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Health Education Model in Disaster Situations: Systematic Review

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ABSTRACT

Background: Communities affected by disasters often lack the necessary knowledge and skills to handle emergency health issues. To address this, effective health education models are essential in enhancing community preparedness and response. To provide effective and efficient recommendations on health education models in disaster situations.
Method: This study was a systematic review that gathered multiple studies using the PRISMA flow. Relevant keywords have been used, and articles were collected from various databases, including PubMed, Science Direct, and Scopus. The studies were collected from June to July 2024.
Result: Out of 4,363 articles found, 19 were selected for further analysis. Health education in disaster situations can improve individual knowledge and skills to protect themselves, prevent disease, and support public health. This education was conducted in pre-disaster, during disaster, and post-disaster.
Conclusion: In the pre-disaster phase, health education focuses on mitigation and preparedness through counseling reinforced by simulations, training, and role-playing. In the disaster phase, media such as digital devices, educational boards, and booklets disseminate information. In the post-disaster phase, health education focuses on restoring and maintaining emotional stability and community safety and addressing trauma-induced stress through health counseling and play. However, the results of this study do not cover the needs of marginalized or special needs groups, so further research is needed to understand how health education models can further adapt to different cultural contexts, especially in the emergency response phase of disasters.

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INTRODUCTION

Natural and non-natural disasters can cause physical, social, economic, and environmental injuries, significantly affecting public health. To meet the health needs of affected communities, a rapid and organized response is required in disaster situations (1). However, affected communities often lack the necessary knowledge and skills to address emergency health issues, especially in evacuation shelters. Therefore, accurate and appropriate health information and education are needed to prevent broader health problems. Unfortunately, providing health services and education is often hampered by resource shortages, infrastructure challenges, and limited access to health information in disaster-affected areas (2).

Educational programs enable communities to acquire information and skills to protect themselves, prevent disease, and promote health during and after disasters. Additionally, these programs can reduce mental distress, strengthen self-healing, and build hope for life, particularly for vulnerable groups affected by disasters (3). However, current health education models are often fragmented and unresponsive to these issues. Although several studies have

demonstrated the effectiveness of health education programs in improving community disaster preparedness, limited research comprehensively covers all disaster phases. Most studies only focus on one particular phase, such as pre-disaster or post-disaster. This highlights the need for a more integrated approach to ensure that communities have the necessary knowledge and skills to deal with the various health challenges that arise before, during, and after disasters.

Therefore, this study aims to fill this gap by systematically reviewing various disaster health education models implemented in multiple countries, including Indonesia. By identifying best practices and gaps, this research is expected to significantly contribute to developing more effective and sustainable health education programs in Indonesia.

METHOD

This systematic review collects several studies based on the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) guidelines provided by the Cochrane Collaboration Handbook for Systematic Review.

Research Questions

Table 1. The research question is formulated using the PICO format (Population, Intervention, Comparison, Outcome)

P: Population	The population in this study comprises communities at risk of disaster impact.
I: Intervention	Communities at risk of disaster impact who receive health education.
C: Comparison	Communities at risk of disaster impact who do not receive health education.
O: Outcome	Recommendations for a health education model in disaster situations.

Search Strategy

Studies were collected from various databases, such as PubMed, Science Direct, and Scopus, using advanced search and Boolean operators (AND/OR). Keywords were adapted to align with Medical Subject Headings (MeSH) terms to identify all relevant terminology (Figure 1). Studies were gathered from June to July 2024.

