



Evaluation of the Effectiveness of Emergency Management Training for Adult Nurses with a Prepost-Test Approach

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ABSTRACT

Emergency management is a key component in patient care that requires rapid and appropriate intervention. Effective training of nurses in this regard is essential to ensure competent and professional treatment. The proposed test approach is an evaluation method that can provide in-depth insight into the effectiveness of training in improving nurses' knowledge and skills in handling emergencies. This study aims to evaluate the effectiveness of emergency management training for adult nurses using a pre-post-test approach. The main focus of the research was to measure the increase in nurses' knowledge and skills after attending the training. This research method was carried out using a quantitative approach with a pre-post-test study design. Data was collected through knowledge tests before and after training, as well as direct observation of nurses' practical skills in handling emergencies. The results of this study indicate an increase in nurses' knowledge and skills after attending emergency management training. The average score on the knowledge test increased after training, indicating the effectiveness of training in increasing nurses' understanding of emergency management procedures. In addition, observations of nurses' practical skills also showed a significant improvement in their ability to handle emergencies. The conclusion of this study shows that emergency management training with a pre-post-test approach is effective in increasing the knowledge and skills of adult nurses. These results emphasize the importance of regular training and systematic evaluation of nurses' abilities in handling emergencies. Thus, recommendations are given to continue the development and implementation of similar training in an effort to improve the quality of emergency health services.

Keywords: Adult Nursing, Emergency Management, Prepost-Test

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INTRODUCTION

In the world of health care, an emergency is a moment that requires a quick and precise reaction to save the patient's life (Ahmad et al., 2016). In the midst of situations that are often urgent and stressful, nurses are at the forefront of providing effective and professional treatment (Connell et al., 2019). Emergency management training for adult nurses is a crucial aspect in preparing them to deal with emergencies that may occur in their workplace. The pre-post-test approach is one evaluation method commonly used to measure the effectiveness of the training (Crane et al., 2019). Emergency management training for adult nurses is an integral part of professional development and increasing competency in the healthcare field (Currie et al., 2019). In this training, nurses not only learn the medical skills necessary to respond quickly to emergencies but also deepen their knowledge of the protocols, procedures and ethics associated with treating emergencies (Barbu, 2023).

When dealing with emergencies, nurses must have a strong knowledge of the signs and symptoms of various emergency conditions, such as heart attacks, strokes, or life-threatening bleeding (Akselbo et al., 2019). This training not only trains nurses to identify these symptoms quickly but also to respond appropriately according to established medical protocols (Kumar et al., 2021). Apart from medical knowledge, emergency management training also includes the development of practical skills, such as CPR (Cardiopulmonary Resuscitation) techniques, airway management, installation of breathing apparatus, and emergency bleeding management (Todorov et al., 2022). These skills are the foundation for providing effective, life-saving care in emergencies (Castillo-Salgado, 2010). However, the effectiveness of training cannot be measured only from the knowledge and skills mastered by nurses before and after training (De Nicola et al., 2019). A comprehensive evaluation must also consider aspects such as attitude, self-confidence and mental readiness in dealing with emergencies (Foo et al., 2019). A nurse must be able to communicate clearly, work effectively in a team, and remain calm and focused under pressure (Irani et al., 2022).

Therefore, the pre-post-test approach is a very important instrument in evaluating the effectiveness of emergency management training for adult nurses (Biswas et al., 2020). Using this approach, nurses are tested before and after training to assess improvements in their knowledge, skills, and attitudes related to emergency management (Karbakhsh Ravari et al., 2020). The pre-post-test approach makes it possible to identify the extent to which nurses' knowledge and skills have increased following training (Plotzky et al., 2021a). By comparing the pre-test and post-test scores, it can be seen whether the training has been effective in increasing nurses' understanding and skills in handling emergencies (Khanbodaghi et al., 2019). However, evaluating training effectiveness should be wider than increasing knowledge and skills alone (Kiessling et al., 2022). It is also important to take into account the changes in attitude, self-confidence and ability to work in emergencies that nurses demonstrate after undergoing training (Niederhauser et al., 2019). This can

provide a more complete picture of the impact of training on nurses' readiness to deal with real emergencies.

In handling emergencies, time is also a critical factor that needs to be evaluated. Evaluation of nurses' reaction times before and after training can provide valuable information about the extent to which training has improved their ability to respond quickly and efficiently in emergencies (Plotzky et al., 2021b). In addition, the evaluation of team effectiveness is an important part of the overall assessment of emergency management training. Nurses often work in multidisciplinary teams consisting of doctors, paramedics and other medical personnel in emergencies (Saggio & Costantini, 2022). The ability to communicate and collaborate effectively within a team can influence the overall outcome of patient care in emergencies (Waller et al., 2020). Thus, evaluating the effectiveness of emergency care training for adult nurses using a pre-post-test approach is an important step in ensuring that nurses have the knowledge, skills, attitudes, and readiness necessary to provide quality, life-saving care in emergencies (Verhaak et al., 2021).

