The Effectiveness of Pharmacy Students' Emergency Response Training (PSERT) in Enhancing the Preparedness and Readiness of Pharmacy Students During Flood Disasters in Koronadal City

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ABSTRACT

Floods remain a major concern in the Philippines due to their frequent occurrence and significant impact on public health. Pharmacy students are expected to take part in disaster response as future pharmacists. However, they often have limited training and preparedness. In response to this gap, this study aimed to determine the effectiveness of the Pharmacy Students Emergency Response Training (PSERT) in enhancing the preparedness and readiness of pharmacy students during flood disasters in Koronadal City. A quantitative quasi-experimental design was utilized, involving thirty (30) first-year pharmacy students divided into experimental and control groups. A structured 60-item multiple-choice questionnaire was administered before and after the intervention. Results showed that the experimental group's preparedness improved from a low level (Mean = 15.73, SD = 3.150) to a moderate level (Mean = 23.47, SD = 3.777), while readiness increased from a low level (Mean = 17.20, SD = 3.840) to a high level (Mean = 25.13, SD = 5.083). The control group showed minimal improvement. Statistical analysis revealed significant differences in preparedness and readiness, as well as between the experimental and control groups. The findings suggest that the PSERT intervention effectively improved pharmacy students' preparedness and readiness. Therefore, the study recommends the integration of structured flood disaster training into the pharmacy curriculum.

Keywords: Pharmacy Students Emergency Response Training (PSERT), preparedness, readiness, flood disaster, pharmacy students

INTRODUCTION

Natural disasters are major threats that endanger lives, infrastructure, and public health. Among these disasters, floods are the most frequent and destructive in the Philippines, affecting millions of people each year and weakening the healthcare system (Kurata, et al., 2023). Due to the country's location within the Pacific Typhoon Belt, it experiences about 20 typhoons each year, leading to severe flooding and widespread damage (Raba, 2025).

Pharmacy students are an emerging workforce who can contribute significantly to disaster response operations. However, their level of preparedness and readiness is still a concern. Wiedyaningsih et al. (2023) found that pharmacy students should have a good understanding of health and disaster management, develop specific practical skills, maintain a positive attitude, and be personally prepared for emergencies. These competencies should be developed through organized training. Furthermore, pharmacy students who are properly trained and integrated into emergency response systems can significantly contribute to community disaster preparedness (Monk & Pradhan, 2019).

Internationally, pharmacy education often lacks proper disaster preparedness training, leaving pharmacy students underprepared for their future roles in emergency response despite pharmacists' essential contributions to public health (Wiedyaningsih et al., 2023). Similarly, Farajalla et al. (2023) assessed pharmacy students' preparedness and readiness in the United Arab Emirates and found that although students were willing to help and had positive

attitudes, most of them have not received proper training in disaster preparedness, with an average score of 60.2%.

In the Philippines, most pharmacy schools still do not include strong or standardized disaster preparedness training in their curriculum (Carandang et al., 2025). As a result, pharmacy students often do not receive enough lessons or practical activities that teach them what to do during emergencies (Wiedyaningsih et al., 2023). As a result, many students are not fully prepared or confident to respond to disasters, even though the Philippines experiences numerous natural hazards each year (Raba, 2025). Moreover, it appears that there is a lack of published research on the integration of disaster-response training within Philippine pharmacy curricula.

Locally, standardized emergency preparedness training for pharmacists is rarely institutionalized either nationally or locally (Carandang et al., 2025). In October 2025, Koronadal city experienced a recent flooding from heavy rainfall, resulting in approximately 150 people being evacuated from flood-prone areas near riverbanks and waterways, particularly in Barangays Morales, Cacub, and San Isidro (Mamac, 2025). In response to these recurring disasters, South Cotabato's disaster management office has conducted preparedness training; pharmacy students are not systematically integrated into these trainings (Seromines, 2025). Despite these emergency response efforts at the provincial level, pharmacy students remain absent from local disaster preparedness training and emergency response planning, creating a significant gap in the province's emergency response framework.

This gap is particularly significant given Koronadal City's recurring flood vulnerability and the potential contributions pharmacy students can make to disaster response. Furthermore, there is a lack of research evaluating the effectiveness of local training designed for pharmacy students' disaster preparedness. These gaps highlight the need for localized preparedness training specifically designed for pharmacy students (International Pharmaceutical Federation, 2023).