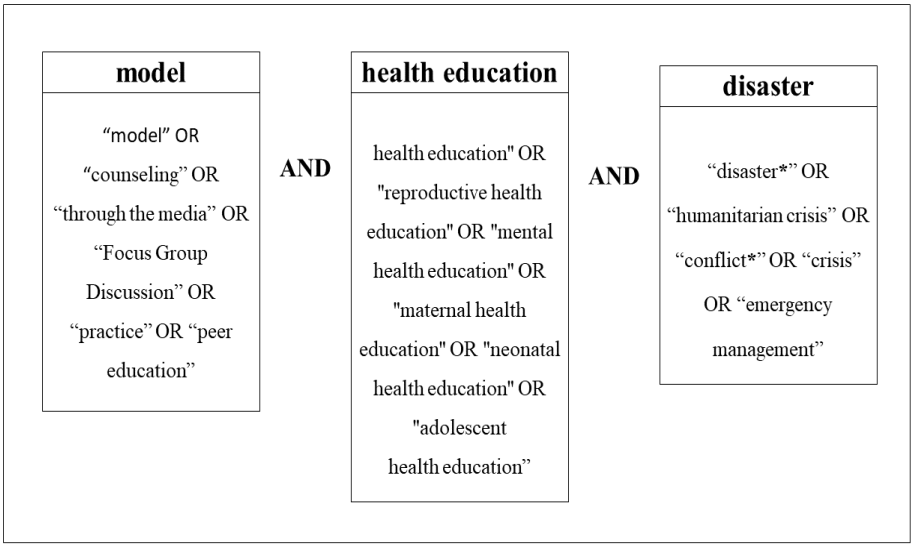

Figure 1. Keyword Search

Study Selection

The process of selecting and screening studies was conducted using Mendeley Desktop software. Irrelevant studies and duplicated articles were excluded. Articles that passed the screening were then identified based on the inclusion and exclusion criteria.

Inclusion and Exclusion Criteria

The inclusion criteria of this study were: (1) studies conducted on disaster-affected populations who received health education; (2) articles published in the last five years (2019 - 2024), the time restriction aims to acquire the most recent and contextually relevant literature; (3) qualitative and quantitative studies; (4) articles in English and full-text; (5) publications in the form of original research.

The exclusion criteria in this study were: (1) studies conducted on disaster-affected populations receiving general knowledge other than health; (2) articles published before 2019; (3) articles other than English, not open access, and only providing abstracts; (4) publications in the form of reviews, book chapters, or encyclopedias.

Data Extraction

After screening, some relevant articles are obtained, and data extraction is performed. Data extraction is done systematically and may involve more than one researcher to minimize bias. The data extracted in this study included information regarding the authors, research location, research design, and results or findings from each study.

Quality Assessment

Article quality was assessed using ten questions based on the Joanna Briggs Institute (JBI) critical appraisal. The quality and risk of bias for each article assessed were categorized into high bias ("yes" answers < 30%), moderate bias ("yes" answers between 31% and 70%), and low bias ("yes" answers > 70%).

RESULTS

The study selection process followed PRISMA guidelines, as shown in Figure 2. After filtering through relevant keywords and publication dates, a total of 4,363 articles were initially identified. Ultimately, 19 articles were selected for further analysis.

