key concepts and areas related to disaster preparedness and response.

Reliability:

Tool 1:

To assess the internal consistency and reliability of the questionnaire, Cronbach's alpha (α) coefficient was calculated. The value of Cronbach's α was found to be 0.90, indicating a high degree of reliability in the questionnaire. A value of 0.9 is considered excellent, demonstrating that the tool consistently measures the intended concepts with a high level of consistency across different participants.

Tool 2:

The reported overall Cronbach's α coefficient for the disaster response self-efficacy scale was 0.939 (Cruz et al., 2022).

Field Work

The study was conducted among nursing students at the Port Said Faculty of Nursing to assess their knowledge and perceived self-efficacy in disaster preparedness. Two primary instruments were employed for data collection: the Disaster Management Knowledge Questionnaire and the Disaster Response Self-Efficacy Scale. These tools were distributed to the students, who completed them independently. Throughout the process, the researcher was available to provide procedural clarification without influencing participants' responses. Data collection was carried out over four months, from November 2023 to February 2024, to accommodate students' academic schedules and ensure a satisfactory response rate.

Prior to initiating the main data collection, a pilot study was conducted to assess the clarity, feasibility, and internal consistency of the tools. Ethical considerations were carefully observed: informed consent was obtained from each participant, participation was voluntary, and students were assured of the confidentiality of their responses. Furthermore, it was emphasized that their participation would have no impact on their academic performance. To ensure unbiased responses, each questionnaire was completed individually.

Pilot study

A pilot study was conducted on 10% (62 students) of the study sample to assess the clarity of the tools, identify potential problems that may arise during data collection, and evaluate the clarity of the questions. Additionally, the pilot study aimed to examine the applicability, reliability, and feasibility of the tools. The subjects included in the pilot study were selected randomly and excluded from the main study sample.

Ethical Considerations:

Approval was obtained from the Scientific Research Ethics Committee at the Faculty of Nursing, Port Said University, with approval reference number NUR (4/5/2025) (49). Permission was also sought from the Dean of the Faculty of Nursing to conduct the study. The study's purpose was clearly explained to all participants to ensure they understood its significance. Confidentiality and anonymity were maintained, and all collected data were used solely for research purposes. Participation was entirely voluntary, and individuals had the right to withdraw from the study at any time without any consequences.

Administrative design

Before starting the study, we obtained official permission from the Dean of the Faculty of Nursing at Port Said University to conduct the research. Verbal consent was also received from all participating students after a clear explanation of the study's purpose and significance, emphasizing that their participation was entirely voluntary.

Statistical Design:

Data was collected, tabulated, and analyzed using an IBM-compatible personal computer with the SPSS statistical package version 24.0 (IBM Corp., Armonk, NY). Quantitative data with normal distribution were analyzed using the student’s t-test for comparisons between two groups Additionally, Pearson’s correlation coefficient was employed to examine the relationships between variables related to disaster preparedness. For categorical variables, the Odds Ratio (OR) was calculated to determine the strength of association between significant risk factors, with a 95% confidence interval (CI). A p-value of less than 0.05 was considered statistically significant.

RESULTS

Table 1 revealed that 52.5% of the nursing students were male, and 53.4% were older than 20 years, with a mean age of 20.48 ± 1.62 years. Additionally, 31.2% of the students were in their third academic year. Notably, 90.0% reported that they had never participated in any disaster training course. Among those who had received training, 10.0% had attended disaster preparedness courses, and 35.4% reported participating in a three-day course.

Table 2 illustrates the students' knowledge of disaster management, focusing on the concept of disaster. Students demonstrated a relatively high level of knowledge, with the total score (Mean ± SD = 6.48 ± 1.88) showing a statistically significant difference (p = 0.001). Similarly, the types of disasters were another area where students showed considerable understanding, as reflected by the total score (Mean ± SD = 1.99 ± 0.94) and statistical significance (p = 0.004).

Furthermore, the analysis of disaster management revealed that students have a moderate understanding of the topic, with a total score (Mean ± SD = 8.33 ± 3.14) showing statistical significance (p = 0.000). In addition, students demonstrated knowledge regarding preventive and rehabilitation measures, although their understanding was slightly less pronounced, with a total score (Mean ± SD = 3.13 ± 1.62) showing statistical significance (p = 0.003).