The increasing number of floods in Koronadal City highlights the need to develop localized preparedness and readiness plans that actively involve pharmacy students as trained emergency responders. Therefore, this study aims to implement and assess the effectiveness of the Pharmacy Students Emergency Response Training (PSERT) intervention, with the goal of enhancing the preparedness and readiness of pharmacy students to respond appropriately during flood disasters.

METHODOLOGY

Research Design

The study utilized a quantitative quasi-experimental research design to assess the preparedness and readiness of pharmacy students. Quantitative quasi-experimental designs are appropriate for evaluating the effects of interventions using numerical data, particularly in educational settings where random assignment of participants is not feasible. This approach allows for the comparison of outcomes between pre-existing groups while maintaining systematic and objective measurement of change (Capili & Anastasi, 2024).

The study utilized a pre-test–post-test design involving both an experimental group and a control group. Participants in both groups were assessed before and after the implementation of the Pharmacy Students Emergency Response Training (PSERT) intervention. This repeated-measures design improves the accuracy of the results because each participant is compared to their own pre-test performance. By reducing individual differences and measurement error, repeated-measures designs provide greater statistical power, allowing meaningful effects to be detected even with smaller sample sizes compared to designs that rely solely on between-group comparisons.

Research Locale

The study was conducted in Koronadal City to evaluate the effectiveness of the Pharmacy Students Emergency Response Training (PSERT) intervention in improving the preparedness and readiness of pharmacy students during flood disasters. Koronadal City was selected as the research locale due to its high vulnerability to frequent

flooding, which presents ongoing risks to public health and disrupts access to essential healthcare services (Estabillo, 2021). These conditions highlight the importance of disaster preparedness training for future healthcare professionals, particularly pharmacy students who play a vital role in emergency response and community health support.

Participants of the Study

The participants of this study were thirty (30) first-year Bachelor of Science in Pharmacy students from St. Alexius College, Inc. in Koronadal City. A purposive sampling technique was used to select the participants, in accordance with specific inclusion criteria that corresponded to the aims of the study. Purposive sampling is a non-probability method that enables researchers to deliberately select participants based on their relevance, characteristics, and suitability for the research (Tenny, 2022). This approach ensured that the selected participants had the required academic background and context to assess the effectiveness of the intervention. First-year students were selected due to their lower levels of preparedness and readiness for emergency situations compared to higher-year students, as supported by previous studies (Yang et al., 2025; Patel et al., 2023; Zhang et al., 2020).

After selection, the participants were divided into two equal groups of fifteen (15) participants each by using a non-random alternate allocation process. The master list of eligible participants was alphabetized by last name to provide a neutral starting point and minimize selection bias. The first participant on the list was assigned to the experimental group, the second one was assigned to the control group, and the pattern was alternated continuously until all the thirty (30) participants were allocated. Through this process, the PSERT intervention was delivered to the experimental group, and the control group did not receive the intervention during the study period. This group allocation approach is consistent with the quasi-experimental design used in the study. Baseline equivalence between the experimental and control was assessed using the pre-test preparedness and readiness scores. The results showed similar baseline levels prior to the intervention.

According to Brysbaert (2019), a sample size of 15 participants per group is generally sufficient to achieve 80% or higher statistical power in repeated-measures or mixed designs when detecting a moderate effect size at a 0.05 level of significance.

Eligible participants were first-year pharmacy students officially enrolled at St. Alexius College, Inc., who were physically and mentally capable of participating in training activities and residing in Koronadal City during the study period. Excluded participants included students from higher year levels, those with prior emergency preparedness training, and individuals with physical or medical limitations. Participants were allowed to withdraw voluntarily at any time or be withdrawn due to incomplete assessments, poor attendance, or health and personal concerns that prevented continued participation.

Research Instrument

The study utilized a validated 60-item self-constructed multiple-choice questionnaire aligned with the Pharmacy Student Emergency Response Training (PSERT) manual to assess pharmacy students' preparedness and readiness during flood disaster emergencies. The instrument was administered as both pre-test and post-test to evaluate the effectiveness of the PSERT intervention. The questionnaire measured two variables, namely preparedness and readiness, and used a dichotomous scoring system where correct answers were scored as 1 and incorrect answers as 0.