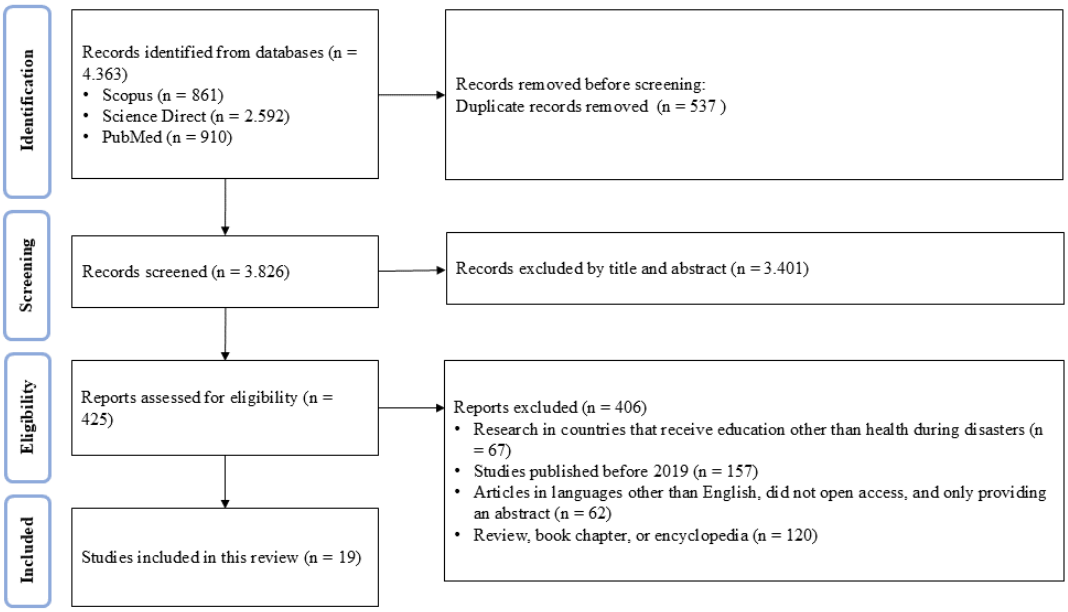

Figure 2. PRISMA Flow

Of the 19 selected studies, 12 were qualitative, and 7 were quantitative. The characteristics of these studies are classified in Table 1. Based on the quality assessment using the JBI Critical Appraisal Tools for both qualitative and quantitative analyses, all 19 articles had a low risk of bias, with "yes" responses exceeding 70% for all articles.

Table 1. Study Characteristic

Author, year	Country	Objective	Methods, Design	Health Education Model	Findings
(Hung et al.,2021)	China	This study examines the effectiveness of disaster management training in improving the knowledge, motivation, and skills of nursing students in Hong Kong, including their perceptions of these skills.	Qualitative Study	Simulation	The research shows that interactive and simulation-based nursing learning models improve nurses' knowledge and confidence in dealing with disaster situations.
(Que et al., 2022)	Tiongkok	This research compares the current level of community participation between communities that apply the disaster mitigation model and communities that do not use the model in geological disaster-prone areas.	Quantitative Study	Training	In this study, participants were given training consisting of three stages: learning materials from brochures, attending lectures and practicing hands-on evacuation. The aim was to improve preparedness for landslides.
(Khorram-Manesh et al., 2022)	Indonesia	This study aims to identify the needs related to developing a disaster risk reduction preparedness training model based on Public Health Nursing (PHN) that is sensitive to cultural aspects.	Qualitative Study	Training	The education model provided in this study focuses on developing a culturally sensitive Public Health Nursing (PHN)--based disaster risk-reduction preparedness training model.
(Sultan et al., 2023)	Arab Saudi	This study evaluated the need to change the disaster management curriculum in Saudi Arabia by adding disaster drills and the CSCATTT (Command,	Quantitative Study	Simulation	This study emphasizes that the health education model uses disaster drills and simulations using collaborative tools such as CSCATTT (Command and

		Control, Safety, Communication, Assessment, Triage, Treatment, Transport) collaborative tool.			Control, Safety, Communication, Assessment, Triage, Treatment, and Transport).
(Yarmohammadian et al., 2023)	Iran	This study aims to design a comprehensive training program for CBOs who want to support the elderly during disasters, considering goals, objectives, time, budget, target participants, syllabus, educational strategies, and teaching methods.	Qualitative Study	Training	This research focuses on specific training programs designed for the elderly so as to reduce the adverse impact of disasters on the elderly.
(Yodsuban & Nuntaboot, 2021)	Thailand	This research explores community-based flood disaster management approaches in Southern Thailand, focusing on understanding local culture in supporting older people and strengthening community capacity in the face of disasters.	Qualitative Study	Training	Through workshops, this research successfully improved the ability of elderly people, caregivers and volunteers to deal with disasters. The training focused on disaster management efforts.
(Adeoya et al., 2023)	Japan	This research aims to improve children's nutrition through student-centered education, both in daily life and during disasters.	Qualitative Study	Role-Play	This research shows that implementing sustainable nutrition education through role-play with children can effectively reduce the risk of illness and death from malnutrition, especially in emergency or disaster situations.
(Mohtady Ali et al., 2022)	Australia	This study examines factors	Qualitative Study	Training	The main focus of this research is the

