

Article

Learning Method with Table-top Disaster Exercise Can Improve Nursing Students' Knowledge and Skill: Literature Review

I Putu Juni Andika¹, Tri Yahya Christina², Safaruddin³, Lilik Sriwiyati⁴

¹⁻⁴Departement of Nursing, Sekolah Tinggi Ilmu Kesehatan Panti Kosala, Indonesia

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CORRESPONDENCE

E-mail: juniputudtd@gmail.com

A B S T R A C T

Nurses must now strengthen their duties as disaster nurses in emergency response due to the rising frequency of disasters. This scenario can be addressed by improving nursing students' initial readiness through disaster education; hence, this proposal calls for new approaches to creative and successful disaster learning. Simulation using a Tabletop Disaster Exercise (TDE) is one of the suggested teaching strategies. The objective of this research is to determine whether the TDE learning method can enhance nursing students' knowledge. This literature uses inclusion and exclusion criteria, articles obtained, reviewed, and obtained from databases, namely, Google Scholar (2020–2024), PubMed (2020–2024), and Wiley Online Library (2020–2024). The search strategy with terms used in English is as follows: TDE and Nursing Student and Knowledge. The year the literary source is taken from 2020 until 2024. Search strategy with the keyword “TDE and Knowledge and skill and nursing student,” and in Bahasa Indonesia “metode dan TDE dan pengetahuan dan keterampilan dan mahasiswa keperawatan.” This is to make sure all the articles obtained are relevant and appropriate, then the full text is downloaded and saved. The initial identification of titles and abstracts in PubMed received 118 articles, in Wiley Online Library received 136 articles, and in Google Scholar received 4,311 articles, totaling 4,565 articles. The results of the literature review from 13 articles state that the TDE method can significantly improve nursing students' knowledge and skills in disaster management. All the discussed articles state that the use of tabletop disaster training media among nursing students in the context of disaster nursing can enhance their knowledge and skills. In addition, they can also experience it as if it were the real world.

I. INTRODUCTION

Natural disasters are predicted to occur almost daily worldwide; the most significant incident occurred in the Asia Pacific region, accounting for 40% of all catastrophes worldwide, with 80% of victims hailing from the region (Su et al., 2022). One Asian nation that is situated in

a region that is prone to natural disasters is Indonesia. These findings support the necessity for nurses to provide disaster nursing in emergency response, in compliance with the International Council of Nursing's (ICN) (Kerr et al., 2021). According to Fong & Fong, (2023), the position positions nurses as front-line or direct care providers who can actively

assist in the treatment of victims during disaster response in an effort to lessen the impact of potential casualties. In many developing nations, such as Indonesia, the emergency response management of catastrophe victims is subpar, which presents a problem for nurses (Putra et al., 2021).

One reason for the aforementioned circumstances is that nursing schools do not fully utilize their capacity to impart nursing students' information and abilities in disaster victim care. Accordingly, when they volunteer after a disaster, the majority of nursing graduates lack the necessary knowledge and abilities (Suprayitno et al., 2020).

Disaster early education for nursing students is now the best way to enhance the knowledge and abilities of nurses, according to (Fathoni et al., 2022) It is anticipated that giving nursing students early education will improve their understanding of how to manage actual emergency response victims. This can only be accomplished by using the simulation method, which is a suitable learning approach. In order to teach emergency response, Tabletop Disaster Exercise (TDE) is one simulation technique that has been created and adjusted using a communicative medium.

Method of simulation According to (Tjahjono, 2022), TDE is a simulation technique that uses media in the form of a map image of a catastrophic incident on a flat board or table (tabletop) along with disaster scenarios. It then involves role-playing all participants to solve issues pertaining to victim management in disaster response in accordance with previously created scenarios. In order to effectively and efficiently provide for catastrophe victims, TDE is therefore particularly useful when applied to emergency situations in disaster management.

This study aims to determine whether the Table-top disaster exercise learning method can improve the knowledge and skills of nursing students.