Preparedness domains included flood disaster knowledge, early warning systems, go-bag preparation, infection prevention and control (IPC), and pre-deployment preparation, while readiness domains included basic first aid and basic life support, medication assistance, communication and reporting, health education, evacuation response, and post-flood recovery procedures. Sample questionnaire items included identifying appropriate flood preparedness measures, recognizing flood-related health risks and diseases, selecting proper personal protective equipment (PPE), and determining appropriate first-aid responses during flood emergencies. Farajalla et al. (2023) supported the use of structured questionnaires in assessing disaster preparedness and readiness among pharmacy students.

Table 1. Mean Score Range

Range of Mean Scores	Score (%)	Category
24 - 30	80 - 100%	High Level
18 - 23.99	60 - 79%	Moderate Level
0 - 17.99	<60%	Low Level

Table 1 presents the interpretation of mean scores for preparedness and readiness adapted from the scoring system of Alzahrani et al. (2021). The study utilized a 60-item questionnaire equally divided between preparedness and readiness, with a maximum score of 30 points for each variable. Raw scores were converted into percentage scores to standardize the interpretation of responses. Mean scores were categorized into three levels: High Level (24–30 or 80–100%), indicating strong preparedness and readiness; Moderate Level (18–23.99 or 60–79%), indicating adequate preparedness and readiness with areas for improvement; and Low Level (0–17.99 or below 60%), indicating limited preparedness and readiness that may require further training. These criteria were applied to both the pre-test and post-test results to assess the preparedness and readiness of pharmacy students before and after the implementation of the Pharmacy Students Emergency Response Training (PSERT) intervention. The interpretation ranges were adapted from Alzahrani et al. (2021) to guide the interpretation of pharmacy students' preparedness and readiness levels before and after the intervention.

The research questionnaire was assessed for content validity by three experts in the field of disaster risk reduction and emergency response. The assessment was based on a 4-point Likert scale of 1 to 4 (1 = fair and 4 = excellent). The questionnaire was evaluated in terms of clarity, relevance, organization, appropriateness and consistency with the objectives of the study. The validators scored 38, 39 and 49 out of 52. The recommendations were mainly grammatical, rephrasing items, better alignment of questions with answer options, use of standardized terminology and improvement of unclear or repetitive items. The highest-rated evaluation showed the instrument to be highly acceptable with only minor modifications required. All suggestions were incorporated in the final revision of the questionnaire, which improved the overall clarity, relevance, and suitability of the questionnaire to assess pharmacy students' preparedness in flood disaster emergencies.

Reliability of the research questionnaire was assessed using Cronbach's alpha to determine the internal consistency of the items measuring preparedness and readiness. According to Taber (2018), Cronbach's alpha is widely used to evaluate questionnaire reliability, while Hussey et al. (2025) stated that a value above 0.70 indicates acceptable reliability. The preparedness variable obtained a Cronbach's alpha of 0.718, indicating acceptable internal consistency, whereas the readiness variable obtained 0.838, indicating good internal consistency. These findings suggest that the questionnaire achieved acceptable reliability and was suitable for use in the study.

RESEARCH PROCEDURE

PSERT Manual Development

The researchers developed the Pharmacy Students Emergency Response Training (PSERT) manual with guidance from relevant experts. The manual consisted of four modules: (1) Introduction to Flood Disaster, (2) Pre-flood Preparedness, (3) Flood Response Operations, and (4) Post-flood Recovery Procedure. After validation and finalization, individual copies of the manual were distributed to the participants for use during the training sessions.

Consent Distribution

Informed consent forms were distributed to all first-year pharmacy students of St. Alexius College residing in

Koronadal City prior to data collection. The forms explained the purpose, procedures, benefits, and confidentiality measures of the study. Participation was voluntary, and respondents were informed of their right to withdraw at any time without penalty.

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Pre-test Administration

A pre-test was administered to both the experimental and control groups before the intervention. A structured multiple-choice questionnaire was used to assess the participants' baseline preparedness and readiness in responding to flood-related emergencies.

PSERT Implementation

The Pharmacy Students Emergency Response Training (PSERT) intervention was conducted for the experimental group only after the pre-test. The intervention consisted of a two-day, sixteen-hour training session. Day 1 included lectures, discussions, and audiovisual presentations, while Day 2 focused on structured learning exercises and return demonstrations to enhance disaster preparedness and readiness.

Post-test Administration

After the intervention, both the experimental and control groups underwent a post-test using the same questionnaire administered during the pre-test. The results were compared to determine changes in preparedness and readiness levels, and the gathered data were statistically analyzed to evaluate the effectiveness of the PSERT intervention.