		that influence the disaster management capabilities of HCWs, with the aim of enhancing resilience and adaptive capacity to climate change.			development of an effective education and training model for health workers in dealing with disasters and climate change.
(Ummer et al., 2021)	India	Explore using digital tools in Kerala in various aspects, such as communication, surveillance, clinical management, non-clinical support, and core health system preparedness and response.	Qualitative Study	Digital tools	Kerala has long been a model for the early adoption of digital technology for education and health. As part of the pandemic response, technology has been used across private and public sectors, including law enforcement, health, information technology, and education.
(Koly et al., 2022)	Banglades	This study aimed to understand stakeholders' views on the potential of digital media-based mental health services in strengthening the mental health system in Bangladesh.	Qualitative Study	Digital Media	The results show that the proper use of digital media as a platform to distribute information and offer mental services can help promote mental health care in Bangladesh.
(Wang et al., 2020)	China	This study aims to explain the provision of psychological assistance in the Wuhan epidemic area.	Qualitative Study	Counseling	The result of this study is that China actively adopted psychological assistance measures with a counseling model in response to the panic caused by the COVID-19 epidemic.
(Sharma et al., 2024)	Ethiopia	This study aims to explore the relationship between trauma, physical conditions,	Quantitative Study	Counseling	The findings of this study are that in dealing with the mental health of disaster-affected groups, a

		COVID-19 stress, and psychological stress (such as depression and anxiety) with mental health.			counselling model was developed.
(Kim & Yoo, 2023)	Korea	This study examines the experiences of counselors involved in mental health counseling as psychological support for victims of the COVID-19 disaster in Korea.	Qualitative Study	Counseling	The results of this study focus on strengthening education and training through counseling for counselors according to disaster characteristics.
(Dawes et al., 2019)	Vanuatu	This research examines attitudes and views about post-disaster mental health services and mental health services in general in Vanuatu.	Qualitative Study	Counseling	This research focuses on increasing mental health literacy levels and improving access to community services through counseling in Vanuatu.
(Casey et al., 2020)	Kongo	This study aimed to measure knowledge and use of modern contraceptives among sexually active adolescent girls and identify factors that influence their use.	Quantitative Study	Counseling	The results of this study are in knowing the level of knowledge and use of modern contraception among adolescent girls in disaster situations carried out by counseling.
(Ivanova et al., 2019)	Uganda	to evaluate refugee girls' experiences, knowledge, and access to SRH services in Nakivale settlement, Uganda.	Quantitative Study	Counseling	Research conducted in Uganda highlighted the importance of sex education in disaster situations through counseling with both health workers and parents.
(Calderón-Jaramillo et al., 2020)	Venezuela	This study examines how emergency preparedness and response initiatives in four Colombo-	Qualitative Study	Counseling	The findings suggest that Venezuelan migrants face complex SGBV issues during the humanitarian

		Venezuela border cities address SGBV.			emergency at the Colombia-Venezuela border, necessitating the provision of information with counseling.
(Svallfors et al., 2024)	Nigeria	This study aims to investigate the relationship between conflict, insecurity, and attitudes towards reproductive autonomy of women and girls in Nigeria.	Quantitative Study	Counseling	This study shows that a comprehensive counselling programme, covering the topics of contraception, abortion and early marriage, can effectively reduce mortality, especially in vulnerable groups.
(Torre et al., 2023)	Nigeria	We aim to identify the factors most associated with improvement and determine the number of consultations required to achieve it.	Quantitative Study	Counseling	The results showed that most (around 90%) patients with anxiety, depression, or trauma disorders, especially those with mild to moderate symptoms, experienced improvements after three counseling sessions. Patients with severe symptoms needed a longer period of about six sessions to see similar results.

DISCUSSION

Health education in disaster situations is an effort to improve the knowledge and skills of individuals and groups to obtain information, protect themselves, prevent disease, and support the health of communities at risk of being affected by disasters. In some studies, health education is essential throughout the disaster management cycle, from mitigation, preparedness, emergency response, and recovery phases. This method improves health knowledge and provides practical skills to deal with diseases and emergencies that may arise after a disaster (23).

Pre-Disaster Health Education

The pre-disaster phase is the initial stage, focusing on disaster mitigation and preparedness. Disaster mitigation can enhance community understanding and abilities regarding overall disaster risks (5). Engaging the community in disaster risk reduction assessments can also increase community awareness (6). Health education at this stage can be delivered through counseling methods such as lectures and discussions. According to research, health education delivered through counseling and discussion methods can increase community knowledge of reproductive health in heterogeneous natural disaster scenarios (24). Counseling has also significantly improved disaster preparedness in communities in West Bandung Regency, with an average increase of 24.7% to 34.80% in pre- and post-health education (25).