Figure (1): This bar chart indicates that slightly over half of the participants, 53%, possess an average level of knowledge, while a substantial proportion, 45.7%, falls into the unsatisfactory category (≤50%). Notably, only 0.8% achieve a satisfactory level (76–100%).

Table 3 displays student distribution based on the Disaster Response Self-Efficacy Scale (DRSES). Notably, the highest confidence levels were evident in several key competencies. For instance, 36.9% of students demonstrated complete confidence in identifying vulnerable groups, such as chronic patients and individuals with disabilities, indicating strong awareness of at-risk populations. Additionally, a substantial proportion exhibited confidence in recognizing and addressing common

post-disaster psychological issues (e.g., PTSD, depression), with 39.5% reporting a little confidence and 24.5% being basically confident.

Furthermore, 34.1% of students reported complete confidence in evaluating epidemic risks following disasters, including infectious diseases and acute poisoning, an essential skill for public health preservation during crises. In a similar vein, 34.0% showed complete confidence in assessing disaster impact and injuries. Although communication skills showed some variation, 38.0% of students still reported a little confidence in effectively engaging with team members and victims' families.

Figure 2 demonstrates that 54.9% of students exhibited positive self-efficacy (scores >3), indicating a confident perception of their ability to respond to disaster situations. In contrast, 39.4% of students showed negative self-efficacy (scores <3), reflecting uncertainty or lack of confidence in their disaster response capabilities. Additionally, only 5.7% of students reported a neutral or "basically confident" level of self-efficacy (score =3), representing a small proportion with moderate confidence. These differences in self-efficacy levels were found to be statistically significant ($p < 0.041$).

Table 4 reveals that most personal variables did not show a statistically significant association with knowledge level, except for gender. While students under 20 years of age had the highest proportion of unsatisfactory knowledge (52.7%), the association between age and knowledge level was not statistically significant ($p=0.251$). Similarly, academic grades and place of residence showed no significant relationships with knowledge acquisition ($p = 0.601$ and $p=0.769$, respectively.

Notably, a significant association was found between gender and knowledge level ($p = 0.004$), as female students were more likely to possess average or satisfactory knowledge compared to their male counterparts. Furthermore, although a small number of students had attended disaster training courses, neither the number of courses attended, nor their duration significantly influenced knowledge level ($p > 0.05$).

Table 5 demonstrates the association between students' personal characteristics and their self-efficacy levels regarding disaster preparedness. Among all variables, academic grade and place of residence showed statistically significant relationships with self-efficacy ($p = 0.0001$ and $p = 0.013$, respectively). Notably, third-year students exhibited the highest level of positive self-efficacy 67.8%, while fourth-year students had the highest negative self-efficacy 55.4%, indicating that academic progression may influence students' confidence in disaster response.

Additionally, students living at home reported more positive self-efficacy 58.6% compared to those in dormitories 45.2%, suggesting that the living environment may play a role in shaping attitudes toward disaster preparedness. Although gender and age did not show statistically significant associations ($p > 0.05$), male students had a slightly higher positive self-efficacy rate 57.1% than females 52.6%. Furthermore, students who had participated in disaster training demonstrated a higher level of positive self-efficacy 63.1% than those who had not 54.0%, though the difference was not statistically significant ($p = 0.167$).

Table (6): reveals correlation between nursing students' self-efficacy and their knowledge was weakly positive, with a correlation coefficient of ($r = 0.137$, $p < 0.001$).

Table (1): Distribution of the nursing students studied according to their personal characteristics (N = 648).

Items	No.	%
Age		
<20	169	26.1
20	133	20.5
>20	346	53.4
Mean ± SD.	20.48 ± 1.62	
Gender		
Male	340	52.5
Female	308	47.5
Academic grades		
Grade 1	159	24.5
Grade 2	103	15.9
Grade 3	202	31.2
Grade 4	184	28.4
Living arrangement		
Home	394	60.8
Dormitory	217	33.5
Other	37	5.7
Receiving training on disaster		
Yes	65	10.0
No	583	90.0
Duration of training (n = 65)		
One day	17	26.2
3days	23	35.4
One weak	14	21.5
More than one weak	11	16.9
Number of courses (n = 65)		
One	50	76.9
Two	11	16.9
More than two	4	6.2

SD: **Standard deviation**

Table (2): Total Mean Scores of Students' Knowledge on Disaster Management (N = 648)