Statistical Treatment

This study utilized Mean, Paired Sample T-test, and Independent Sample T-test as the primary statistical tools. The mean was used to determine the average pre-test and post-test scores of the participants (Sheposh, 2023). This helped describe the general level of preparedness and readiness before and after the implementation of the Pharmacy Students Emergency Response Training (PSERT) intervention.

The Paired Sample t-test was applied to examine whether there was a significant difference between the pre-test and post-test mean scores of the experimental group who participated in the PSERT intervention. This test assessed the improvement in pharmacy students' preparedness and readiness following the training intervention (Bobbitt, 2022).

The Independent Sample t-test was used to compare the post-test mean scores between the experimental group (who received the PSERT intervention) and the control group (who did not receive any training). This test determined whether the PSERT intervention produced a statistically significant effect compared to no intervention (Kim, 2019).

All data were analyzed using appropriate statistical software to ensure the accuracy and reliability of the results.

RESULTS AND DISCUSSION

The data were gathered to determine the effectiveness of the Pharmacy Students Emergency Response Training (PSERT) intervention on the preparedness and readiness of pharmacy students in Koronadal City. The data gathered from pre-test and post-test of the control group and experimental group are presented, analyzed, and interpreted using appropriate statistical tools. Descriptive and inferential statistics such as mean, paired sample t-test and independent sample t-test were used to answer specific questions of the study.

Table 2. Preparedness Level of Pharmacy Students Before and After the PSERT Intervention

Group	Pre-Test			Post-Test		
	Mean	SD	Interpretation	Mean	SD	Interpretation
Experimental	15.73	3.150	Low Level	23.47	3.777	Moderate Level
Control	17.27	2.712	Low Level	18.20	2.678	Moderate Level

The data presented in table 2 shows the level of preparedness of pharmacy students before and after the implementation of the Pharmacy Students Emergency Response Training (PSERT) intervention. The experimental group obtained a pre-test mean score of 15.73 (SD = 3.150), interpreted as a low level of preparedness. After the intervention, the post-test mean score increased to 23.47 (SD = 3.777), interpreted as a moderate level, reflecting an increase of approximately 7.74 points. Meanwhile, the control group showed only a slight increase from a pre-test mean score of 17.27 (SD = 2.712), interpreted as a low level, to a post-test mean score of 18.20 (SD = 2.678), interpreted as a moderate level.

The observed improvement in scores indicates that the PSERT intervention improved pharmacy students' preparedness during flood-related emergencies. Similar findings were reported by Marino et al. (2024), Farajalla et al. (2023), and McCourt et al. (2020), who emphasized that structured disaster training improves students' preparedness and confidence in emergency response.

Table 3. Readiness Level of Pharmacy Students Before and After the PSERT Intervention

Group	Pre-Test			Post-Test		
	Mean	SD	Interpretation	Mean	SD	Interpretation
Experimental	17.20	3.840	Low Level	25.13	5.083	High Level
Control	18.87	3.021	Moderate Level	20.07	3.615	Moderate Level

Table 3 presents the readiness of pharmacy students in the experimental group before and after the implementation of the PSERT intervention, showing changes in mean score, standard deviation, and interpretation. Before the intervention, the students demonstrated a low level of readiness with a mean score of 17.20 (SD = 3.840). After the intervention, the mean score increased to 25.13 (SD = 5.083), interpreted as a high level, reflecting an improvement of approximately 7.93 points. Meanwhile, the control group showed only a slight increase from a pre-test mean score of 18.87 (SD = 3.021), interpreted as a moderate level, to a post-test mean score of 20.07 (SD = 3.615), which remained within the moderate level category.

These findings are supported by previous studies indicating that disaster-related training enhances healthcare students' knowledge, competencies, self-efficacy, and readiness to respond effectively during emergencies. Studies by Nikitara et al. (2025), Wiedyaningsih et al. (2023), and Gillani et al. (2020) further report that students generally exhibit low to moderate readiness prior to structured training, emphasizing the importance of interventions such as PSERT in improving disaster preparedness and response capability.

Table 4. Difference in Preparedness and Readiness Before and After the PSERT Intervention

Measure 1	Measure 2	T-value	p-value	Cohen's d	95% CI
Preparedness Pretest Score	**Preparedness Posttest Score**	-7.574	< .001	-1.956	[-2.821, -1.067]
Readiness Pretest Score	**Readiness Posttest Score**	-5.275	< .001	-1.362	[-2.061, -0.639]

* Calculation was performed at 0.05 alpha level of significance.