Health counseling can be enhanced through simulations involving realistic disaster scenarios and supported with training to improve basic skills like first aid, evacuation, and safety equipment. These skills are essential tools for communities facing disaster emergencies (26). Various countries have conducted similar studies. In Saudi Arabia, a reactive strategy in disaster management involves healthcare workers improving emergency preparedness through competency-based training (7). In Indonesia, disaster education is implemented with a local wisdom approach involving village leaders and community figures through advice, life philosophy, myths, art, and culture (27). Meanwhile, Iran has a community-based health organization (CBHO) training approach focusing on disaster preparedness for the elderly (8). Thailand also implements community-based health education with workshops on disaster management principles, communication systems, and equipment application for evacuation to increase the knowledge and skills of communities, especially older adults and their caregivers, in facing flood disasters (9). This aligns with recommendations from other studies, which emphasize “enhancing the competency and resources available to service providers and communities by developing modules, conducting orientation, simulations, and training” (28).

Disaster mitigation education can be strengthened with role-playing, emphasizing active involvement for communities at risk through hands-on experiences and reflective practice. According to research, children's memory retention and ability increased after health education through role-playing, in which they chose nutritious food sources and avoided unsafe foods in disaster situations. This health education model aims to reduce disease risk and mortality in disaster scenarios (10).

Health Education During Disasters

During this phase, health education is crucial for disaster-affected communities to minimize health impacts through a quick response based on individual or group capacities. The health education model should consider the type of disaster and the target audience to ensure effective outcomes (11). Health education during disasters can be conducted through media, as seen during the COVID-19 pandemic in Kerala, India. Digital tools in Kerala helped meet various citizen needs during the pandemic, including mental health support and disseminating information on diseases, risk mitigation, disease prevention, and government responses, including lockdown programs. The Kerala government used websites, dashboards, web portals, mobile apps, helplines, chatbots, and social media platforms to run the “Break the Chain” campaign and create online quizzes via the “Corona Safe Network” to educate the affected communities on COVID-19 (12). Bangladesh also integrated digital health education to strengthen mental health systems and encourage positive health-seeking behaviors in health crises (13).

In addition to electronic media, health education can be delivered directly through health education boards, posters, and booklets. Research in Indonesia shows increased knowledge after health education on malaria was provided through booklets to earthquake survivors in Gunung Sari, West Lombok Regency (29).

Post-Disaster Health Education

Post-disaster health education aims to restore and maintain emotional stability and community safety, as well as address trauma-related stress (14). In this phase, health education can be delivered more personalized and specifically tailored to individual needs, conditions, and situations through health counseling (15). Health counseling plays a crucial role in minimizing pain and psychological damage and improving mental health, so a psychological support guide for each disaster type should be prepared at the national level (16). This concept involves techniques for preventing mental illness, recognizing signs of mental health disorders, understanding available services for treatment, and self-help strategies to cope with post-disaster mental health issues (21). Reproductive health

counseling is also essential for the survival of post-disaster communities, aiming for safety, health, and recovery. Individuals with low education levels often face challenges in accessing and using contraception services due to a lack of knowledge about available methods and how to obtain them (18) (20,21). Individuals experiencing trauma due to gender inequality and gender-based violence in shelters are at risk of infectious diseases (STIs) and other health complications (21) (20), thus requiring reproductive health counseling to prevent mortality risk from post-disaster trauma. Health counseling sessions are conducted based on the severity of trauma experienced by disaster survivors. Severe cases require at least six sessions to achieve good results, while milder cases require three sessions (22). In addition to health counseling, games can also be an effective method of post-disaster health education. Research in Padang using the "Moroca" game (Monopoly for Reproductive Health in Disaster Situations) found that post-test scores (76.0) were higher than pre-test scores (31.50). The Moroca game can strengthen self-healing for vulnerable disaster-affected groups, especially children and adolescents, with health education materials (30).

Of the 19 articles found, there are limitations in this study, namely the lack of literature discussing health education models that are applied directly during a disaster or during the emergency response phase. The majority of articles found discuss the pre- and post-disaster phases. In addition, they do not yet cover the needs of marginalized or special needs groups. This indicates a significant knowledge gap regarding the most effective education model to help communities during a crisis. Therefore, further research is needed to fill this gap and develop an appropriate and efficient education model in the context of a disaster.

