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Promoting Competence and Confidence: Simulation-Based Basic Life Support Training for Jordanian Nurses

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Abstract

Cardiopulmonary arrest is a major health issue that affects healthcare providers. The COVID-19 pandemic has added a new risk to rescuers who may be attempting to resuscitate victims. It is essential to strike a balance between resuscitation and the need to protect oneself from infection. The study aims to evaluate the effectiveness of simulation training in enhancing the Basic Life Support (BLS) knowledge, skills, and confidence levels of newly employed nurses. The study employed a single-masked, prospective, randomized controlled trial design, which consisted of three phases: a pre-test, an immediate post-test, and a post-test conducted three months later. The American Heart Association's BLS test was used to assess knowledge and practical skills of 102 nurses who were randomly assigned to two groups. The nurses' confidence was evaluated through a self-evaluation questionnaire. The control group received the brochure, and the interventional group received a seven-hour BLS training using simulation. Both arms were homogenous in their characteristics, according to Mann-Whitney analysis. Independent T-test reflected homogenous pre-test results in knowledge, practice, and confidence between both arms. The result also showed significant differences between both groups in the post-test-1 in knowledge ($p < 0.001$), practice ($p < 0.001$) and confidence ($p = 0.024$); and significant differences in the post-test-2 between both groups in knowledge ($p < 0.001$), practice ($p = 0.002$) and confidence ($p < 0.001$). BLS training using simulation is an efficient method that enables participants to become more knowledgeable and skilled in BLS, resulting in a high level of confidence. Frequent, short BLS training using simulation helps maintain competence and confidence, ensuring readiness for CPR in case of cardiopulmonary arrest.

Keywords: basic cardiac life support, confidence, knowledge, practice, simulation training

Abstrak

Mempromosikan Kompetensi dan Kepercayaan Diri: Pelatihan Bantuan Hidup Dasar Berbasis Simulasi bagi Perawat Jordania. *Henti jantung paru adalah masalah kesehatan utama yang memengaruhi penyedia layanan kesehatan. Pandemi* COVID-19 *menambah risiko bagi tim penyelamat yang berupaya menyadarkan korban. Penting menyeimbangkan kebutuhan resusitasi dengan perlindungan diri dari infeksi. Penelitian ini mengevaluasi efektivitas pelatihan simulasi dalam meningkatkan pengetahuan, praktik, dan kepercayaan diri perawat baru. Studi ini menggunakan desain* single-masked prospective randomized control trial *yang terdiri dari tiga fase*: pre-test, post-test *segera setelah intervensi, dan* post-test *yang dilakukan tiga bulan kemudian. Tes* Basic Life Support (BLS) *dari* American Heart Association *digunakan untuk menilai pengetahuan dan keterampilan praktik. Selain itu, kepercayaan diri perawat dievaluasi melalui kuesioner evaluasi diri. Seratus dua perawat didistribusikan acak ke dua kelompok; kontrol menerima brosur, intervensi menerima pelatihan BLS tujuh jam menggunakan simulasi. Kedua kelompok memiliki karakteristik homogen dengan analisis* Mann-Whitney. *Uji-T independen menunjukkan hasil pra-tes homogen dalam pengetahuan ($p = 0,324$), praktik ($p = 0,887$) dan kepercayaan diri ($p = 0,304$). Hasil menunjukkan perbedaan signifikan pada* post-test-*1 dalam pengetahuan ($p < 0,001$), praktik ($p < 0,001$) dan kepercayaan diri ($p = 0,024$); serta* post-test-*2 dalam pengetahuan ($p < 0,001$), praktik ($p = 0,002$) dan kepercayaan diri ($p < 0,001$). Pelatihan* BLS *dengan simulasi adalah metode efisien yang meningkatkan pengetahuan, keterampilan, dan kepercayaan diri peserta dalam* BLS. *Pelatihan* BLS *singkat dan sering* *menggunakan simulasi membantu menjaga kompetensi dan kepercayaan diri, memastikan kesiapan untuk* CPR *jika terjadi henti jantung dan paru.*