Items	Mean ± SD.	T	P
Concept of disaster			
Total score (0 – 11)	6.48 ± 1.88	5.21	0.001*
Average Score (0 – 1)	0.59 ± 0.17	4.78	0.002*
Types of disaster			
Total score (0 – 3)	1.99 ± 0.94	3.45	0.004*
Average Score (0 – 1)	0.66 ± 0.31	2.98	0.006*
Disaster management			
Total score (0 – 19)	8.33 ± 3.14	6.12	0.000*
Average Score (0 – 1)	0.44 ± 0.17	5.07	0.001*
Preventive and rehabilitation measures			
Total score (0 – 7)	3.13 ± 1.62	4.33	0.003*
Average Score (0 – 1)	0.45 ± 0.23	3.89	0.005*

SD: **Standard deviation** **t: Paired t-test**
*: Statistically significant at $p \leq 0.05$

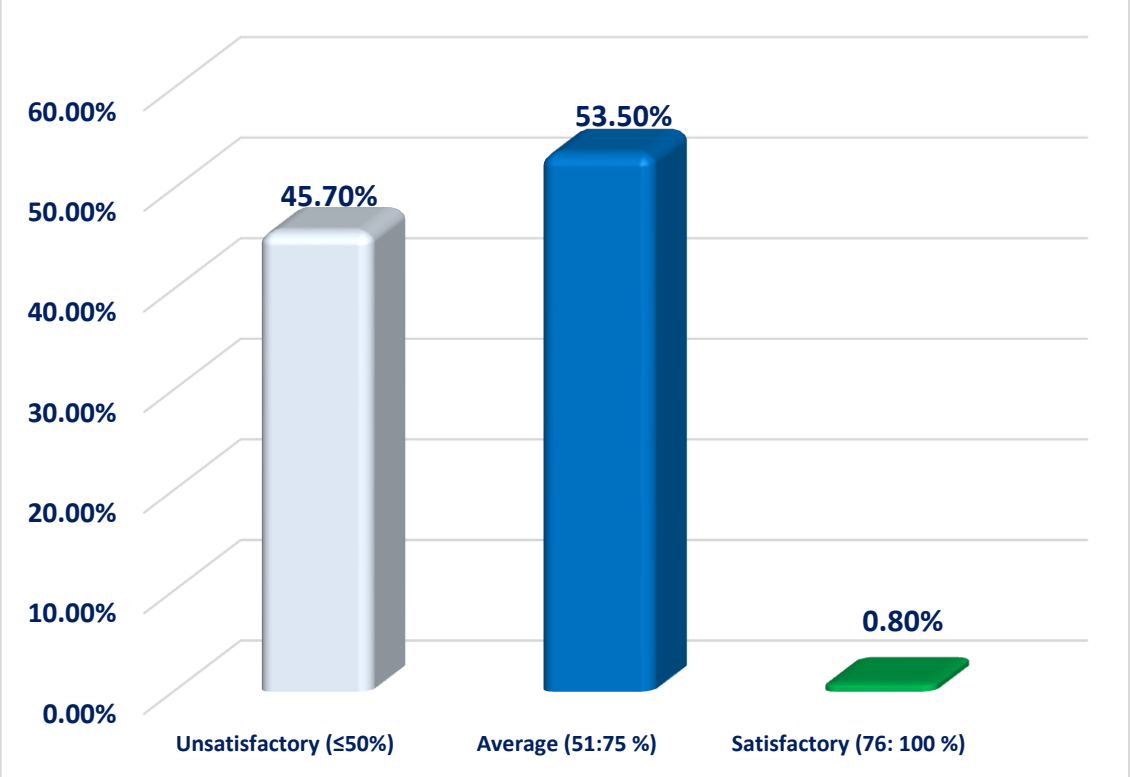

Figure (1): Distribution of the students studied according to overall knowledge (N = 648).

Table (3): Distribution of the students studied according to The Disaster Response Self-Efficacy Scale (DRSES) items (N = 648).