Limitations and Cautions

This study has several limitations, such as its reliance on literature from specific databases, which may result in selection bias, and the diverse research contexts across countries with varying social, cultural, and policy frameworks, which restrict the generalizability of the findings. The analysis also revealed that most studies focus on health education during the pre-disaster and post-disaster phases, while research addressing the emergency response phase remains scarce, highlighting a gap that requires further investigation. Furthermore, much of the literature concentrates on short-term outcomes without exploring long-term effects, compounded by potential publication bias, as studies with positive results are more frequently published. Consequently, the findings should be interpreted cautiously, and health education models should be tailored to local contexts before implementation.

Recommendations for Future Research

Based on the findings of this study, several recommendations can be proposed to optimize health education models in disaster situations. First, health education efforts should be tailored to local contexts, incorporating cultural values and involving community leaders to enhance program relevance and effectiveness. Second, digital platforms such as mobile applications, chatbots, and social media should be utilized to disseminate information rapidly during emergency response phases. Third, community-based approaches, such as CBHO models, should be implemented to empower vulnerable groups, including the elderly and children, through targeted training programs. Fourth, interactive educational tools like the Moroca game should be further developed and integrated with health counseling to support emotional recovery in post-disaster scenarios. Finally, rigorous evaluation and research should be conducted to assess the effectiveness of implemented models and inform the development of international guidelines for health education in disaster contexts.

CONCLUSION

Health education in disaster situations is an important element in improving community preparedness, mitigation and recovery to protect themselves, prevent disease and support public health. This study identified three main phases of health education: pre-disaster, emergency response and post-disaster. In the pre-disaster stage, health education focuses on mitigation and preparedness through outreach, reinforced by simulations, training, and role-playing. In Saudi Arabia, competency-based training is used to improve emergency preparedness. In Indonesia, disaster education is implemented based on local wisdom involving village leaders and community figures. In Iran and Thailand, community-based health organizations (CBHO) provide disaster preparedness education for the elderly.

During the disaster response phase, health education can be adapted to the type of disaster and the target audience for effective outcomes. Media such as digital devices, educational boards, and booklets can be used to disseminate information. In Kerala, India, digital devices were used to spread health information and encourage mental health-seeking behavior during the COVID-19 pandemic through websites, dashboards, web portals, mobile apps, helplines, chatbots, and social media platforms as part of the "Break the Chain" campaign.

In the post-disaster phase, health education focuses on restoring and maintaining emotional stability and community safety and addressing trauma-related stress. At this stage, health education can be more personalized and specific, tailored to individual needs, conditions, and situations through health counseling and games, such as the "Moroca" game (Monopoly for Reproductive Health in Disaster Situations), which strengthens self-healing among vulnerable disaster-affected groups, especially children and adolescents, with health education content.

By equipping communities with relevant knowledge and skills, health education not only reduces health risks from disasters, but also improves the overall quality of life and well-being of communities. Therefore, a strong commitment from various parties, including governments, non-governmental organizations and academia, is needed to integrate health education into formal education curricula in disaster-prone areas, develop innovative educational media, and support further research by exploring innovative strategies that can be applied in different types of disasters and affected populations, especially in the emergency response phase. In addition, it is important to adapt educational models to the local context and meet the specific needs of affected populations. With the right approach and adequate support, health education can be a powerful tool to comprehensively improve community resilience in the face of the three main phases of disaster.

AUTHOR'S CONTRIBUTION STATEMENT

Efa Nugroho contributed to the manuscript's conceptualization, supervision, and critical revision. Ayu Istiada, as correspondence author, in data collection, analysis, and drafting of the manuscript. Alfiana Ainun Nisa was responsible for the literature review and provided technical insight into the research framework. Dwi Yunanto Hermawan supported methodology development, data interpretation, and final editing of the manuscript. All authors reviewed and approved the final version of the manuscript.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest related to this research or its publication. All data and findings presented are independent and have not been influenced by any external sponsor or agency.