Kata Kunci: *bantuan hidup jantung dasar, kepercayaan diri, pelatihan simulasi, pengetahuan, praktik*

Introduction

Cardiopulmonary arrest has become a major health issue facing healthcare providers (HCPs) and has been increasing mortality globally (Abelsson et al., 2020; Mullor et al., 2021). In Europe, cardiopulmonary arrest is the third cause of death (Gräsner et al., 2021). Cardiopulmonary arrest accounted for 80% of deaths inside hospitals (Jang et al., 2021). COVID-19 introduced a new risk to rescuers when resuscitating victims, necessitating a balance between resuscitation and protecting themselves from infection (Goodloe et al., 2021). Globally, the incidence of cardiopulmonary arrest increased to 23% during the first wave of COVID-19 in April 2020, and to 19% during the second wave in December of the same year (Holm et al., 2021).

Nursing educators have utilized simulation since the earliest days of nursing education, dating back to the 1950s (Span, 2015). The World Health Organization (WHO) defines simulations as instructional methods that utilize one or more pedagogical training strategies to positively impact healthcare professionals' (HCPs) motivation to acquire knowledge and skills (Martins et al., 2018). Simulation is suitable for critical training (Alexander, 2020). WHO emphasized that simulation in medical and nursing education improves learning outcomes and ensures patient safety (Ekert et al., 2021). Simulations have become important tools for training medical professionals and improving educational efficiency (Handeland et al., 2021). The use of simulation in training has increased globally over the past two decades and has become widely adopted in nursing education (Alalhareth et al., 2021). The American Heart Association (AHA) strongly recommends incorporating simulation into Basic Life Support (BLS) training (Mullor et al., 2021).

Health institutions must adopt innovative teaching methods, such as simulation (Rushton et al., 2020), especially during the COVID-19 pandemic (Ekert et al., 2021). Simulation training maintains the ethical aspect by allowing nurses to make mistakes while applying invasive and non-invasive procedures in simulation, instead of on real patients (Martins et al., 2018).

BLS is the primary step of first aid that can be administered to victims before an advanced HCP arrives. High-quality cardiopulmonary resuscitation (CPR) requires knowledgeable and skilful rescuers to enhance the victims' survival (Laco & Stuart, 2021). Early and correct CPR is crucial for doubling or tripling the survival rate (Nusser, 2021; Sachdeva, 2020; Zhou et al., 2020). Early CPR initiation within 3-5 minutes increases the survival rate among victims (Chowdhary et al., 2020). On the other hand, one minute late to initiate chest compression reduces a victim's chance of survival by 7-10% (Sharma et al., 2021).

Nurses should continuously work on improving and updating their knowledge and skills in BLS competencies (Rushton et al., 2020); they should apply BLS quickly and correctly (Park & Lee, 2021). Nurses are the primary target audience for BLS training (Qalawa et al., 2020; Roslinda et al., 2022), because they spend a considerable amount of time with patients and they are often the first healthcare professionals to recognize cardiopulmonary arrest (Jang et al., 2021). Victim resuscitation requires immediate action within minutes from the nearest HCPs to the scene of the cardiopulmonary arrest; most available HCPs near patients are nurses (Nusser, 2021).

The nursing profession's development should begin in the first year of employment to instil the building blocks of confidence, knowledge, and practice. Moreover, simulation training helps newly employed nurses absorb stress and increase their confidence during patient care (Ruslan & Saidi, 2019). Most adverse effects and medical errors occur in the first years of employment due to a lack of exposure to critical situations (Borggreve et al., 2017).

This study aims to evaluate the effectiveness of simulation training in enhancing the BLS knowledge, practice, and confidence levels of newly employed nurses in Jordanian governmental hospitals. Nurses represent the largest group of healthcare providers in Jordan, and the selected hospitals for this study serve a significant portion of the public population (The National Strategy for Health Sector in Jordan, 2020). Additionally, the nurses selected for this study graduated from universities during the COVID-19 pandemic in 2021 and 2022 (Abuhammad, 2020; Sindiani et al., 2020; Suliman et al., 2021). The study hypothesized that there would be no significant differences in the participants' characteristics and pre-tests between the control and experimental groups, while significant differences would be observed in the post-test results between the two groups.

