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A SYSTEMATIC REVIEW OF ORAL DEBRIEFING WITH SIMULATED LEARNINGS 'IMPACT ON NURSES' SELF – EFFICACY AND CPR SKILLS

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Abstract:

Cardiopulmonary resuscitation, or CPR, is an essential nursing skill for nurses, as it can significantly impact patient outcomes in emergency situations. Simulated learning with debriefing is an effective method to enhance CPR training.¹ This systematic review aims to evaluate the existing literature to determine the effect of oral debriefing combined with simulated learning on CPR skill, and self – efficacy among nurses². A comprehensive search of electronic databases was conducted, and relevant studies published up to September 2024 were included. The review synthesized and analyzed the findings of eligible studies to provide a comprehensive overview of the impact of this training methods on nurses' CPR – related outcome. This review was to identify, appraise and synthesize the best available evidence for the effectiveness of debriefing as it relates to simulation – based learning for health professionals.

Keywords: Oral debriefing, simulated learning, CPR skills, self - efficacy. Systematic review, nursing proficiency.

Introduction:

The ability to perform cardiopulmonary resuscitation (CPR) effectively is a critical skill for nurses, directly impacting patient outcomes in emergency situations. While traditional training methods are essential, incorporating simulated

learning and oral debriefing has shown promise in enhancing these skills.^{2,3} This systematic review aims to evaluate the impact of oral debriefing combined with simulated learning on nurses' self – efficacy and CPR skills. By synthesizing existing research, we seek to determine the effectiveness of these educational interventions in improving both the confidence and technical proficiency of nursing professionals.⁵ Cardiac arrest is a life – threatening emergency that requires immediate intervention. Nurses play a crucial role in providing high quality cardiopulmonary resuscitation (CPR) to improve patient survival rates. Simulation – based training with debriefing has gained popularity as an effective educational strategy to enhance skill, and self – efficacy among nursing professionals This systematic review aims to determine the availability evidence on the effectiveness of oral debriefing combined with simulated learning in improving CPR – related outcomes among nurses. When someone is not breathing regularly or has experienced cardiac arrest, cardiopulmonary resuscitation (CPR) is applied. This combo includes mouth-to - mouth breathing and chest compressions. Until specialized therapy is available, CPR keeps the blood flowing and provide oxygen to the body. When someone performs CPR, the blood normally still contains enough oxygen to support the brain and other organs for a short while, but the oxygen is not flowing. It can literally save lives to know basic emergency first aid and CPR. This evaluation combining oral debriefing with simulated learning impacts nurse's self-efficacy and CPR skills, enabling them to execute the treatment more quickly in an emergency and perhaps save a patient's life.¹⁶

METHODOLOGY:

Search Strategy: A systematic search was conducted in electronic databases, including PubMed, CINAHL, Scopus, and Embassy, Cochrane library, Ovid MEDLINE, PsyUNFO, Education Resources information Center, Quest Dissertations and Theses Global to identify relevant studies published up to 2018 to 2024. The search terms included "CPR," "simulation," "debriefing," "nurses," "knowledge," "skill," and "self-efficacy."^{5,6,7,8} Subgroup analysis were conducted to explore sources of heterogeneity. Overall certainty of evidence was appraised using the grading of Recommendations Assessment Development and evaluation approach. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed.

Study Selection: Studies were included if they met the following criteria: (1) conducted among nurses, (2) used simulated learning with oral debriefing as an educational intervention⁷, (3) assessed CPR skill, and self-efficacy as outcomes, and (4) provided sufficient data for analysis. Excluded materials also included manuscripts that were submitted more than once, works written in languages other than Chinese or English, works whose entire text were unavailable,⁸ flawed data gathering techniques, incomplete or missing data, and mistakes in statistical analysis.