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BIBLIOGRAPHY

1. Lin CH, Tzeng WC, Chiang LC, Lee MS, Chiang SL. Determinants of nurses' readiness for disaster response: A cross-sectional study. Heliyon. 2023 Oct 1;9(10).
2. Febriawati H, Angraini W, Wijaya AK, Sartika A, Oktarianita, Sarkawi. Pendidikan Kesehatan Dan Pelatihan Tanggap Bencana Gempa Pada Guru Dan Siswa Di SMKS 9 Kota Bengkulu. Jurnal Pengabdian Masyarakat Ipteks. 2020;6(1):79–87.
3. Amin S, Safarina NA, Anastasya YA, Amalia I. TERAPAN MODEL PSYCHOLOGICAL FIRST AID (PFA) PADA PENGUNGSI BANJIR PAYA TUMPI TAKENGON, PROVINSI ACEH. 2021.
4. Hung MSY, Lam SKK, Chow MCM, Ng WWM, Pau OK. The Effectiveness of Disaster Education for

Undergraduate Nursing Students' Knowledge, Willingness, and Perceived Ability: An Evaluation Study. Int J Environ Res Public Health [Internet]. 2021 Oct 8;18(19):10545. Available from: https://www.mdpi.com/1660-4601/18/19/10545
5. Que T, Wu Y, Hu S, Cai J, Jiang N, Xing H. Factors Influencing Public Participation in Community Disaster Mitigation Activities: A Comparison of Model and Nonmodel Disaster Mitigation Communities. Int J Environ Res Public Health [Internet]. 2022 Sep 27;19(19):12278. Available from: https://www.mdpi.com/1660-4601/19/19/12278
6. Khorram-Manesh A, Goniewicz K, Sofyana H, Ibrahim K, Afriandi I, Herawati E, et al. The Need for a Preparedness Training Model on Disaster Risk Reduction Based on Culturally Sensitive Public Health Nursing (PHN). Public Health [Internet]. 2022;19:16467. Available from: https://doi.org/10.3390/ijerph
7. Sultan MAS, Carlström E, Sørensen JL, Alruwaili AS, Khorram-Manesh A. Incorporating simulation exercises using collaborative tools into disaster and emergency medicine curriculum—A pilot survey among Saudi Arabian professionals. Journal of Contingencies and Crisis Management [Internet]. 2023 Dec 24;31(4):905–12. Available from: https://onlinelibrary.wiley.com/doi/10.1111/1468-5973.12491
8. Yarmohammadian M, Akbari F, Niaraees A, Rezaei F. Elders in natural disasters: Community-based health organization (CBHO) education and preparedness. J Educ Health Promot. 2023 Jan 1;12(1).
9. Yodsuban P, Nuntaboot K. Community-based flood disaster management for older adults in southern of Thailand: A qualitative study. Int J Nurs Sci [Internet]. 2021 Oct 10;8(4):409–17. Available from: https://linkinghub.elsevier.com/retrieve/pii/S2352013221000892
10. Adeoya AA, Egawa S, Adeoya AS, Nagatomi R. Improving child nutrition in disasters by developing a modeled disaster preparedness nutrition education curriculum. Front Public Health. 2023;11.
11. Mohtady Ali H, Ranse J, Roiko A, Desha C. Healthcare Workers' Resilience Toolkit for Disaster Management and Climate Change Adaptation. Int J Environ Res Public Health [Internet]. 2022 Sep 29;19(19):12440. Available from: https://www.mdpi.com/1660-4601/19/19/12440
12. Ummer O, Scott K, Mohan D, Chakraborty A, Lefevre AE. Connecting the dots: Kerala's use of digital technology during the COVID-19 response. BMJ Glob Health. 2021 Jul 26;6.
13. Koly KN, Saba J, Muzaffar R, Modasser RB, M TH, Colon-Cabrera D, et al. Exploring the potential of delivering mental health care services using digital technologies in Bangladesh: A qualitative analysis. Internet Interv. 2022 Sep 1;29.
14. Wang Y, Zhao X, Feng Q, Liu L, Yao Y, Shi J. Psychological assistance during the coronavirus disease 2019 outbreak in China. Vol. 25, Journal of Health Psychology. SAGE Publications Ltd; 2020. p. 733–7.
15. Sharma M, Alemayehu M, Girma E, Milkias B, Stevenson A, Gelaye B, et al. The cumulative impact of trauma, chronic illness, and COVID-19 stress on mental health in a case-control study of adults with psychotic disorders in Ethiopia. Compr Psychiatry. 2024 Oct 1;134.
16. Kim JE, Yoo SY. Experiences of counselors who provided psychological support during covid-19 disaster: A qualitative study. International Journal of Mental Health Promotion. 2023;25(5):687–97.
17. Dawes N, Franklin RC, McIver L, Obed J. General and post-disaster mental health servicing in Vanuatu: A qualitative analysis. International Journal of Disaster Risk Reduction. 2019 Nov 1;40.
18. Casey SE, Gallagher MC, Kakesa J, Kalyanpur A, Muselemu JB, Rafanoharana RV, et al. Contraceptive use among adolescent and young women in North and South Kivu, Democratic Republic of the Congo: A cross-sectional population-based survey. PLoS Med. 2020 Mar 31;17(3).
19. Ivanova O, Rai M, Mlahagwa W, Tumuhairwe J, Bakuli A, Nyakato VN, et al. A cross-sectional mixed-methods study of sexual and reproductive health knowledge, experiences and access to services among refugee adolescent girls in the Nakivale refugee settlement, Uganda. Reprod Health. 2019 Mar 19;16(1).
20. Calderón-Jaramillo M, Parra-Romero D, Forero-Martínez LJ, Royo M, Rivillas-García JC. Migrant women and sexual and gender-based violence at the Colombia-Venezuela border: A qualitative study. J Migr Health. 2020 Jan 1;1–2.
21. Svallfors S, Båge K, Ekström AM, Elimian K, Gayawan E, Litorp H, et al. Armed conflict, insecurity, and attitudes toward women's and girls' reproductive autonomy in Nigeria. Soc Sci Med. 2024 May 1;348.
22. Torre SM, Sordo L, Carreño Glaría C, Llosa AE, Dazang Umar R, Usman J, et al. Association between severity of symptoms and minimum mental health treatment duration in humanitarian contexts: a retrospective