Methods

The study employed a single-masked, prospective, randomized controlled trial design consisting of three phases: assessment, acquisition, and retention. The pre-test was conducted during the assessment phase. Post-test 1 was administered immediately after the intervention, during the acquisition phase, and post-test 2 was conducted three months later, during the retention phase. The current study was registered with ClinicalTrial.gov (ID: NCT06001879) in August 2023. Homogeneous inclusion criteria were maintained between the control and experimental groups in this study (Sarvan & Efe, 2022). The researchers selected newly employed nurses with less than two years of experience in nursing (Mante, 2019), specifically those who worked in non-critical care departments, had limited exposure to recognizing cardiopulmonary arrest, and had not received BLS training prior to the commencement of the study. Researchers excluded participants with intensive care unit (ICU) capabilities from this study (Laco & Stuart, 2021).

G*POWER software was applied to compute the sample size using the following parameters: Power (P = 0.8), Alpha ($\alpha = 0.05$), and Effect Size (ES = 0.275). The researchers increased the initial participant count by 30% to account for attrition, resulting in a final sample size of 102 participants divided into two groups of 51 participants each. The computer-generated randomization software divided five hospitals in Jordan into two groups. Three hospitals were assigned to the control group, while the interventional group was selected from two hospitals. The nursing office in each hospital prepared a list of eligible participants, and the participants were finally assigned to each group using computer-generated random allocation from the previously prepared list of names. Data collection proceeded in three steps: pre-test, intervention, and post-test. The pre-test is the baseline data before the training session (Oermann et al., 2020). Participants who met the eligibility criteria began filling out the demographic data and the pre-test within 30 minutes as a proactive assessment prior to the interventions. Pre-tests were conducted in multiple sessions, according to the nurses' availability; the response rate for both groups were 100%.

Measurement tools consisted of four assessment parts: demographical data, knowledge, practice, and confidence. AHA's BLS test consisted of two domains, knowledge and practice, and consisted of 23 questions adopted from Yunus et al. (2015); each correct answer was vested one mark, and each wrong answer was given zero. The reliability of AHA's BLS test tool (Cronbach's $\alpha = 0.748$) reflected the suitability and stability of these tools. The self-evaluation questionnaire for nurses' confidence was adapted from a study (Bissenbayeva, 2019) and used to assess participants' confidence levels in performing BLS. This tool consisted of seven statements; according to the participants' answers, these statements were rated on a drop-down scale with a percentage value ranging from the lowest value (5%) to the highest value (100%). The survey tools were found to be suitable and stable, with a Cronbach's α of 0.73.

The interventional group participants received the simulation training module, while the nurses in the control group received the standard treatment, which included only a brochure; the researcher followed the 2020 AHA guidelines for BLS training in both groups. Multiple groups of nurses received the intervention until the desired sample size was achieved. Each group consisted of ten nurses and required five to seven hours for the intervention, which was conducted in an education hall (Knipe et al., 2020; Kose et al., 2020). The training module was divided into two parts: a two-hour knowledge session, which utilized a PowerPoint presentation, and a three-hour clinical simulation training session. The facilitators prepared adult and paediatric manikins for BLS training, which featured chest inflation and deflation for rescue breathing, a palpable carotid pulse, and a spring to allow for chest recoil during chest compressions. A low-fidelity manikin is convenient for BLS clinical training (Cura et al., 2020). The facilitator should be highly qualified from the AHA as a BLS trainer to perform the training session (Nusser, 2021).