Table 4 shows the differences in the preparedness and readiness scores of pharmacy students before and after the implementation of the Pharmacy Students Emergency Response Training (PSERT) intervention. The paired-sample t-test for preparedness yielded a t-value of -7.574 with a computed p-value of less than 0.001, while readiness yielded a t-value of -5.275 with a computed p-value of less than 0.001. Since both p-values were lower than the 0.05 level of significance, the null hypotheses were rejected, indicating statistically significant differences between the pre-test and post-test scores.

These findings suggest that the PSERT intervention improved the preparedness and readiness of pharmacy students during flood emergencies. According to Bonovas et al. (2023), a p-value lower than 0.05 indicates a significant difference between conditions. Similar findings were reported by Hsieh et al. (2024), Aslanoğlu et al.

(2024), and Amini et al. (2024), who found that disaster preparedness training improved participants' preparedness, readiness, and response performance. The results indicate that the PSERT intervention enhanced the preparedness and readiness of pharmacy students for appropriate and effective responses during flood emergencies.

Table 5. Difference in Preparedness and Readiness Between Experimental and Control Group

	Group	Mean	SD	T-value	P-value	Cohen's d	95% CI
Preparedness Posttest Score	**Experimental**	23.47	3.77	-4.405	< .001	-1.609	[-2.427, -0.768]
	Control	18.20	2.678				
Readiness Posttest Score	**Experimental**	25.13	5.083	-3.146	.004	-1.149	[-1.916, -0.364]
	Control	20.07	3.615				

* Calculation was performed at 0.05 alpha level of significance.

Table 5 presents the differences in the level of preparedness and readiness of pharmacy students between the experimental and control groups after the implementation of the PSERT intervention. The post-test scores between experimental and control groups show a significant difference in preparedness ($t = -4.405$, $p < 0.001$). Students who participated in the PSERT intervention showed significantly higher preparedness than those in the control group. These findings suggest that structured training improved knowledge and understanding related to flood disaster preparedness. These results are consistent with Patel (2021), who emphasized that disaster-focused training enhances healthcare students' preparedness in managing emergency situations.

Furthermore, the post-test readiness scores between the experimental and control groups also indicated a significant difference ($t = -3.146$, $p = 0.004$). Students who participated in the PSERT intervention showed significantly higher readiness levels compared to those in the control group. The higher readiness scores reflect increased willingness and perceived ability to respond appropriately during flood emergency situations effectively, aligning with findings from Wagner et al. (2025), who reported that focused disaster training enhances self-efficacy and proactive response behavior among students.

The slight improvement observed in the control groups' mean score in post-test may be influenced by factors such as prior knowledge, familiarity with the test, and increased awareness after the pre-test. In pretest–posttest designs, this is known as the testing effect, where exposure to the same questionnaire may influence participants' post-test performance even without any intervention (Pan & Carpenter, 2023).

Overall, it is evident that the PSERT intervention was associated with higher levels of preparedness and readiness among pharmacy students. The experimental group showed significantly higher scores compared to the control group, emphasizing the potential of the intervention to improve students' preparedness and readiness for disaster response. These findings suggest that PSERT can contribute to enhancing pharmacy students' preparedness and readiness in responding to flood-related emergencies. Therefore, the null hypothesis stating that there is no significant difference in preparedness and readiness between the experimental and control groups was rejected.

CONCLUSION

Considering the results, the study concludes that the PSERT intervention significantly improved the preparedness and readiness of pharmacy students in responding to flood disasters. The experimental group showed significant increases in both preparedness and readiness from pre-test to post-test, improving from low to moderate and low to high levels, respectively. Statistical analysis confirmed that these improvements were significant, with the experimental group showing higher post-test scores compared to the control group, which did not receive the intervention. Overall, the findings indicate that structured flood disaster training such as PSERT effectively enhances students' ability to respond appropriately during flood-related emergencies.

RECOMMENDATIONS

The findings of the study recommend that the Pharmacy Students Emergency Response Training (PSERT) may be considered as a basis for strengthening disaster preparedness training among pharmacy students. The integration of the PSERT into the pharmacy curriculum across all year levels, as well as its possible incorporation into Disaster Risk Reduction and Management (DRRM) programs and Philippine Red Cross (PRC) initiatives, may help enhance pharmacy students' preparedness and readiness for flood-related disaster response. Future implementations may include practicing pharmacists, particularly those in community drugstores and professional organizations, to strengthen collaboration in disaster response efforts. Furthermore, future researchers are encouraged to utilize performance-based assessments alongside written tests, as well as larger sample sizes, other disaster types, and long-term evaluations to further validate and strengthen the findings of the study.