Items	Have no confidence at all		Basically have no confidence		Have a little confidence		Basically have confidence		Have complete confidence	
	No.	%	No.	%	No.	%	No.	%	No.	%
Assess disaster impact and injuries	86	13.3	126	19.4	235	36.3	145	22.4	56	8.6
Evaluate epidemic risks (e.g., infectious diseases, poisoning)	62	9.6	137	21.1	270	41.7	116	17.9	63	9.7
Identify vulnerable groups (e.g., chronic patients, disabled)	61	9.4	134	20.7	261	40.3	138	21.3	54	8.3
Apply triage techniques	51	7.9	70	10.8	246	38.0	185	28.5	96	14.8
Perform debridement, hemostasis, bandaging, splinting	68	10.5	108	16.7	240	37.0	164	25.3	68	10.5
Facilitate lifting and transfer of patients	67	10.3	114	17.6	199	30.7	169	26.1	99	15.3
Apply emergency rescue techniques (BLS)	87	13.4	98	15.1	220	34.0	163	25.2	80	12.3
Provide intensive care for critically ill patients	64	9.9	121	18.7	214	33.0	164	25.3	85	13.1
Prevent and control infectious diseases in disaster areas	54	8.3	126	19.4	240	37.0	146	22.5	82	12.7
Conduct initial psychological assessments	48	7.4	124	19.1	233	36.0	153	23.6	90	13.9
Recognize and address common post-disaster psychological issues (e.g., PTSD, depression)	60	9.3	88	13.6	256	39.5	159	24.5	85	13.1
Provide basic psychological treatment	40	6.2	148	22.8	205	31.6	176	27.2	79	12.2
Refer victims needing psychiatric care	46	7.1	118	18.2	214	33.0	189	29.2	81	12.5
Adjust psychologically and adapt to the work environment	58	9.0	120	18.5	229	35.3	171	26.4	70	10.8
Communicate effectively with team members and patients' families	45	6.9	127	19.6	246	38.0	164	25.3	66	10.2
Maintain professional ethics, empathy, and humanitarian values	52	8.0	105	16.2	200	30.9	202	31.2	89	13.7
Assess disaster impact and injuries	47	7.3	73	11.3	188	29.0	220	34.0	120	18.5
Evaluate epidemic risks (e.g., infectious diseases, poisoning)	33	5.1	76	11.7	193	29.8	221	34.1	125	19.3
Identify vulnerable groups (e.g., chronic patients, disabled)	26	4.0	38	5.9	167	25.8	178	27.5	239	36.9

MH: Marginal Homogeneity Test
p: p value for comparing between pre and post
*: Statistically significant at $p \leq 0.05$

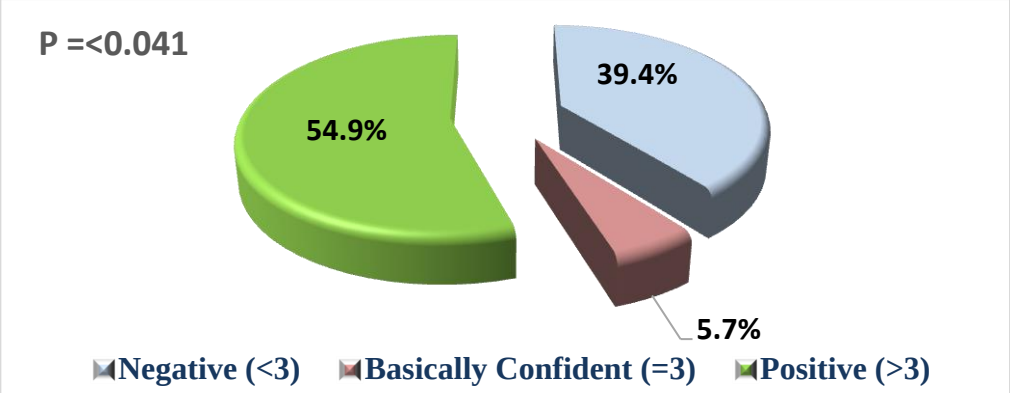

Figure (2): Distribution of the students studied according to overall self-efficacy (N = 648).

Table (4): Relation between level of knowledge and personal characteristics (n = 648).