Two post-tests were performed in this study. Post-test 1 was administered immediately after the intervention, and all participants from both groups completed it. Completing both the pre-test and post-test is essential in clinical training to compare the means and determine the effectiveness of the training program (Leighton et al., 2020). Post-test 2 took place three months after the intervention. Forty-eight participants (94%) in the experimental group and 45(88%) in the control group completed post-test 2. All the quantitative data were coded and transferred to IBM SPSS version 27. The analysis included descriptive demographic features and illustrated the homogeneity of participants' characteristics in the control and experimental groups using the Mann-Whitney test. The researchers interpreted p-values and compared the means ± standard deviations (SD) of pre-tests and post-tests, using the normality assumption of the sample and the central limit theorem (Kwak & Kim, 2017). An Independent T-test was performed to identify the homogeneity between pre-tests and heterogeneity between post-tests of control and experimental groups.

The researchers selected results that were significant at the $p < 0.05$ level. This study has been approved for conduct by the IRB committee at Universiti Sains Malaysia (USM/JEPeM/22110 681), which complies with the Helsinki Declaration. Moreover, this study was authorized for conduct by the Jordanian IRB committee in the Ministry of Health (MOH/REC/2022/340). The study objectives and risks were discussed with the participants before they voluntarily signed a hard copy of the consent form. All study data and participants' information were kept in a secure and confidential area; only the researchers can access these data for this study. The study did not involve administering the medicine and posed no hazard to participants.

Results

The overall sample size consisted of 102 participants, divided into two arms; the first arm comprised the experimental group (n = 51). The second arm was the control group (n = 51). All the participants completed the demographic data. The ordinal normality assumption was checked for age, experience, and educational level, and it was found not to be fulfilled. The non-parametric Mann-Whitney statistical test was used to determine whether the median of the experimental group differed significantly from that of the control group (Table 1).

The median and interquartile range (IQR) results for age, education level, and experience indicated that there are no significant differences between the control and experimental groups. The experimental median age (IQ) was

Table 1. Demographical Features of Participants

Demographical Data	Category	Number n = 102	%
Age (year)	20-24	92	90.2
	25-29	10	9.8
Gender	Men	54	52.9
	Women	48	47.1
Education Level	Bachelor's degree	102	100
Experience in Nursing	Less than one year	91	89.2
	From 1 to 2 years	11	10.8

Table 2. Participants' Demographic Characteristics Homogeneity

Score	Median (IQR)		Z-Statistic	Mann-Whitney U	p^a
	Control Group	Experimental Group			
Age	2(0)	2(0)	-0.663	1249.500	0.508
Experience in Years	1(0)	1(0)	-0.318	1275.000	0.751
Educational Level	1(0)	1(0)	0.000	1300.500	1.000

Normality Assumption not fulfilled; Mann-Whitney U-test; a: Significant at a level of 0.05.

2(0), and control median age (IQ) was 2(0), with p = 0.508. Moreover, the experimental median of experience (IQ) was 1(0), and the control median of experience (IQ) was 1(0), with p = 0.751. Finally, the experimental median educational level (IQ) was 1(0), and control median educational level (IQ) was 1(0), with p = 1.000. These results showed that the experimental and control groups were homogeneous and had no significant differences in the demographic characteristics of the participants.

Pre-test analysis results in Table 3 showed, firstly, that Levene's test for the equality of variance in the Knowledge domain yielded an F-statistic = 0.271 and p = 0.604, indicating that the null hypothesis of equal variance was not rejected between the pre-tests of the control group and the experimental group. The T-statistic (df) result was 0.991(100) and p = 0.324. Secondly, in Levene's test for the practice domain equality of variance, with the F-statistic = 0.015 and p = 0.904, the null hypothesis of equal variance was assumed between the pre-test of the control group and experimental group. The T-statistic (df) result was -0.143(100) and p = 0.887.

Finally, in Levene's test for the Confidence domain equality of variance, with F-statistic = 2.135 and p = 0.147, the null hypothesis of equal variance was assumed between the pre-test of the control group and experimental group. The T-statistic (df) result was 1.034 (100) and p = 0.304. The data analysis revealed that the pre-test means ± SD of the experimental and control groups were homogeneous, showing no significant differences in knowledge, practice, and confidence. The control group's knowledge, practice, and confidence mean ± SD were 5.61 ± 1.686, 4.67 ± 1.337, and 49.50 ± 17.388, respectively, and the experimental group's mean ± SD were 5.27 ± 1.710, 4.71 ± 1.432, and 45.68 ± 19.824, respectively.