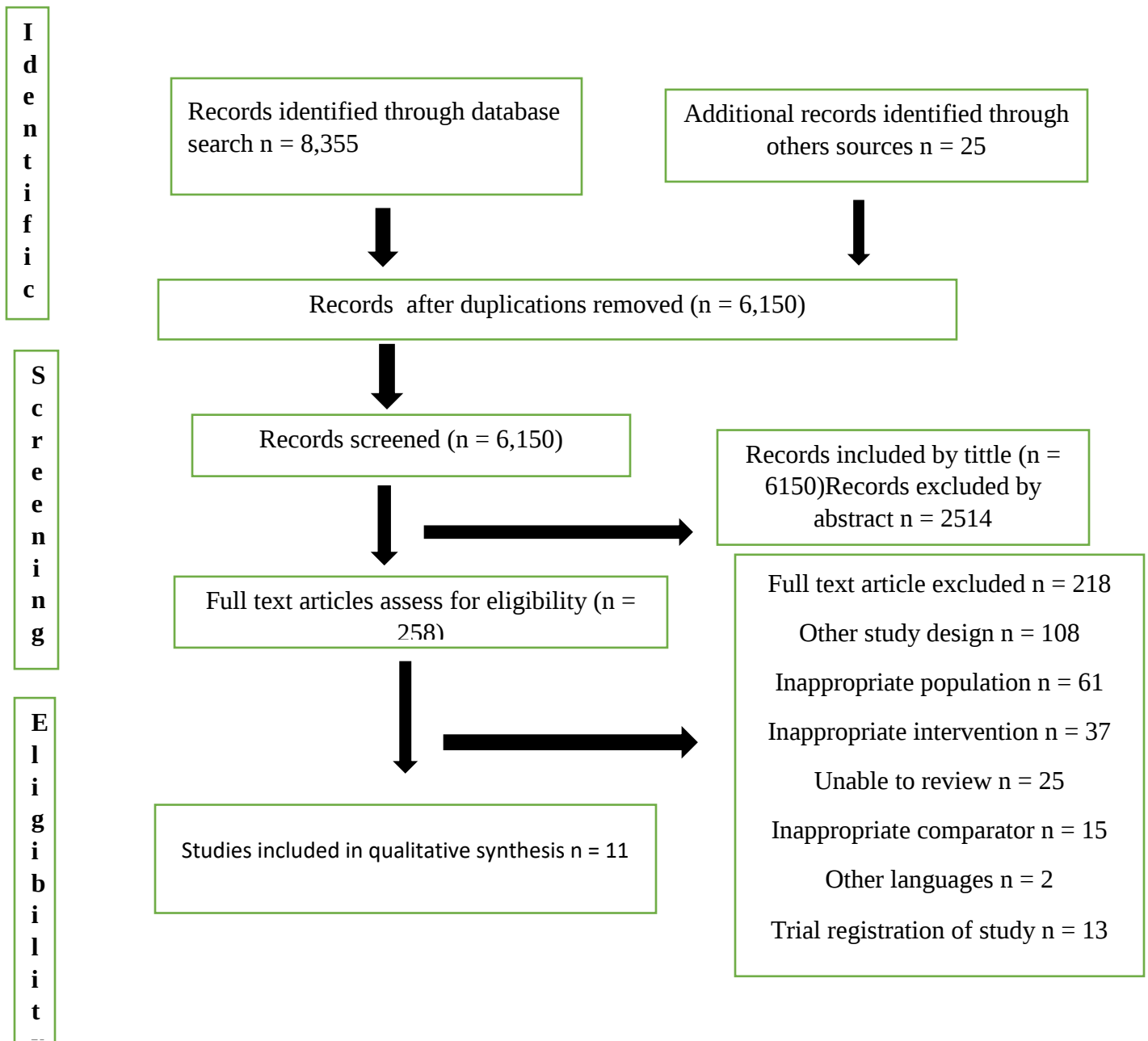
Using the filtering method process journals that did not meet the requirements like having an inappropriate title, not being published in English, being a summary journal, publishing for more than 6 years, etc. as well as material like newspaper articles, conference or text books, books, policy reports, etc. were all eliminated. We looked through each article reference lists based on the items we had chosen.