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REFERENCES

1. Alzahrani, M. M., Alghamdi, A. A., Alghamdi, S. A., & Alotaibi, R. K. (2021). Knowledge and Attitude of Dentists Towards Obstructive Sleep Apnoea. International Dental Journal. https://doi.org/10.1016/j.identj.2021.05.004
2. Amini, F., Alireza Hidarnia, Fazlollah Ghofranipour, & Mohammad Esmaiel Motlagh. (2024). Examining the effectiveness of a training on improving, functional, and attitude in natural disaster volunteers. Frontiers in Public Health, 12. https://doi.org/10.3389/fpubh.2024.1321535
3. Aslanoğlu, A., Bilgiç, N., Murad, A. A., Elshatarat, R. A., Abujaber, D. A., Al Qasim, E., Siddiq, N. A., Sobeh, D. E., Eltayeb, M. M., & Saleh, Z. T. (2024). The impact of education and trainings on disaster awareness and preparedness among health sciences students: A quasi-experimental study. International Journal of Disaster Risk Reduction, 113, 104888. https://doi.org/10.1016/j.ijdrr.2024.104888
4. Bobbitt, Z. (2022, June 23). Paired Samples t-test: Definition, Formula, and Example. Statology. https://www.statology.org/paired-samples-t-test/
5. Bonovas, S., & Piovani, D. (2023). On p-Values and Statistical Significance. Journal of Clinical Medicine, 12(3), 900. https://doi.org/10.3390/jcm12030900
6. Brysbaert, M. (2019). How many participants do we have to include in properly powered experiments? A tutorial of power analysis with reference tables. Journal of Cognition, 2(1), 16. https://doi.org/10.5334/joc.72
7. Capili, B., & Anastasi, J. K. (2024). An introduction to types of Quasi-Experimental Designs. AJN American Journal of Nursing, 124(11), 50–52. https://doi.org/10.1097/01.naj.0001081740.74815.20
8. Carandang, R. R., Nañasca, R. A., Tuazon, P. N., Hipolito, C. L., Palabay, M., & Getape, A. J. (2025). Acute medical emergency preparedness and associated factors in community pharmacies in Metro Manila, Philippines. Acta Medica Philippina. Advance online publication. https://actamedicaphilippina.upm.edu.ph/index.php/acta/article/view/10924
9. Estabillo, A. (2021). Koronadal monitors villages for floods, landslides. Philippine News Agency. https://www.pna.gov.ph/articles/1159879
10. Farajalla, A., Alomar, M., Palaian, S., Al-Ahmad, M. M., & Ibrahim, M. I. M. (2023). Pharmacy students' readiness and preparedness to contribute during disasters: A cross-sectional two institutional study from the UAE. Pharmacy Practice, 21(2), 2817. https://doi.org/10.18549/PharmPract.2023.2.2817