The post-test-1 analysis results, presented in Table 3, included Levene's test for the equality of variance in the Knowledge domain, with F-statistic = 0.869 and p = 0.353. This indicated that the null hypothesis of equal variance between the post-test-1 scores of the control group and the experimental group was not rejected. The T-statistic (df) result was -5.237 (100) and p < 0.001. Secondly, Levene's test for the Practice domain equality of variance yielded an F-statistic = 0.183 and p = 0.669, indicating that the null hypothesis of equal variance was not

Table 3. Independent T-test

Dependent Variables	Mean±SD		Levene's test		T-Statistic (pdf)	p[a]
Pre-Test Comparison between Control (n = 51) and Experimental (n = 51) Groups						
	Control Group	Experimental Group	F test	p a		
Knowledge	5.61±1.686	5.27±1.710	0.271	0.604	0.991 (100)	0.324
Practice	4.67±1.337	4.71±1.432	0.015	0.904	-0.143 (100)	0.887
Confidence	49.50±17.388	45.68±19.824	2.135	0.147	1.034 (100)	0.304
Post-Test-1 Comparison between Control (n = 51) and Experimental (n = 51) Groups						
Dependent Variables	Mean±SD		Levene's Test		T-Statistic (pdf)	p[a]
	Control Group	Experimental Group	F test	p a		
Knowledge	7.69±2.177	9.80±1.898	0.869	0.353	-5.237 (100)	< 0.001
Practice	5.31±1.667	7.00±1.744	0.183	0.669	-4.992 (100)	< 0.001
Confidence	66.37±17.553	73.52±13.824	2.969	0.088	-2.285 (100)	0.024
Post-Test-2 Comparison between Control (n = 45) and Experimental (n = 48) Groups (Dropout rate for both groups 0.096%)						
Dependent Variables	Mean±SD		Levene's Test		T-Statistic (pdf)	p[a]
	Control Group	Experimental Group	F test	p a		
Knowledge	5.93±2.049	8.33±2.137	0.135	0.714	-5.520 (91)	< 0.001
Practice	4.80±1.727	5.90±1.601	0.501	0.481	-3.176 (91)	0.002
Confidence	52.91±22.496	71.71±16.352	5.314	0.023	-4.584 (80.009)	< 0.001

a: Significant at a Level of 0.05

rejected between the post-test-1 of the control group and the experimental group. The T-statistic (df) result was -4.992(100) and p < 0.001.

Finally, Levene's test for the confidence domain equality of variance, with F-statistic = 2.969 and p = 0.088, was used to assess the null hypothesis of equal variance between the post-test-1 of the control group and the experimental group. The T-statistic (df) result was -2.285 (100) and p = 0.024. The data analysis revealed that the post-test-1 mean ± SD of the experimental and control groups were heterogeneous and showed significant differences in knowledge, practice, and confidence. The control group's knowledge, practice, and confidence means ± SD were 7.69 ± 2.177, 5.31 ± 1.667, and 66.37 ± 17.553, respectively. The experimental group's means ± SD were 9.80 ± 1.898, 7.00 ± 1.744, and 73.52 ± 13.824, respectively.

Post-test 2 analysis results are presented in Table 3. Firstly, Levene's test for the equality of variance in the knowledge domain was reported, with F-statistic = 0.135 and p = 0.714. This indicates that the null hypothesis of equal variance between the Post-test 2 of the control group and the experimental group was not rejected. The T-statistic (df = 91) was -5.520 (p < 0.001). Secondly, Levene's test for the practice domain equality of variance yielded F-statistic = 0.501 and p = 0.481, indicating that the null hypothesis of equal variance was not rejected between the post-test-2 of the control group and the experimental group. The T-statistic (df) result was -3.176 (91), with p = 0.002.