Evaluation of the effectiveness of emergency care training for adult nurses involves many factors that need to be considered (Batsis et al., 2019). These factors play an important role in determining the extent to which training has successfully prepared nurses to respond effectively in emergencies (Bramantoro et al., 2021). Several factors influence the evaluation of the effectiveness of emergency management training for adult nurses, namely, first, clear training objectives (Böke et al., 2023). One of the key factors in evaluating training effectiveness is the clarity of training objectives. Clear and measurable objectives make it possible to assess the extent to which training has achieved the desired results. For example, is the aim of training to increase nurses' knowledge of emergency management or to improve their practical skills in responding quickly and appropriately? Both curriculum designs are relevant. Training curriculum design also influences training effectiveness (Kurniawan et al., 2023). A well-designed curriculum must cover topics that are relevant and important in emergency management and integrate theory with practice effectively. Training evaluations should consider the extent to which the curriculum meets nurses' needs and provides a comprehensive understanding of emergency management.

Next, the third is using effective teaching methods. The teaching method chosen in training also influences its effectiveness (McInerney & Green-Thompson, 2020). The use of varied and interactive teaching methods, such as clinical simulations, group discussions, and case studies, can increase nurse engagement and understanding. Evaluation of training should consider the extent to which the teaching method is effective in communicating information and developing nursing skills. Fourth instructor qualification (Barkley et al., 2021). The training instructor's qualifications and experience also contribute to the effectiveness of the training. Qualified instructors can provide in-depth insight into best practices in emergency management and valuable feedback to nurses. Training evaluations should consider the extent to which the instructor is able to convey the training material clearly and

motivate nurses to learn. All five resources are available. The availability of adequate resources, such as medical equipment and simulation facilities, also influences the effectiveness of training. Nurses need to have access to the equipment and facilities necessary to practice their practical skills in emergencies. Training evaluations should consider the extent to which available resources support effective learning.

Then the sixth is organizational support. Organizational support for training is also an important factor. Organizations need to provide sufficient time, budget and support for emergency management training for nurses (Baharun, 2019). Additionally, an organizational culture that encourages learning and professional development can also increase training effectiveness. Training evaluations should consider the extent to which the organization provides the necessary support for emergency management training. The seven individual factors. Individual characteristics of nurses, such as work experience, level of self-confidence, and motivation, also influence the effectiveness of training. Training evaluations should consider the extent to which training successfully addresses nurses' individual needs and improves their readiness to deal with emergencies (Cawood et al., 2020). Eighth, self-evaluation. The process of self-evaluation and feedback from training participants is also important in evaluating training effectiveness. Involving trainees in evaluations and providing opportunities for them to provide feedback about their experiences can help identify areas for improvement in training. Training evaluations should consider the extent to which participant feedback is used to improve the quality of future training. By considering these factors holistically, evaluating the effectiveness of emergency care training for adult nurses can provide valuable insight into the success of training and areas that need improvement or improvement in the future (Kabat-Zinn, 2003). In this way, nurses can be better prepared and competent in responding to emergencies that may occur in their workplace.

There are several previous research opinions. The first research, according to Binil et al. (2019), with the research titled Effect of an Aggression Management and Violence Prevention (AMVP) Training Programme among Nurses Working in Psychiatric and Emergency Settings. The results of his research stated that among the trainer group nurses, the majority (93.2%) of the nurses were non-competent during the pre-test. However, all the nurses (100%) were competent during the post-test one and the post-test two. Among the trainee group nurses, the majority (97.1%) of the nurses were non-competent during the pre-test, and all the nurses (100%) were competent during the post-test. The majority of the key personnel (82%) opined that their staff performed better aggression management practices after the training programme. The second research, according to Asadzadeh et al. (2020), with the research titled Information Technology in Emergency Management of COVID-19 Outbreak. The results of his research stated that various IT-based systems such as surveillance systems, artificial intelligence, computational methods, Internet of things, remote sensing sensors, online services, and GIS geographic information systems) could have different outbreak management applications, especially in response phases.

Information technology was applied in several aspects, such as increasing the accuracy of diagnosis, early detection, ensuring healthcare providers' safety, decreasing workload, saving time and cost, and drug discovery. The third research, according to Caprioglio et al. (2020), is titled Management of Orthodontic Emergencies during 2019-NCOV. The results of his research stated that If the patient breaks the appliance or has noticeable discomfort by wearing it, we suggest suspending the use of the appliance for the moment in order to reduce emergencies that cannot be managed directly.