Personal Characteristics	Unsatisfactory (n = 296)		Average (n = 347)		Satisfactory (n = 5)		χ^2(p)
	No.	%	No.	%	No.	%	
Age							
<20	89	52.7	77	45.6	3	1.8	5.37 (0.251)
20	55	41.4	77	57.9	1	0.8	
>20	152	43.9	193	55.8	1	0.3	
Gender							
Male	193	56.8	145	42.6	2	0.6	11.02 (0.004*)
Female	103	33.4	202	65.6	3	1.0	
Academic grades							
grade 1	85	53.5	72	45.3	2	1.3	2.74 (0.601)
grade 2	45	43.7	57	55.3	1	1.0	
grade 3	87	43.1	113	55.9	2	1.0	
grade 4	79	42.9	105	57.1	0	0.0	
Where Living in							
Home	172	43.7	218	55.3	4	1.0	1.82 (0.769)
Dormitory	103	47.5	113	52.1	1	0.5	
Other	21	56.8	16	43.2	0	0.0	
Disaster Training Course							
Yes	**33**	**50.8**	**31**	**47.7**	**1**	**1.5**	0.67 (0.716)
No	263	45.1	316	54.2	4	0.7	
Duration of course (n = 65)	**(n = 33)**		**(n = 31)**		**(n = 1)**		
One day	6	35.3	11	64.7	0	0.0	4.12 (0.248)
3days	10	43.5	12	52.2	1	4.3	
One weak	11	78.6	3	21.4	0	0.0	
More than one weak	6	54.5	5	45.5	0	0.0	
Number of courses (n = 65)	**(n = 33)**		**(n = 31)**		**(n = 1)**		
One	26	52.0	24	48.0	0	0.0	3.58 (0.466)
Two	6	54.5	4	36.4	1	9.1	
More than two	1	25.0	3	75.0	0	0.0	

χ^2: **Chi-square test** MC: **Monte Carlo**
p: p-value for comparison between the studied categories
*: Statistically significant at $p \leq 0.05$

Table (5): Relation between level of Self-Efficacy and personal characteristics (N = 648).

Personal Characteristics	Negative (n = 255)		Basically Confidence (n = 37)		Positive (n = 356)		χ^2(p)
	No.	%	No.	%	No.	%	
Age							
<20	68	40.2	13	7.7	88	52.1	1.894 (0.387)
20	47	35.3	11	8.3	75	56.4	2.410 (0.299)
>20	140	40.5	13	3.8	193	55.8	1.821 (0.402)
Gender							
Male	124	36.5	22	6.5	194	57.1	1.392 (0.497)
Female	131	42.5	15	4.9	162	52.6	1.053 (0.592)
Academic grades							
grade 1	60	37.7	13	8.2	86	54.1	2.351 (0.309)
grade 2	43	41.7	6	5.8	54	52.4	0.388 (0.823)
grade 3	50	24.8	15	7.4	137	67.8	20.773 (0.0001*)
grade 4	102	55.4	3	1.6	79	42.9	17.945 (0.0001*)
Where Living in							
Home	140	35.5	23	5.8	231	58.6	2.601 (0.272)
Dormitory	107	49.3	12	5.5	98	45.2	8.681 (0.013*)
Other	8	21.6	2	5.4	27	73.0	5.084 (0.079)
Disaster Training							
Yes	**24**	**36.9**	**0**	**20.0**	**41**	**63.1**	3.571 (0.167)
No	231	39.6	37	6.3	315	54.0	1.095 (0.577)
Duration of course (n = 65)	**(n=24)**		**(n=0)**		**(n=41)**		
One day	9	52.9	–	–	8	47.1	1.391 (0.501)
3days	6	26.1	–	–	17	73.9	3.710 (0.157)
One weak	5	35.7	–	–	9	64.3	0.982 (0.612)
More than one weak	4	36.4	–	–	7	63.6	0.352 (0.838)
Number of courses (n = 65)	**(n=24)**		**(n=0)**		**(n=41)**		
One	22	44.0	0	0.0	28	56.0	3.096 (0.213)
Two	1	9.1	0	0.0	10	90.9	5.674 (0.058)
More than two	1	25.0	0	0.0	3	75.0	0.701 (0.705)

χ^2: **Chi-square test** MC: **Monte Carlo**
p: p-value for comparison between the studied categories
*: Statistically significant at $p \leq 0.05$

Table (6): Correlation between knowledge and self-efficacy (N = 648)

Knowledge vs. self-efficacy	r	*P**
	0.137	<0.001

r: Pearson correlation coefficient
**P*: Statistically significant at $p \leq 0.05$.