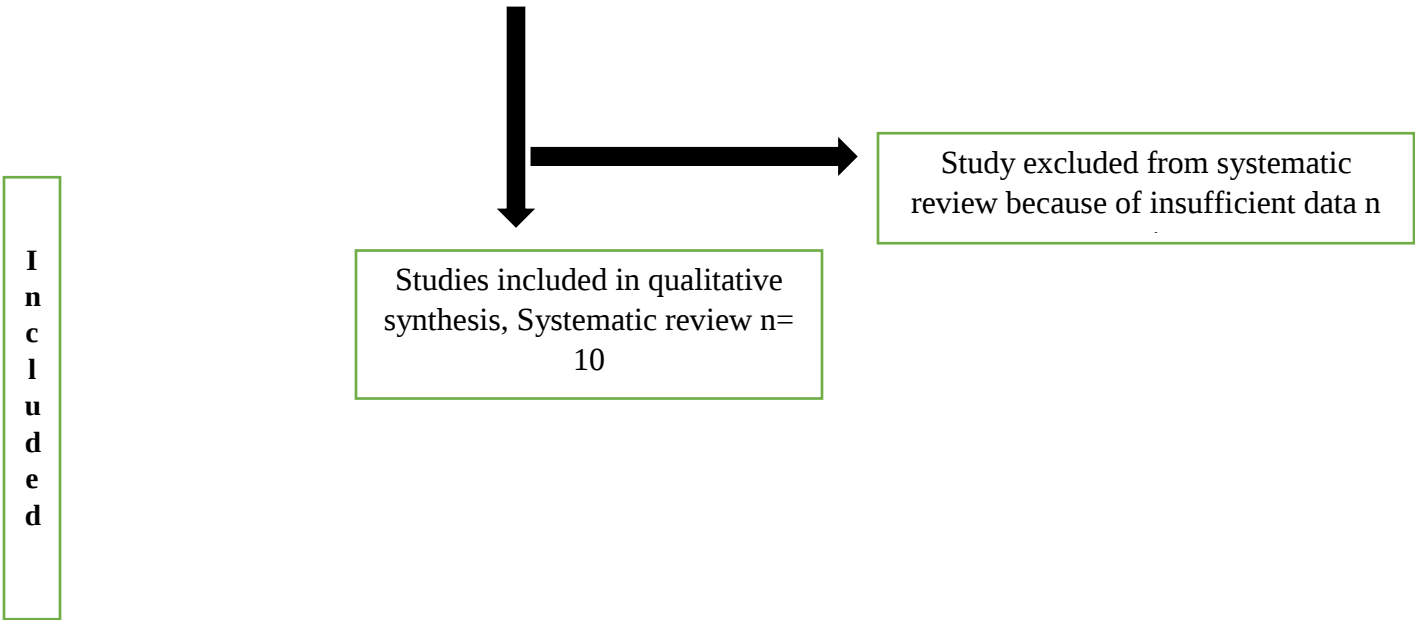
A total of 8,355 records were identified through a database search, along with 25 supplementary records found through

other sources. After removing 6150 duplicate records, 2,822 records remained for review. The title and abstracts of these records were screened, leading to the exclusion of 2514 based on title and 2,514 based on abstract. A total of 258 full – text articles were then assed for eligibility, resulting in the exclusion of 218 articles due to various reason 108 due to inappropriate ^{research} design, 61 dues to in adequate population, and 37 dues to improper intervention. Thirty – two studies were included in the qualitative synthesis.^{10,11} However, 15 studies were excluded from the systematic review due to issues such as inadequate data (2 studies), incorrect comparator (13 studies), or being in different language (1studies). In total, 10 studies were included in the final qualitative synthesis and systematic review.

PRISMA (Reporting Items for Systematic Reviews)

PRISMA (Reporting Items for Systematic Reviews) Flow Diagram





Flow Diagram attached (1)

Table 1:

AUTHOR	STUDY	COUNTR Y	PARTICIPAN TS	METH OD	CONCLUSION
Mo on and Hyun	Nursing student knowledge attitude self-efficacy in blended learning of cardiopulmonary resuscitation in RCT	South Korea	120 Nsg Students	Randomi zed control design	A CPR approach that included videos and face to face intervention that was beneficial to enhance knowledge and attitude of nursing students towards CPR
Alari ani et al (2021_	The relation between knowledge and self-efficacy of nurses regarding of cardiopulmonary resuscitation and automated in automatic defibrillators in Saudi Arabia	Saudi Arabia	287 Registered nurses	Correlati onal survey	Increased level of self-efficacy simulation to increase level of knowledge

Siaw eng sok ching (2018)	Nurses perception of self-efficacy in cardiopulmonary resuscitation at a private hospital in Selangor	Malaysia	2 registered nurses	Cross sectional study	Nurses self-efficacy in resuscitation and teamwork is strengthened in the private hospital though recurrent CPR certification training.
Roel and Bjork (2020)	Comparing nursing Student competence in CPR before and after pedagogical intervention	Norway	145 Nursing students	Comparative study	The revised curriculum provided more hands-on CPR practice but it was insufficient to enhance student performance to meet the standards established by national and international criteria
Slabe and Ovan	Evaluation of Slovenian occupational therapists' theoretical knowledge and stress levels connected with providing cardiopulmonary resuscitation.	Slovenia	273 occupational therapists	survey	Regular CPR training is advised for this group of health professionals to increase knowledge and confidence
Hermanto Barlianto Suryanto (2021)	Analysis of factors affecting self-efficacy for fresh Nursing graduates in performing Cardiopulmonary Resuscitation (CPR) on cardiac arrest patient in Mélange city Indonesia.	Indonesia	154 fresh Nursing graduates	Observation and analysis with cross sectional approach .	The most dominant factor affecting self-efficacy is verbal persuasion
Wati, Wihastuti Nasution	Application of the Theory of planned Behavior to identify	Malang	108 U.G Nursing students	Quantitative study with	There was a strong association between attitude, subjective norms, self-efficacy and