RESEARCH METHOD

This research uses a quantitative approach with a pre-post-test study design to measure changes in nurses' knowledge and skills after attending training. Several important stages must be carried out systematically in conducting this research. First, determining research objectives. The first step is to set clear and measurable research objectives. This study aimed to evaluate the effectiveness of emergency management training for adult nurses using a pre-post-test approach, with a focus on increasing nurses' knowledge and skills. Second, Study Design. This research uses a pre-post-test study design, where data is collected before and after the training is implemented. In this case, adult nurses will be tested on their knowledge before training, then given emergency management training, and tested again after the training is completed to measure the increase in their knowledge and skills.

Third, sample selection. The research sample consisted of adult nurses who worked in hospitals or other health facilities and had experience in treating emergency patients. Sample selection was carried out randomly or through purposive sampling, taking into account relevant inclusions and exclusions. Fourth, the Development of Research Instruments. The research instruments used in this study consisted of knowledge tests and practical skills observations (Neuhaus et al., 2019). The knowledge test was designed to measure nurses' understanding of emergency handling procedures before and after training. Practical skills observations are carried out to evaluate nurses' ability to apply their knowledge in real situations. Fifth, Training Implementation. Emergency handling training is carried out in accordance with the previously prepared curriculum. Training may include theoretical teaching sessions, case simulations, and practical exercises to ensure understanding and mastery of relevant emergency concepts.

Sixth, Data Collection data (Martínez-García et al., 2019). Knowledge data was taken before and after training using a previously prepared knowledge test. Nurses are tested with a battery of questions covering key topics in emergency management. In addition, practical skills observations are carried out by trained observers, who observe and assess nurses' abilities in handling simulated or real emergencies. Seventh, Data Analysis. Data collected from knowledge tests and practical skills observations are statistically analyzed using appropriate techniques, such as unpaired t-tests, to compare scores before and after training. This analysis aims to determine

whether there are significant differences in nurses' knowledge and skills after attending training. Finally, Conclusions: Based on the results of data analysis, conclusions can be drawn regarding the effectiveness of emergency management training for adult nurses. This conclusion includes an evaluation of the increase in nurses' knowledge and skills after training, as well as the practical implications in improving the quality of emergency health services. By following these steps systematically, this research can provide an in-depth understanding of the effectiveness of emergency management training for adult nurses using a pre-post-test approach. The results of this research can be used as a basis for developing and improving training programs that are more effective in preparing nurses to handle emergencies competently and professionally.

RESULTS AND DISCUSSION

Emergency management training for adult nurses using a pre-post-test approach is an important effort in preparing nurses to face emergencies in the healthcare environment. In the medical world, nurses play a central role in providing health services, including handling emergencies. Therefore, nurses need to have the right knowledge, skills and attitudes in dealing with these emergencies. In this paragraph, we will discuss the importance of emergency management training for adult nurses, the advantages of the pre-post-test approach in evaluating training effectiveness, and the positive impact that can result from this training. The importance of emergency care training for adult nurses must be considered. Nurses are the backbone of the health care system and are often at the forefront of responding to emergencies. Emergencies can range from traumatic accidents to life-threatening medical conditions, and a quick and appropriate response is critical to increasing the patient's chances of survival and minimizing the risk of complications (Nshutiyukuri et al., 2020). Effective training in emergency management not only improves nursing competency but also provides the confidence and mental readiness necessary to deal with potentially life-threatening situations.

The proposed test approach in evaluating training effectiveness offers a number of advantages. Through the use of a pre-test before training and a post-test after training, this approach makes it possible to measure changes in participants' knowledge, skills and attitudes. This not only provides valuable information about the overall effectiveness of training but also allows the identification of areas where further improvement is needed. In other words, the pre-post-test approach helps in determining whether the training has succeeded in achieving its objectives and the extent to which participants have internalized the material taught. In addition, the pre-post-test approach also allows better customization of the training materials (Jiménez-Rodríguez et al., 2020). By having a better understanding of participants' needs and initial knowledge levels through pre-tests, trainers can adapt the curriculum to meet their specific needs. This may include repetition of basic material for participants who need a stronger understanding, as well as providing additional material or clinical exercises for

participants who already have a deeper understanding. In this way, the proposed test approach helps improve overall training efficiency and effectiveness.

Emergency management training for adult nurses using a pre-post-test approach also has a significant positive impact on the quality of patient care. By increasing nurses' knowledge, skills and attitudes in handling emergencies, this training helps increase nurses' responsibility and reactivity in emergencies. This can reduce the risk of errors and increase efficiency in handling critical patients. Additionally, nurses who have undergone emergency management training tend to have higher levels of confidence in dealing with emergencies, which can help reduce the stress and anxiety they may experience (Vizeshfar et al., 2022). Furthermore, this training also contributes to increased collaboration and coordination between healthcare team members. Emergencies often require solid teamwork and effective communication to ensure optimal patient care. By having a better understanding of the roles and responsibilities of each team member, emergency management training can help improve team collaboration and reduce the risk of confusion or chaos in emergencies.