DISCUSSION

In today's world, communities face growing vulnerability to a variety of hazards that may evolve into full-scale disasters. Such events place immense pressure on healthcare systems, underscoring the vital role nurses play in disaster response and management (Abou Hashish & Banoona, 2023). As key healthcare providers, nurses are crucial in promoting effective disaster preparedness. Therefore, it is essential to equip both nursing students and professionals with the necessary knowledge and skills to respond effectively in emergency situations (Kaviani et al., 2022). Considering this, the present study aimed to assess knowledge and self-efficacy related to disaster preparedness among students at the Port Said Faculty of Nursing.

The study included a sample of 648 nursing students from the Faculty of Nursing. The majority were male and above the age of 20, with an average age of approximately 20 years. Most participants were in their third academic year. A large portion of the students had not previously attended any disaster training courses, while a smaller group had participated in disaster preparedness programs, including some who attended a three-day course.

The results of the present study illustrated that most students had a good understanding of the concept of disasters, as evidenced by a statistically significant mean score of 6.48 ± 1.88 ($p = 0.001$). In addition, students demonstrated a solid grasp of the types of disasters, with a mean score of 1.99 ± 0.94, also showing statistical significance ($p = 0.004$).

In contrast, their understanding of preventive and rehabilitation strategies appeared to be less developed, as indicated by a lower mean score of 3.13 ± 1.62 ($p = 0.003$). The majority of students had no prior exposure to disaster preparedness training, and only a small portion reported having participated in such programs, including short-term courses.

These findings align with those of Abou Hashish and Banoona (2023), who conducted a study named *"Assessment of Nursing Students' Readiness and Perception Toward Disaster Management"* in Saudi Arabia. Their results revealed that 88.5% of

nursing students had not previously participated in disaster training, and only 11.5% had received any form of disaster education. Moreover, while the students demonstrated a satisfactory level of knowledge regarding disaster concepts and types (67.3%), their awareness of preventive and recovery measures remained relatively limited.

From the researcher's perspective, the findings of this study highlight the importance of improving disaster preparedness within nursing education. There should be a focus not just on enhancing theoretical knowledge, but also on strengthening practical skills through simulation exercises, field-based drills, and interdisciplinary training. These efforts are crucial in equipping future nurses with both the confidence and capability to respond effectively in real-life disaster situations.

The findings of this study indicate that just over half of the participants demonstrate an average level of knowledge, reflecting a moderate understanding of the topic. However, a significant portion of the participants, approximately half, fall into the unsatisfactory category, highlighting a notable gap in their disaster management knowledge. Notably, only a small minority of the participants achieved a satisfactory level of knowledge, further emphasizing the need for more robust disaster preparedness training in nursing education.

These findings align with the study by Seaton (2020), named "*Educating Nursing Students for Cultural Competence in Emergencies: A Randomized Controlled Trial"*, in the United Kingdom. The study found that about 45% of nursing students demonstrated improvement in cultural competence during emergencies, but the overall preparedness remained suboptimal, with nearly 40% of participants still exhibiting inadequate preparedness. This highlights the need for comprehensive disaster preparedness education, beyond just cultural competence, to better equip nursing students for emergency situations.

From the researcher's perspective, the results emphasize the need for targeted interventions in nursing education. The integration of interactive learning methods,

such as disaster simulations and scenario-based training, is essential for enhancing students' practical skills and their readiness for real-world disasters. This approach will help bridge the gap between theoretical knowledge and actual preparedness, ensuring that nursing students are better prepared to handle emergencies.

Regarding confidence levels in disaster management competencies, slightly more than one-third of the students reported complete confidence in identifying vulnerable groups, such as individuals with chronic illnesses and disabilities. In terms of recognizing and managing common post-disaster psychological issues like PTSD and depression, about one-quarter of the students felt confident, while a larger proportion, roughly two-fifths, expressed moderate confidence, indicating a fair level of preparedness in this area.

Likewise, nearly one-third of the students showed full confidence in evaluating epidemic risks, including infectious diseases and acute poisoning, as well as in assessing disaster-related injuries, both essential skills for effective disaster response. On the other hand, communication skills appeared to be less developed; a considerable group, slightly more than one-third, reported having only limited confidence in interacting with team members and victims' families.