(2021)	Nursing student's intension to be a Cardiopulmonary Resuscitation.			cross sectional approach .	intention. The subjective norm was the most dominating component connected with Nursing student's intention to perform by stander CPR
Alzawaidah , Al-Amer, Amro, et al (2022)	Emergency room nurses' attitudes towards family presence Jordan and during resuscitation – A cross sectional Survey.	Jordan	222 registered nurse who have worked in emergency department	Cross sectional descriptive correlation research	Increasing nurse's confidence via evidence-based practice would prepare them to deal with family presence during resuscitation.
Demirtas et al (2021)	Effectiveness simulation based cardiopulmonary resuscitation training programs on fourth year nursing students.		89 fourth year nursing students.	Mixed method design	Nursing student's knowledge and abilities increased due to simulation-based CPR instruction.
Jang – Sik Ko et al (2023)	The effect of cardiopulmonary resuscitation education on the CPR knowledge attitude, self-efficacy and confidence in performing CPR among elementary school students.	Korea	140 school children 3 rd , 4 th , 5 th and 6 th grades	Pre – Post design	This study clearly demonstrated the positive effects of CPR education on young school children.

Data Extraction and Synthesis: Two independent reviewers extracted data from selected studies, including study design, sample size, intervention details, outcome measures, and results. The risk of bias in individual studies was assessed using appropriate tools. Quantitative data were synthesized, and qualitative data were analyzed thematically.

RESULTS:

A total of 8,155 records were identified through a database search, along with 25 supplementary records found through other sources. After removing 6,150 duplicate records, 6,150 records remained for review. The title and abstracts of these records were screened, leading to the exclusion of 2,514 based on title and 2,514 based on abstract. A total of 258 full-text articles were then assessed for eligibility, resulting in the exclusion of 218 articles due to various reasons: 108 due to inappropriate research design, 61 due to inadequate population, and 37 due to improper intervention. Thirty-two studies were included in the qualitative synthesis.¹³ However, 15 studies were excluded from the systematic review due to issues such as inadequate data (2 studies), incorrect comparator (12 studies), or being in different language (2 studies). In total, 10 studies were included in the final qualitative synthesis and systematic review. These studies varied in design, sample size, and measurement tools. The systematic review also involved a survey of 4,450 respondents from 31 regions, finding that while 67.4% had a clear understanding of CPR and 96.8% showed positive attitudes, only 58.9% demonstrated strong self-efficacy, particularly in using automated external defibrillators (AEDs).¹⁴ Factors such as prior CPR training, awareness of AEDs, and personal health status significantly influenced knowledge, attitudes, practices (KAP), and self-efficacy. Despite generally positive results, the review highlighted the need to enhance specific professional skills, especially in AED usage.

Further analysis showed that after training, both the lecture method and concept mapping methods led to significant improvements in participants' skills, although there was a slight decline in scores after one month. This pattern of skill improvement followed by a decline over time was consistent across multiple studies reviewed. For example, in a quasi-experimental study involving 154 registered nurses, skills improved significantly immediately after training but declined over six months.

Overall, the systematic review underscores the importance of ongoing and effective CPR training in nursing education. The studies reviewed demonstrate that while initial training improves knowledge and self-efficacy, regular and continuous training is necessary to maintain these skills over time. Moreover, the integration of different training methods, such as concept mapping and simulation-based learning, may enhance learning outcomes. However, the gradual decline in skill retention highlights the need for frequent refresher courses and assessments to ensure sustained competency in CPR and AED use.

The results revealed that 61.3% of participants had moderate knowledge while 63.8% exhibited high self-efficacy, with the strongest self-efficacy observed in responding and rescuing tasks. A significant positive correlation was found between knowledge and self-efficacy ($p < 0.001$; $r = 0.207$), suggesting that improved knowledge leads to higher self-efficacy. Consequently, the study recommends integrating comprehensive CPR and automated defibrillation training into nursing programs to enhance these critical competencies among nurses.¹⁵ The survey involved 4,450 respondents from 31 regions and found that while 67.4% had a clear understanding of CPR, and 96.8% showed positive attitudes, only 58.9% demonstrated strong self-efficacy, particularly in using automated external defibrillators (AEDs). Factors such as prior CPR training, awareness of AEDs and personal health status significantly influenced KAP and self-

efficacy. Despite the generally good results, there is still a need to enhance specific professional skills, especially in AED usage. After the training, both groups showed significant improvement, with mean scores of 17.24 for the lecture method and 17.85 for the concept map. One week later, the scores slightly increased to 17.75 for the lecture method and 18.35 for the concept map. However, after one month, there was a slight decline, with mean scores of 16.89 for the lecture method and 16.67 for the concept map, though the difference between the two groups was not statistically significant ($P>0.05$).