11. Gillani, A. H., et al. (2020). Evaluation of Disaster Medicine Preparedness among Healthcare Profession Students: A Cross-Sectional Study in Pakistan. International Journal of Environmental Research and Public Health, *17*(6), 2027. https://doi.org/10.3390/ijerph17062027
12. Hsieh, M. J., et al. (2024). The Effectiveness and Benefits of Disaster Simulation Training: A Study with Medical Students. NIH/NCBI. Retrieved from https://pmc.ncbi.nlm.nih.gov/articles/PMC11268575/
13. Hussey, I., Alsalti, T., Bosco, F., Elson, M., & Arslan, R. (2025). An Aberrant Abundance of Cronbach's Alpha Values at .70. Advances in Methods and Practices in Psychological Science, 8(1). https://doi.org/10.1177/25152459241287123
14. International Pharmaceutical Federation (FIP). (2023). FIP statement of policy: The role of pharmacists in disaster and emergency management [Policy statement]. https://www.fip.org/file/5622
15. Kim, H. (2019). Statistical notes for clinical researchers: the independent samples t-test. Restorative Dentistry & Endodontics, 44(3), e26. https://doi.org/10.5395/rde.2019.44.e26
16. Kurata, Y. B., Bano, R. M. L. P., & Matias, A. C. (2023). Factors affecting flood disaster preparedness and mitigation in flood-prone areas in the Philippines. Sustainability, 15(8), 6657. https://doi.org/10.3390/su15086657
17. Mamac, E. Y. (2025, January 8). Heavy rains flood areas in Koronadal City and Alabel, Sarangani. GMA News. https://www.gmanetwork.com/regionaltv/news/106013/heavy-rains-flood-areas-in-koronadal-city-and-alabel-sarangan/story/
18. Marino, K., Crowley, K. E., Ware, L., Lupi, K., Alblooshi, A. S., Alradini, F. A., & Eyre, A. (2024). Development and implementation of an in-hospital pharmacist emergency response simulation training curriculum. Journal of the American Pharmacists Association: JAPhA, 64(3), 102053. https://doi.org/10.1016/j.japh.2024.102053
19. McCourt, E., Singleton, J., Tippett, V., & Nissen, L. (2020). Disaster preparedness amongst pharmacists and pharmacy students: a systematic literature review. International Journal of Pharmacy Practice. https://doi.org/10.1111/ijpp.12669
20. Monk, G., & Pradhan, S. (2019). Pharmacy Schools Should Be Involved in Disaster Preparedness Planning at the Local and State Levels. American Journal of Pharmaceutical Education, 83(1), 6968. https://doi.org/10.5688/ajpe6968
21. Nikitara, M., Kalu, A., Latzourakis, E., Constantinou, C. S., & Velonaki, V. S. (2025). Training Nurses for Disasters: A Systematic Review on Self-Efficacy and Preparedness. Healthcare, 13(24), 3323. https://doi.org/10.3390/healthcare13243323
22. Patel, R., & Taylor, M. (2021). Simulation-based training: applications in clinical pharmacy. The Pharmaceutical Journal, 306, e5. https://doi.org/10.1211/PJ.2021.1.67883
23. Pan, S. C., & Carpenter, S. K. (2023). Prequestioning and pretesting effects: A review of empirical research, theoretical perspectives, and implications for educational practice. Educational Psychology Review, 35(4), Article 97. https://doi.org/10.31234/osf.io/9rqpm
24. Raba, W. J. (2025, July 21). Why the Philippines Faces More Typhoons Than Anywhere Else. Seasia.co. https://seasia.co/2025/07/21/why-the-philippines-faces-more-typhoons-than-anywhere-else
25. Sheposh, R. (2023). Mean. Research Starters | EBSCO Research. https://www.ebsco.com/research-starters/mathematics/mean
26. Seromines, J. M. (2025, November 18). South Cotabato pushes boundaries of preparedness in high-impact mass casualty simulation. Retrieved from https://southcotabato.gov.ph/south-cotabato-pushes-boundaries-of-preparedness-in-high-impact-mass-casualty-simulation/
27. Taber, K. S. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. Research in Science Education, 48(6), 1273–1296.
28. Tenny, S. (2022, September 18). Qualitative study. StatPearls [Internet]. https://www.ncbi.nlm.nih.gov/books/NBK470395/
29. Wagner, B., Washburn, L., Visker, J. D., & Cox, C. (2025). Medical students' disaster-specific self-efficacy and willingness to respond following an introductory preparedness training. Health Professions Education. https://hpe.researchcommons.org/cgi/viewcontent.cgi?article=1353&context=journal
30. Wiedyaningsih, C., Nugroho, A. K., Widyakusuma, N. N., & Prasetyo, S. D. (2023). How to best prepare pharmacy students for disaster management: A Qualitative study. Disaster Medicine and Public Health Preparedness, 17, e319. https://doi.org/10.1017/dmp.2022.289

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31. Yang, Z., Wang, Y., Dong, A., Yang, X., Zhu, L., Ma, S., & Wang, Y. (2025). An analysis of freshmen's knowledge, attitudes, and practices regarding cardiopulmonary resuscitation and the influencing factors at a university in Wuhu City: a cross-sectional study. Frontiers in Public Health, 13. https://doi.org/10.3389/fpubh.2025.1580600
32. Zhang, D., Zhu, X., Zhou, Z., Xu, X., Ji, X., & Gong, A. (2020). Research on Disaster Literacy and Affecting Factors of College Students in Central China. Disaster Medicine and Public Health Preparedness, 1–7. https://doi.org/10.1017/dmp.2020.33