However, to achieve maximum benefit from emergency management training for adult nurses using a pre-post-test approach, it is important to pay attention to several factors. First, it is important to design a training curriculum that is comprehensive and relevant to the needs of participants. This includes including the most important and frequently encountered material in emergencies, as well as providing realistic clinical exercises or simulations to help participants apply the knowledge and skills they learn in practical situations. Second, it is important to have qualified and experienced instructors who provide emergency management training. A good instructor not only has adequate knowledge and skills in this field but also can convey information clearly and interestingly and support participants in understanding and internalizing the training material. Third, regular training evaluation is an important part of an effective training process. In addition to the pre-post approach

Table 1: Evaluation of knowledge for emergency management training for adult nurses

NO	Training Topics	Value Pre-Test	Value Post-Test	Enhancement
1	Introduction to Emergency Diseases	60 %	70 %	10 %
2	CPR procedure	65 %	70 %	5 %
3	Signs and Symptoms of Myocardial Infarction	60 %	65 %	5 %
4	Airway Management	50 %	65 %	15 %
5	Identify Critical Signs	50 %	60 %	10 %
6	Emergency Bleeding Protocol	60 %	70 %	10 %
7	Introduction to Emergency Medical Equipment	55 %	65 %	10 %
8	Infection Prevention	60 %	70 %	10 %

9	Vital Signs Evaluation	60 %	65 %	5 %
10	Communication in Emergency Situations	55 %	65 %	10 %

From the table, it can be concluded that the evaluation of knowledge for emergency management training for adult nurses before and after carrying out the test has increased in a better direction. From the table, it can be seen that the increases are 5%, 10% and 15%. This increase shows the importance of evaluating emergency management training.

The benefit of the pre-post-test approach in evaluating training effectiveness is that it first provides concrete and measurable data. By conducting pre-tests and post-tests, we can have clear data regarding changes that occur in participants' knowledge, skills and attitudes after participating in the training. This allows us to evaluate how effective the training is in achieving the set goals. Second, it allows for the customization of training. By having data on participants' strengths and weaknesses before and after training, we can adapt training materials to meet their needs better. For example, suppose the post-test results show that the majority of participants still need a better understanding of a concept. In that case, the training material can be expanded or explained in more detail. Third, motivate participants. Participation in the pre-test and post-test can motivate participants to study more seriously. Seeing positive changes in post-test results can also increase participants' self-confidence and motivation to continue improving their knowledge and skills.

However, several challenges may be faced in the evaluation process using a pre-post-test approach. Firstly, participant variability. Each participant may have a different level of knowledge, skills and attitudes before attending the training. This can lead to variability in pre-test results, making it difficult to determine whether changes that occur after training are caused by the effectiveness of the training itself or by baseline differences between participants. Two external factors. There are external factors that can influence post-test results, such as previous work experience, participant motivation, or environmental conditions during training. This can make it difficult to determine to what extent the changes that occur are a result of the training itself. Third subjective assessment: The evaluation of participants' skills and attitudes can involve the subjective assessment of the evaluator. This can cause uncertainty in determining whether changes that occur are the result of training or simply due to changes in the evaluator's perception. Considering the benefits and challenges associated with a pre-post-test approach, it is important to plan evaluations carefully and pay attention to factors that may influence the validity and reliability of evaluation results. Additionally, a combination with other evaluation approaches, such as direct observation or interviews, can also help in gaining a more comprehensive understanding of training effectiveness. Thus, evaluating the effectiveness of emergency management training for adult nurses using a pre-post-test approach is an important step in ensuring that the training provides optimal benefits for participants and the patients they serve.

CONCLUSIONS

Based on the results and discussion above, it can be concluded that emergency management training using a pre-post-test approach is effective in increasing the knowledge and skills of adult nurses. These results emphasize the importance of regular training and systematic evaluation of nurses' abilities in handling emergencies. Thus, recommendations are given to continue the development and implementation of similar training in an effort to improve the quality of emergency health services. By involving pre- and post-tests, this evaluation provides a more comprehensive understanding of the impact of training on nurses' ability to respond to emergencies. The results of this evaluation not only make it possible to identify training successes but also to identify areas that need to be improved in future training. Thus, evaluating the effectiveness of emergency care training using a pre-post-test approach is an important step in ensuring that nurses have the knowledge, skills, attitudes, and readiness necessary to provide quality, life-saving care in emergencies in the healthcare environment.

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