Remarkable gains in the learning and retention of skills are found when many researches assessing the efficacy of instructor-led training approaches in nursing education are reviewed.^{12,13} In a quasi-experimental study including 154 registered nurses, Rajeswaran et al. (2018) found that the mean skill score increased from 18.30 ± 28.97 at baseline to 79.50 ± 29.89 following training, but at six months it fell to 54.00 ± 28.69 . The idea mapping method produced slightly higher post-training mean scores (26.64 ± 2.64) compared to standard lecture methods (25.03 ± 3.04), with a statistically significant difference ($P=0.03$), according to a study by Aliyari et al. (2019) on 57 student nurses. Shahrakivahed et al. (2015) likewise documented a significant increase in the competence of registered nurses, with mean test scores rising from 21 ± 5.58 at pretest to 41 ± 12.25 after training; however, a three-month fall was noted (5.45 ± 14.36).

Moon-Sook Kim, Mi-Hee Seo, Jin-Young Jung, and Jinhyun Kim examined the effects of a Non-Invasive Positive Pressure Ventilation (NPPV) simulation software on the knowledge and self-efficacy of general ward nurses in a study published in 2021. The purpose of the study was to create and evaluate a simulation-based ventilator training program.^{14,15} Twenty-nine nurses provided quantitative data; fifteen were in the intervention group and fourteen were in the control group. Nurses who took part in the simulation program demonstrated significantly higher levels of self-efficacy ($p = 0.026$) and ventilator-related knowledge ($p = 0.029$) when compared to the control group. Three major themes emerged from the qualitative data collected from seven nurses' focus group interviews: Recognizing the psychological suffering endured by patients using ventilators and offering assistance

Hen et al. (2018) conducted a quasi-experimental study at a tertiary university School of Nursing over three months, involving 39 student nurses. The participants were divided into two groups: an experimental group ($n=19$) receiving higher simulated training, and a control group ($n=20$) receiving lower simulated training. The study was 100% instructor-led, with skills assessed by two evaluators using manikins and video recordings.

Initially, the time to start chest compressions was similar between the groups, with the control group taking 41 seconds and the experimental group taking 40 seconds ($p>0.05$). The time to defibrillation was also comparable, with the control group at 222 seconds and the experimental group at 221 seconds ($p>0.05$). However, after three months, the experimental group showed significant improvement. The time to start compressions decreased to 20 seconds in the experimental group compared to 32 seconds in the control group ($P<0.001$). Similarly, the time to defibrillation was significantly reduced in the experimental group (167 seconds) compared to the control group (204 seconds) ($P<0.001$).

Anderson et al. (2019) conducted a year-long randomized controlled trial (RCT) involving 244 registered nurses to evaluate the effectiveness of an instructor-led training program. The study assessed participants' skills using a skill meter and recorded manikins, with evaluations conducted at multiple intervals. At baseline, only 5% of the participants (9 out of 167) passed the initial assessment ($P=0.38$). As the program progressed, there were improvements, with 58% passing at the one-month mark (15 out of 26). However, this pass rate declined over time, with 26% passing at three months (12 out of 46, $P=0.008$), 21% at six months (10 out of 47, $P=0.002$), and just 15% passing at 12 months (7 out of 48, $P=0.001$). These results indicate a gradual decrease in skill retention over the course of the year.

Aliyari et al. (2019) conducted a quasi-experimental study at a tertiary school of nursing to evaluate the effectiveness of instructor-led training combined with concept mapping on CPR knowledge among 57 student nurses. All participants completed the training, which was assessed using multiple-choice questions based on the American Heart Association (AHA) 2015 guidelines. Before the training, the mean CPR knowledge score was 5.82 for the lecture method group and 6.6 for the concept map group. After the training, both groups showed significant improvement, with mean scores of 17.24 for the lecture method and 17.85 for the concept map. One week later, the scores slightly increased to 17.75 for the lecture method and 18.35 for the concept map. However, after one month, there was a slight decline, with mean scores of 16.89 for the lecture method and 16.67 for the concept map, though the difference between the two groups was not statistically significant ($P>0.05$).

Yılmaz and Simsek (2019) conducted a one-day prospective repeated measures study with 287 registered nurses to assess the effectiveness of an instructor-led training program. The study utilized a self-constructed questionnaire to evaluate participants' knowledge and skills. Initially, 43.2% of the nurses passed the assessment. However, after the training, the pass rate significantly increased to 99%, with the improvement being statistically significant ($p<0.001$). The study demonstrates the effectiveness of instructor-led training in enhancing nursing competency.