observational study [Internet]. 2023. Available from: www.thelancet.com
23. Hung MSY, Lam SKK, Chow MCM, Ng WWM, Pau OK. The Effectiveness of Disaster Education for Undergraduate Nursing Students' Knowledge, Willingness, and Perceived Ability: An Evaluation Study. Int J Environ Res Public Health. 2021 Oct 8;18(19).
24. Rezki Pratiwi W, Hasriani S, Muhammadiyah Sidrap S, Syarief Al J. Kabupaten Sidrap, Indonesia 91611 2. STIKES Muhammadiyah Sidrap. Indonesian Journal of Community Dedication. 2020;2(11).
25. Nurmansyah, Sudiana A. PENGARUH PENYULUHAN KESEHATAN TERHADAP PENGETAHUAN MASYARAKAT MENGENAI KESIAPSIAGAAN BENCANA GEMPABUMI DESA JAMBUDIPA RW 15. 2020.
26. Ferianto K, Hidayati UN. EFEKTIFITAS PELATIHAN PENANGGULANGAN BENCANA DENGAN METODE SIMULASI TERHADAP PERILAKU KESIAPSIAGAAN BENCANA BANJIR PADA SISWA SMAN 2 TUBAN. Jurnal Kesehatan Mesencephalon. 2019;5(2):88–94.
27. Mustofa M, Handini O. PENDIDIKAN KEBENCANAAN BERBASIS KEARIFAN LOKAL DALAM PENGUATAN KARAKTER SIAPSIAGA BENCANA. 2020;4:200–9. Available from: http://e-journal.hamzanwadi.ac.id/index.php/gdk
28. Olié L, Maternowska MC, Fry D. Addressing violence against children: A systematic review on interventions to accelerate the achievement of the UN sustainable development goal in Europe and Africa. Child Abuse Negl. 2023 Nov 1;145.
29. Antari GY. PENGARUH PENDIDIKAN KESEHATAN MELALUI BOOKLET TERHADAP PENGETAHUAN DAN PRAKTIK PENCEGAHAN MALARIA PADA KORBAN GEMPA. JURNAL KEBIDANAN. 2019 Oct 30;9(2).
30. Purnama Sari R, Windra Doni A, Maisarah I. Development of "Moroca" as a Learning Media for Reproductive Health Services in Disaster Situations. Malaysian Journal of Medicine and Health Sciences. 2023;19(2):145–50.