II. MATERIAL AND METHODS

The strategy used is to collect journals as sources for literature research using the websites The PubMed Journal, Willey Online Library, and Google Scholar. The reference years for the literature are from 2020 to 2024. The search strategy uses the keywords "Learning methods" AND "Table-top disaster exercise" AND "knowledge OR skills" AND "nursing students". This is to ensure that all articles are relevant and compatible so that the full text can be downloaded and saved.

Screening

PubMed received 418,738 articles after first identifying their titles and abstracts, followed by 34,229 articles from Wiley Online Library and 4,400 items from Google Scholar, totaling 457,367 articles. This study found 752 articles after filtering based on titles and abstracts. For a total of 189 articles, the researchers conducted a review of the entire text category, leaving 553 items and excluding 199 items because they did not meet the criteria. Each article was then independently reviewed according to the inclusion criteria. The final stage of the subsequent articles received 13 articles.

Inclusion criteria and exclusion

The following inclusion criteria were used in the selected literature review:

1. Original research (performed by the original journal or researcher)
2. Research on table-top disaster exercises to improve nursing students' knowledge and skills
3. Articles from 2020 to 2024
4. Available in English
5. Full text

The following exclusion criteria were used for selection of the literary study below:

Publications are not original and such letters are editorial and not only the summaries and editorials. Search algorithms (Page et al., 2021).

METHODS

Review literataure

There are various stages in the selection process. The first stage involves evaluating the acceptance of results using inclusion and exclusion criteria. In the second stage, related to selection criteria, we select original research publications from journals that have undergone the peer-review process, published between 2020 and 2024 in English. This study does not include literature review articles. The PRISMA 2009 flow diagram provides an illustration of the selection and refinement procedures of the research. The subjective assessment of experts regarding the methodological quality of the deleted dataset. The main focus of this research review is how table-top disaster exercises can enhance the knowledge and skills of nursing students. We initially understood our results to correct this interpretation. Figure 1 depicts a summary of the search procedure