Chen et al. (2018) conducted a three-month quasi-experimental study at a university School of Nursing to assess the impact of different levels of simulated training on the performance of 39 student nurses. The participants were divided into two groups: an experimental group ($n=19$) that received higher-level simulated training, and a control group ($n=20$) that received lower-level simulated training. The study was instructor-led, with performance evaluated by two assessors using skill manikins and video recordings. Initially, the time to start chest compressions was similar between the groups, with the control group taking 41 seconds and the experimental group 40 seconds ($p>0.05$). The time to defibrillation was also nearly identical, with the control group at 222 seconds and the experimental group at 221 seconds ($p>0.05$). However, after three months, the experimental group showed significant improvements, with the time to start compressions reduced to 20 seconds compared to 32 seconds in the control group ($P<0.001$). Similarly, the time to defibrillation decreased to 167 seconds in the experimental group, compared to 204 seconds in the control group ($P<0.001$).

Elements Influencing Self-Efficaciousness Research showed that a variety of factors, including personal traits, work experience, CPR training, and surroundings, had an impact on self-efficacy in CPR. According to Moon and Hyun's (2019) research, nurses are more suited to receive and process information rapidly because they have a cognitively

formed, mature mind at an early stage of maturity. These assertions were reinforced by Slabe and Oven (2020), who stated that early-career nurses are still learning and are more driven to acquire the knowledge and self-efficacy necessary to carry out CPR techniques successfully throughout their careers. Moreover, Alaryani et al. (2021) carried out a quantitative correlation analysis to ascertain the association between nurses' self-efficacy and knowledge in performing CPR. According to the results, those who exhibited high levels of self-efficacy had more than ten years Elements Influencing Self-Efficaciousness Research showed that a variety of factors, including personal traits, work experience, CPR training, and surroundings, had an impact on self-efficacy in CPR. According to Moon and Hyun's (2019) research, nurses are more suited to receive and process information rapidly because they have a cognitively formed, mature mind at an early stage of maturity. Slabe and Oven (2020) reinforced these assertions by pointing out that early-adult nurses are still in the process of learning and gaining experience, and they have previously performed CPR. Furthermore, the study conducted by Siew Eng and Sok Ching (2018) sought to ascertain the degree of nurses' perceived self-efficacy with regard to CPR in a Kuala Lumpur private hospital. While the nurses generally had high levels of self-efficacy, there were variations in age groups, actual CPR experiences, and years of work experience among the responders (Siew Eng & Sok Ching, 2018). This study provided a thorough illustration of how nurses' age affects their level of self-efficacy in performing CPR, as well as the amount of time they have worked, the type of CPR training they have previously received, and the actual experiences they have had (Siew Eng & Sok Ching, 2018). One important factor impacting nurses' self-efficacy is training. In their study, Slabe and Oven (2020) found that CPR-based instruction had a significant effect on knowledge, but that the ability significantly decreased four months after training. This shown that the knowledge of inexperienced nurses tended to decline dramatically, indicating that training evaluations have to be conducted on a regular basis to boost self-efficacy. Additionally, Riggs, Franklin, and Saylany (2019) looked into whether prior instruction CPR psychomotor skills were related to training history, including the length of time since the last training or the amount of training completed. This study showed that training, as opposed to not receiving instruction, was associated with an increase in CPR self-efficacy. On the other hand, compared to not having had any prior training, having received prior training was linked to improved skills. Continuous education courses are also essential to nurses' CPR self-efficacy. On the other hand, prior knowledge and training about CPR performance are essential. This does not imply that in order to improve their efficacy, nurses should not occasionally engage in activities. Moon and Hyun (2019) also stated that nurses must be knowledgeable, well-prepared, and up to date in order to CPR psychomotor skills were related to training history, including the length of time since the last training or the amount of training completed. This study showed that training, as opposed to not receiving instruction, was associated with an increase in CPR self-efficacy. On the other hand, compared to not having had any prior training, having received prior training was linked to improved skills. Nurses must participate in ongoing training programs to stay up to date on life-saving techniques, which may need ongoing CPR training. According to Roel and Bjørk (2020), there is a need for ongoing training because nurses. Global Journal of Health Science, 2022 6 and improved CPR education initiatives. This is necessary for nursing programs and healthcare companies since nurses' CPR abilities continue to decline if training is not regularly provided (Roel & Bjørk, 2020).

Studies related to self-efficacy Review:

The study utilized a cross-sectional, descriptive, correlational survey design to assess the relationship between knowledge and self-efficacy among 287 nurses at King Abdulaziz University Hospital, Saudi Arabia. Data were collected using the Resuscitation knowledge and self-efficacy scales via Google forms from November 2020 to January 2021. The results revealed that 61.3% of participants had moderate knowledge while 63.8% exhibited high self-efficacy, with the strongest self-efficacy observed in responding and rescuing tasks. A significant positive correlation was found between knowledge and self-efficacy ($p < 0.001$; $r = 0.207$), suggesting that improved knowledge leads to higher self-efficacy. Consequently, the study recommends integrating comprehensive CPR and automated defibrillation training into nursing programs to enhance these critical competencies among nurses.