This study is congruent with the findings of Gautam et al. (2021), titled *"Disaster Preparedness and Self-Efficacy in Nursing Students: A Multicenter Study in India."* The study reported that more than one-third of nursing students in India demonstrated high confidence in identifying at-risk populations and addressing psychological issues following disasters. However, consistent with the current study, nearly half of the participants expressed low confidence in essential disaster response skills such as communication and injury management. Notably, over two-fifths of the students indicated a lack of confidence in effectively engaging with team members and patients during emergencies, highlighting a critical area for improvement in disaster preparedness education.

The findings of the current study align with those reported by Suh et al. (2020) in South Korea, in their study titled *"Self-Efficacy and Disaster Response Preparedness in Undergraduate Nursing Students,"* published in the *Journal of*

Nursing Education and Practice. Their research found that nearly one-third of nursing students demonstrated strong confidence in clinical evaluation during disasters. However, fewer than one-quarter felt adequately prepared to provide emotional support and communicate effectively with victims and team members, reinforcing the communication and psychosocial preparedness gaps observed in the present study.

From the researcher's viewpoint, these findings also underline the necessity for hands-on training and simulation-based learning in nursing curricula. Focusing on enhancing students' practical confidence, particularly in areas such as communication and teamwork, can significantly improve their readiness for real-world disaster response.

The findings of the present study revealed that just over half of the nursing students demonstrated a positive level of self-efficacy in disaster response, indicating a confident perception of their ability to handle disaster situations. In contrast, a little less than two out of every five students exhibited low self-efficacy, reflecting uncertainty or a lack of preparedness. Additionally, only a small fraction, fewer than one in ten, reported a moderate or neutral level of confidence in their disaster response capabilities. These variations were found to be statistically significant, underscoring the uneven distribution of confidence among students.

These results are consistent with those of Suh et al. (2020), in their study titled "Self-Efficacy and Disaster Response Preparedness in Undergraduate Nursing Students", conducted in South Korea. In that study, approximately 33% of students showed strong confidence in their ability to clinically assess disaster situations, while fewer than 25% (around 24%) reported feeling adequately prepared to provide emotional support or communicate effectively with victims and teams during a disaster, paralleling.

In a similar vein, Gupta et al. (2021) in their study titled "Nursing Students' Disaster Preparedness and Self-Efficacy in India: A Cross-Sectional Study", found that over 40% of nursing students reported confidence in managing clinical

assessments during disaster situations, while less than 20% felt equipped to handle communication with victims and interdisciplinary teams.

From the researcher's perspective, the results emphasize that nursing education should focus on improving both clinical skills and communication abilities. Scenario-based simulations and interdisciplinary exercises are valuable methods to boost students' confidence, providing them with the necessary skills and mindset to effectively handle disaster situations.

The study revealed that among the various personal characteristics examined, academic grade and place of residence were the only factors significantly associated with self-efficacy in disaster preparedness ($p = 0.0001$ and $p = 0.013$, respectively). Specifically, third-year students showed the highest levels of positive self-efficacy, with nearly three-quarters reporting confidence in their ability to handle disaster situations.

In contrast, over half of the fourth-year students exhibited negative self-efficacy, suggesting a lack of confidence despite their more advanced academic stage. Regarding their place of residence, students living at home showed higher levels of self-efficacy, with more than half reporting a positive outlook. On the other hand, students residing in dormitories demonstrated lower confidence, with less than half expressing positive self-efficacy.

These findings align with those reported by Kim and Park (2023) in their study titled “Determinants of Disaster Preparedness Self-Efficacy among Korean Nursing Students: A Cross-sectional Analysis,” conducted in South Korea. Their study found that both academic level and living arrangement significantly impacted self-efficacy in disaster preparedness. Students in their third academic year exhibited the highest levels of confidence, with 68.2% expressing strong self-efficacy.

Additionally, students living with their families showed more positive self-efficacy (61.4%) compared to those living in dormitories. However, consistent with

the present study, gender and age did not show a significant association with self-efficacy, although male students slightly outperformed females.

From the researcher's perspective, the weak correlation between knowledge and self-efficacy observed in this study suggests that simply improving disaster preparedness knowledge may not directly enhance self-efficacy. This highlights the need for integrated educational strategies that build both knowledge and confidence. Practical simulations, experiential learning, and emotional support are critical components to ensure nursing students are fully prepared, both technically and psychologically, for disaster response.