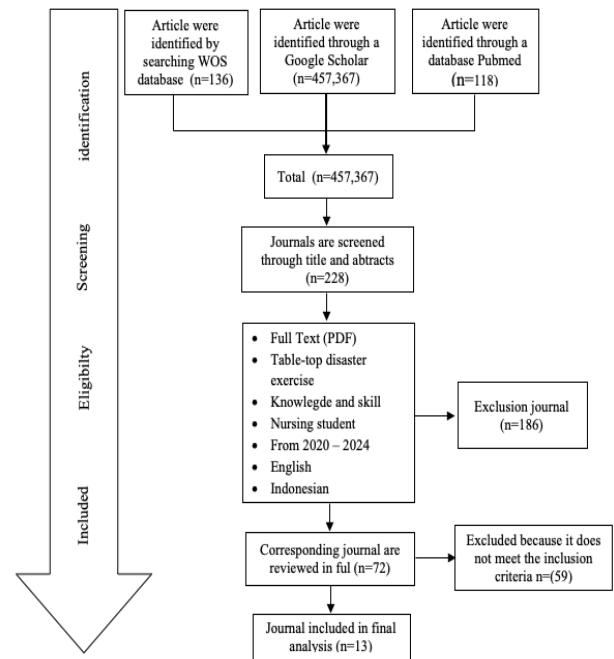


Figure 1: PRISMA

Table 1. Study Characteristic

No	Study	Method/Research Design	Sample	Intervension	Outcome Measusres	Result
1.	Sholihah et al., (2020)	A quasi-experimental	104 nursing student	Pretest-posttest nonequivalent control group	Comparing TDE and educational films in enhancing flash flood disaster preparedness	This study shows that there is a significant TDE learning outcome, demonstrating an increase in knowledge and skills among AhliMadiyah Nursing students in disaster preparedness compared to disaster education films.
2.	Husna et al., (2020)	quasi-experimental	80 nursing student	One-group pre and post-test	Evaluating the effects of Table-top disaster in improving the knowledge, skills, and attitudes of nursing students in disaster simulations.	Table-top disaster intervention is an effective hands-on learning method to enhance the competencies, knowledge, and skills of nursing students in disaster response.
3.	Chiang et al., (2020)	cross-sectional	161 nursing student	Task Based Checklist	Identifying competencies in Hazmat disaster emergency response and factors affecting performance in tabletop exercises.	Tabletop disaster exercise is an innovative method for disaster nursing educators that significantly enhances knowledge, skills, and attitudes.
4.	Mirzaei et al., (2020)	quasi-experimental	74 nursing student	pre-post intervention, and follow-up	the effect of lecture method and lecture-tabletop exercise method on nurses' readiness to face natural disasters.	This finding emphasizes the positive effects of tabletop disasters on the knowledge, skills, and preparedness of nurses for natural disasters.
5.	Evans et al., (2023)	designed disaster dan scenario tabletop exercise	129 nursing student	Intruments exercise skenario.	Evaluating the level of basic knowledge, disaster skills, and attitudes of nursing students about tabletop disasters	Nursing students possess knowledge, skills, and a positive attitude in tabletop disaster learning.
6.	Cha & Lee, (2023)	pre-experimental	29 sample	one-group pre-test-post-test design	This study develops and evaluates a tabletop disaster program for	The tabletop exercise training program effectively enhances nurses'

					training nursing students.	competencies as well as their knowledge and skills.
7.	Vimal Krishnan et al., (2023)	Experimental and epidemiological	76 nursing student	Pretest/Posttest (without control)	The impact of the online tabletop exercise workshop on knowledge, skills, and confidence in disaster preparedness among nursing students	This study explains the positive impact of online tabletop exercise-based workshops on disaster preparedness training, significantly enhancing the knowledge and skills of nursing students.
8.	(Chew et al., 2023)	Cros-Sectional	113 student	Game tabletop exercise disaster	comparing perceptions of interaction engagement and behavioral intentions to use a newly developed board game with a tabletop exercise for disaster training.	This study shows that tabletop exercise games encourage interactive engagement, indicating an improvement in the knowledge and skills of nursing students.
9.	Hamdi & Al Thobaity, (2023)	Quantitative	101 student	Pre-post design	aims to enhance knowledge and skills in crisis management and triage during mass casualty incidents with tabletop disaster.	The results show the effectiveness of the training, with the tabletop disaster, most participants achieved a high level of knowledge and good skills in the posttest.
10.	Hung et al., (2020)	Qualitative descriptive	280 nursing student	Focus group interview	Exploring the experiences, perceptions, knowledge, and skills of nursing students regarding learner-centered tabletop disaster education in disaster nursing courses.	This finding provides a deeper understanding of knowledge and skills related to tabletop disasters, thereby encouraging motivation and engagement among nursing students.
11.	Aliakbari et al., (2022)	quasi-experimental	50 nursing student	Intervention and control groups using random number assignment software.	Designing a disaster preparedness training program and testing its impact on competency levels such as cognitive	This study provides evidence of the need and potential positive impact of enhancing knowledge to skills through

					and psychomotor skills among nursing students.	disaster education opportunities with tabletop exercises for nursing students.
12.	Liou et al., (2020)	Cross-Sectional	102 nursing student	questionnaires	Determining the predictive relationship between knowledge and tabletop disaster skills competencies of Taiwanese nursing students.	The results of this study enhance knowledge, skills, and understanding of the factors correlated with nursing students' motivation to participate in tabletop exercise disaster events.
13.	Yasin & Chaerani, (2024)	quasi-experimental	60 nursing student	non-equivalent control group. It included two treatment groups	knowing about Tabletop Disaster Exercise (TDE) Simulation Media to Enhance Nursing Students' Knowledge and Triage Skills for Disaster Victims.	The TDE method is effectively applied in enhancing preparedness as well as knowledge and skills. Additionally, this method can boost confidence and understanding of roles in disaster preparedness.

Methodological Characteristic

From 13 reviewed articles, 8 articles use quasi-experimental (Aliakbari et al., 2022; Cha & Lee, 2023; Husna et al., 2020; Mirzaei et al., 2020; Sholihah et al., 2020; Vimal Krishnan et al., 2023; Yasin & Chaerani, 2024; Hamdi & Al Thobaity, 2023), 3 articles use cross-sectional (Chiang et al., 2020; Hung et al., 2020; Liou et al., 2020), 1 article using qualitative (Hung et al., 2020), and 1 article using classroom disaster-scenario tabletop exercise (Evans et al., 2023).