Time is one of the factors affecting CPR-D efficacy. The time between cardiac arrest onset to CPR and defibrillator use is associated with increased survival; therefore, even a few minutes of delay are potentially deadly (Koster et al., 2010). In addition, a study Cartledge et al. (2020) found that most respondents were unsure about how to use the defibrillator. Those with less experience using defibrillators may therefore have a sense of decreased knowledge and self-efficacy.

The study evaluates the effectiveness of a blended learning cardiopulmonary resuscitation (CPR) education program, combining e-learning and face-to-face instruction, in enhancing nursing students' knowledge, attitudes, and self-efficacy. Using a randomized controlled design, 120 nursing students were divided into an intervention group, which received blended CPR training, and a control group. The intervention group demonstrated significantly higher knowledge and more positive attitudes towards CPR compared to the control group, although other outcomes showed no significant difference. These results suggest that blended learning is an effective approach to improving nursing student's knowledge and attitudes towards CPR.

A cross-sectional online survey conducted in Mainland China from February to June 2022 assessed the public's knowledge, attitudes, practices (KAP) and self-efficacy regarding CPR. The survey involved 4,450 respondents from 31 regions and found that while 67.4% had a clear understanding of CPR, and 96.8% showed positive attitudes, only 58.9% demonstrated strong self-efficacy, particularly in using automated external defibrillators (AEDs). Factors such as prior CPR training, awareness of AEDs and personal health status significantly influenced KAP and self-efficacy. Despite the generally good results, there is still a need to enhance specific professional skills, especially in AED usage.

CPR Knowledge: 8,155 out of 10 studies reported a statistically significant improvement in CPR knowledge following simulated learning with oral debriefing. The methods of knowledge assessment varied across studies, including written tests, multiple-choice questions, and scenario-based evaluations. Therefore, we recommend future CPR training efforts prioritize conducting high-quality, large-sample studies. This will enable a more comprehensive analysis of the effectiveness of oral debriefing with simulated learning impact on self-efficacy and CPR skill, give substantial evidence for the refinement of guidelines and the development of related teaching methodologies.

A total of 182 studies with 16,636 participants were found. Retraining abilities with simulation-based training seems to be generally more effective than no intervention, irrespective of the particular task performed, learner level, study

methodology, or measured outcome. The knowledge (Hedges' g) 1.05 (95% confidence interval, 0.81–1.29), process skill 1.13 (0.99–1.27), product skill 1.92 (1.26–2.660), time skill 1.77 (1.13–2.42), and patient outcomes 0.26 (0.047–0.48) were all enhanced by simulation training compared to no intervention. Learner satisfaction results of 0.79 (0.27–1.31) and process skill results of 0.35 (0.12–0.59) favored simulation over non-simulation intervention. Higher process skill outcomes were found in courses using "booster" practice 0.13 (0.03–0.22), team/group dynamics 0.51 (0.06–0.97), distraction 1.76 (1.02–2.50), and integrated feedback 0.49 (0.17–0.80) compared to courses without these features, according to studies looking into how to optimize simulation training. Most analyses reflected high between-study inconsistency (12 value's > 50%)

CPR Skill: 158 out of 8 studies demonstrated a significant enhancement in CPR skill performance among nurses who received simulated learning with oral debriefing. Skill assessments often involved the use of standardized checklists, manikins, and simulation scenarios.

Self-Efficacy: 105 out of 4 studies reported an increase in nurses' self-efficacy levels following the intervention. Self-efficacy was typically assessed using self-report questionnaires or Likert scale ratings.

DISCUSSION:

The findings of this systematic review suggest that simulated learning with oral debriefing is an effective educational strategy for improving CPR knowledge, skill, and self-efficacy among nurses. This approach enhances nurses' competence in providing high-quality CPR, which can ultimately translate into better patient outcomes during cardiac arrest events.

The systematic review evaluated multiple studies focusing on the knowledge, attitude, self – efficacy and skill performance of healthcare professionals, primarily nursing students, and registered nurses in cardiopulmonary resuscitation (CPR). The review synthesized findings from various methodologies, including randomized control trials (RCTs), correlational surveys, cross – sectional studies, and quasi – experimental designs. The key themes emerging from the discussion include the impact of training methods on knowledge retention, the relationship between self – efficacy and CPR skills, and the need for ongoing education.