CONCLUSION

Our findings reveal a notable gap in disaster management knowledge among nursing students, with almost half of them falling short of competency standards. While some students exhibited confidence in their ability to respond to disasters, a significant number lacked self-assurance. Given the critical role nurses play in disaster management, it is essential to integrate specialized disaster preparedness training into nursing curricula to ensure students are better equipped to handle such situations.

RECOMMENDATION

Based on the findings of this study, the following recommendations are proposed to enhance disaster preparedness knowledge and self-efficacy among nursing students:

- Implement Simulation-Based Training – Use realistic drills and high-fidelity simulations to improve practical skills.
- Conduct Regular Drills – Partner with healthcare institutions for large-scale disaster response exercises.
- Build Psychological Resilience – Provide mental preparedness training to boost confidence in crisis situations.

- Engage with Communities – Involve students in public disaster awareness and education programs.

Further studies were recommended to:

Future research should explore the impact of simulation-based training on disaster preparedness, track long-term knowledge retention through longitudinal studies, and compare preparedness levels across institutions. Investigating the role of psychological resilience in disaster response confidence and assessing the effectiveness of Virtual Reality (VR),Augmented Reality (AR), and e-learning in training can enhance education methods.

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معرفة وكفاءة طلاب التمريض الذاتية في إدارة الكوارث بكلية التمريض جامعة بورسعيد

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الخلاصة

الخلفية :الكوارث، سواء كانت طبيعية أو من صنع الإنسان، تشكل تحديات كبيرة لأنظمة الرعاية الصحية على مستوى العالم. يعد مستوى الاستعداد داخل هذه الأنظمة عاملاً حاسماً في ضمان استجابة فعّالة للأزمات. يُعدّ الممرضون والممرضات من المستجيبين الرئيسيين في خط المواجهة، وتُؤثّر فعاليتهم في حالات الكوارث بشكل كبير على معرفتهم وكفاءتهم الذاتية في إدارة الكوارث. **هدف الدراسة** :تقييم معرفة وكفاءة ممرضات المستقبل فيما يخص إدارة الكوارث لدى طلاب كلية التمريض، جامعة بورسعيد، مصر.**طرق البحث**: تم استخدام عينة ملائمة وتصميم بحثي وصفي مقطعياً، استهدف جميع الطلاب البالغ عددهم 648 طالباً، المسجلين عبر المستويات الأربعة في كلية التمريض، جامعة بورسعيد. شملت أدوات جمع البيانات استبيان معرفة إدارة الكوارث ومقياس الكفاءة الذاتية للاستجابة للكوارث. **النتائج** :أظهرت الدراسة أن طلاب التمريض لديهم فهم قوي لأنواع الكوارث (متوسط ± انحراف معياري = 1.99 ± 0.94)، ومعرفة متوسطة بمفاهيم إدارة الكوارث (متوسط ± انحراف معياري = 8.33 ± 3.14)، ومعرفة أقل حول التدابير الوقائية والتأهيلية (متوسط ± انحراف معياري = 3.13 ± 1.62). بشكل عام، أظهر 53% من الطلاب مستوى معرفة متوسط، بينما حصل 45.7% على درجات غير مرضية، وحقق 0.8% فقط مستوى معرفة مرضي. بالنسبة للكفاءة الذاتية، أظهر 54.9% من الطلاب كفاءة ذاتية إيجابية، في حين كان 39.4% لديهم كفاءة ذاتية سلبية، و5.7% أظهروا ثقة معتدلة. علاوة على ذلك، وُجد ارتباط إيجابي ذو دلالة إحصائية بين المعرفة والكفاءة الذاتية ($r = 0.137, p < 0.001$). **الاستنتاج:** تبرز الدراسة فجوة ملحوظة في استعداد طلاب التمريض للكوارث، حيث يظهر نسبة كبيرة منهم معرفة متوسطة أو غير كافية. رغم أن أكثر من نصف الطلاب أبلغوا عن كفاءة ذاتية عالية، إلا أن نسبة كبيرة لا تزال تكافح مع قلة الثقة في قدراتهم على الاستجابة للكوارث. **التوصيات :**تبرز النتائج الحاجة إلى تدخلات تعليمية مستهدفة لتحسين المعرفة والثقة في الاستجابة للكوارث، مما يضمن استعدادًا أفضل للممرضين والممرضات في المستقبل.

الكلمات المرشدة **:** إدارة الكوارث، المعرفة، طلاب التمريض، الكفاءة الذاتية