Intervention Method

From 13 reviewed articles, 8 articles used pretest and posttest intervention (Aliakbari et al., 2022; Cha & Lee, 2023; Hamdi & Al Thobaity, 2023; Husna et al., 2020; Mirzaei et al., 2020; Sholihah et al., 2020; Vimal Krishnan et al., 2023; Yasin & Chaerani, 2024), 2 articles using questionnaires (Evans et al., 2023; Liou et al., 2020), 1 article using task based checklist (Chiang et al., 2020), 1 article using game tabletop exercise disaster (Chew et al., 2023), and 1 using article focus group interview (Hung et al., 2020).

III. RESULT

There are 13 articles reviewed in table 1, There are 13 articles reviewed in Table I, all of which indicate that learning media using tabletop disaster exercises have a positive effect on nursing students' knowledge and skills related to disaster management (Aliakbari et al., 2022; Cha & Lee, 2023; Chew et al., 2023; Chiang et al., 2020; Evans et al., 2023; Hamdi & Al Thobaity, 2023; Hung et al., 2020; Husna et al., 2020; Liou et al., 2020; Mirzaei et al., 2020; Sholihah et al., 2020; Vimal Krishnan et al., 2023; Yasin & Chaerani, 2024).

This study explains the positive impact of online tabletop exercise-based workshops on disaster preparedness training, significantly enhancing the knowledge and skills of nursing students (Vimal Krishnan et al., 2023). Tabletop disaster exercise is an innovative method for disaster nursing educators that significantly enhances knowledge, skills, and attitudes (Chiang et al., 2020).

IV. DISCUSSION

In total, there are 13 articles of literature review, and these 13 articles stated the following significant results, among other: Based on the research Sholihah et al.,(2020), This study shows that there is a significant TDE learning outcome, demonstrating an increase in knowledge and skills among Ahli Madaiah Nursing students in disaster preparedness compared to disaster education films. According to Husna et al., (2020), Table-top disaster intervention is an effective hands-on learning method to enhance the

competencies, knowledge, and skills of nursing students in disaster response.

The conclusion of this study supports the idea that tabletop disaster exercise media is a useful tool in educational media. Healthcare professionals in the medical, paramedic, and related fields are the target audience for this assessment of how well tabletop disaster exercises enhance knowledge and skills. Instructional topics, intervention duration, nature of control or comparison groups, and features of tabletop disaster exercises vary across different studies. Although the populations and tabletop disasters differ, each study quantitatively compares

changes in knowledge and/or skills, with or without comparison groups.

The accessibility offered by tabletop disaster is one of the benefits of nursing education through tabletop compared to traditional methods. It is important to note that tabletop disaster, when used as a tool to enhance knowledge and skills, can provide access to educational content anywhere and anytime without adding new items to the pocket. Additionally, the high incidence of disasters, students demonstrate that this TDE media has the potential to be used in higher education in the field of nursing.

A study by Cha & Lee, (2023), The findings of this study indicate that disaster tabletop simulation exercises are an effective evaluative and educational method that helps nurses acquire integrative clinical knowledge and skills that cannot be learned in "real life.". The results show the effectiveness of the training, with the tabletop disaster, most participants achieved a high level of knowledge and good skills in the posttest. According to Hamdi & Al Thobaity, (2023), The results show the effectiveness of the training, with the tabletop disaster, most participants achieved a high level of knowledge and good skills in the posttest. The TDE method is effectively applied in enhancing preparedness as well as knowledge and skills. Additionally, this method can boost confidence and understanding of roles in disaster preparedness. Enhance knowledge, skills, and understanding of the factors correlated with nursing students' motivation to participate in tabletop exercise disaster events (Liou et al., 2020; Yasin & Chaerani, 2024).

context of disaster nursing can enhance their knowledge and skills. In addition, they can also experience it as if it were the real world.

V. CONCLUSION

All the discussed articles state that the use of tabletop disaster training media among nursing students in the

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