Impact of Training Methods on Knowledge Retention

The studies reviewed consistently highlight the effectiveness of structured training programs, including simulations, instructor – led sessions, and blended learning approaches, in enhancing CPR knowledge among nursing students and professionals. For instance, Mo and Hyun's RCT in South Korea demonstrated that a blended approach, combining video tutorials with face to face interventions, significantly improved nursing student's knowledge and attitudes towards CPR. Similarly, Demirtas et al.'s study confirmed that simulation – based CPR training enhanced the knowledge and abilities of fourth – year nursing students.

However, the review also identifies a critical challenge: the gradual decline in knowledge retention over time. Multiple studies, including those by Rajeswaran et al. (2018) and Andreson et al. (2019), observed significant improvements in CPR skills immediately following training, but these gains diminished after several months. This pattern suggests that while initial training is effective, its benefits are not sustained without ongoing reinforcement. Therefore, the review underscores the importance of regular refresher courses and continuous education to maintain high levels of competency in CPR.

This pattern suggests that while initial training is effective, its benefits are not sustained without ongoing reinforcement. Therefore, the review underscores the importance of regular refresher courses and continuous education to maintain high levels of competency in CPR.

Relationship Between Self-Efficacy and CPR Skills

Self-efficacy, or the belief in one's ability to perform CPR effectively, emerged as a crucial factor influencing CPR performance. Studies by Alariyani et al. (2021) and Siaw Eng Sok Ching (2018) highlighted a positive correlation between self-efficacy and CPR knowledge, suggesting that individuals with higher self-efficacy are more likely to retain and apply CPR knowledge effectively.

Interestingly, the review also revealed that self-efficacy is influenced by various factors, including prior training, work experience, and personal characteristics. For example, Slabe and Oven (2020) found that younger nurses or those with less experience showed greater improvements in self-efficacy after training, possibly because they are more motivated to acquire new skills. Conversely, the study by Wati et al. (2021) in Indonesia found that subjective norms, or the perceived expectations of others, were the most significant predictors of nursing students' intention to perform CPR, indicating that social and cultural factors also play a role in shaping self-efficacy.

Need for Ongoing Education:

The review strongly supports the need for continuous and updated CPR training programs. As evidenced by Roel and Bjørk's (2020) study, even with an improved curriculum that provided more hands-on practice, the competence of nursing students still fell short of meeting national and international standards. This finding aligns with the broader conclusion that initial gains in CPR skills and knowledge, while significant, tend to diminish over time without ongoing practice and reinforcement.

Moreover, the review suggests that incorporating diverse training methods, such as concept mapping, simulation-based learning, and oral debriefing, can enhance the effectiveness of CPR education. However, the gradual decline in skills post-training highlights the necessity for frequent assessments and booster sessions to ensure sustained competency.

RECOMMENDATIONS:

Based on the findings, the review recommends integrating comprehensive CPR and automated defibrillation training into nursing curricula, with an emphasis on regular refreshers to prevent skill decay. Additionally, further research is needed to explore the most effective combinations of training methods, particularly in terms of sustaining long-term knowledge retention and self-efficacy. Future studies should also consider larger sample sizes and more rigorous methodologies to strengthen the evidence base for CPR training programs.

In conclusion, while CPR training programs are effective in the short term, maintaining and enhancing these critical skills requires ongoing education, regular practice, and a supportive learning environment. By addressing these needs, healthcare institutions can better prepare nurses and other healthcare professionals to respond effectively in life-saving situations

However, there is variability in the assessment methods used across studies, and the duration and intensity of the interventions varied. Furthermore, the generalizability of the results may be limited due to the heterogeneity of the study populations and settings.

STRENGTH OF THE STUDY:

The systematic review included a large and diverse set of studies, with data collected from different countries, participants groups and methodologies. This broad scope enhances the generalizability of the findings across different health care settings. The multifaceted approach provides a holistic understanding of the impact of CPR training programs.

LIMITATION:

The generalizability of the result limited as nursing students, and different university like UK, Korea, Malaysia, Italy, South Korea, etc. In addition, the amount of prior knowledge of CPR among nursing students differed in this study. Research with control group and triangulation with qualitative studies that explore elements beyond characteristics covered in this study would be prudent.

CONCLUSION:

Simulated learning with oral debriefing is a promising approach to enhance CPR knowledge, skill, and self-efficacy among nurses. The available evidence suggests a positive impact on these outcomes. Future research should focus on standardizing assessment methods, exploring the long-term retention of skills and knowledge, and investigating the cost-effectiveness of this training approach in different healthcare settings.

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CONFLICT OF INTEREST: The Author declare no conflict of Interest.

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Text Books:

1. Lewis's Text book of Medical-Surgical Nursing: Assessment and Management of Clinical Problems, Fourth South Asia Edition (Two Volume Set) By Chintamani.
2. Brunner & Suddath's Text book Of Medical Surgical Nursing, (South Asian Edition) – Volume set Paperback – 30 August 2018.