Finally, for the Levene's test for confidence domain equality of variance, the F-statistic (5.314) and p-value (0.023) indicated that the null hypothesis of equal variance was rejected, suggesting that the variance between the post-test-2 of the control group and the experimental group was not equal. The T-statistic (df) result was -4.584 (p = < 0.001). The data analysis highlighted that the experimental and control groups' post-test-2 means ± SD were heterogeneous and showed significant differences in knowledge, practice, and confidence. The control group's knowledge, practice, and confidence mean ± SD were 5.93 ± 2.049, 4.80 ± 1.727, and 52.91 ± 22.496, respectively. The experimental group's means ± SD were 8.33 ± 2.137, 5.90 ± 1.601, and 71.71 ± 16.352, respectively. The researchers anticipated a 30% dropout rate; however, the actual dropout rates for both groups were only 0.096%, which was significantly lower than expected.

Discussion

This study involved 102 participants randomly assigned to the experimental group (n = 51) and the control group (n = 51), holding significant implications for the fields of nursing and emergency care. The participants' eligibility criteria were homogenous between the control and experimental groups, with only participants with a bachelor's degree in nursing (n = 102). Ninety-one (89.2%) participants had less than one year of experience, and the remaining participants had experience ranging from one to less than two years. The researchers only included individuals who had not received BLS training prior to the intervention to ensure uniformity between the groups. The age distribution of the participants was narrow, centered between 20 and 24, and only 10 (9.8%) of the participants fell within the 25-29 age range. The gender distribution was also relatively equal, with 54 men and 48 women.

The study confirmed that the participant characteristics and pre-test results were similar across groups. Effective randomization and adherence to inclusion criteria led to significant increases in knowledge, practice, and confidence, as evidenced by the experimental group's post-test 1 and post-test 2 scores, compared to those of the control group. The higher mean ± SD scores in the experimental group indicated that the training module was significantly effective, highlighting the importance of uniformity and consistency, which aligns with previous research (Sarvan & Efe, 2022).

The study's positive outcomes can be attributed to several factors. Firstly, the use of the 2020 AHA BLS guidelines, a key component of the study, was instrumental in achieving positive results. Secondly, the training was guided by two theoretical models focused on simulation training: Miller's Pyramid and Kolb's Cycle. Thirdly, the newly employed nurses were highly motivated to train to adapt to their new jobs. Fourthly, the facilitator's educational and experience level. AHA updates evidence-based practice for BLS in response to changing circumstances (Kose et al., 2020). The major changes in AHA occurred in 2015, which included modifying the CPR sequence from ABC to Circulation, Airway, and Breathing (CAB) (Sé et al., 2019). A CPR update occurred in 2020 due to the COVID-19 pandemic (Kei & Mebust, 2021; Laco & Stuart, 2021).

The study's positive outcomes might stem from the use of Miller's Pyramid and Kolb's Cycle to enhance clinical training. The WHO endorses these frameworks to enhance the knowledge, skills, and confidence of nurses and midwives when BLS training is delivered through simulation (Briese et al., 2020; Martins et al., 2018). Miller's Pyramid comprises four levels. The initial step focuses on understanding foundational concepts before clinical training (Nash et al., 2019) as conducted when BLS Knowledge was presented through a PowerPoint presentation (Chowdhary et al., 2020). The subsequent levels—"know-how," "show-how," and "does"—address the practical aspects of train-ing. The "know-how" stage relies significantly on the characteristics of the trainers. In this study, BLS instructors held certification from an international organization, and had substantial experience and deep understanding in intensive care units training (Al-Husban et al., 2022; Etlidawati & Ilinia, 2021; Greif et al., 2021).

At the "show-how" level, learners implemented their knowledge through simulation, focusing on repetitive practice to mitigate errors (Kose et al., 2020). Facilitators not only guided learners, but also corrected mistakes, highlighting their vital role in the learning process (Stærk et al., 2021). After the training, trainers gathered participants' observations and reflections on the BLS simulation during a debriefing session. This process is crucial for knowledge retention, as supported by the AHA and prior research

(Laco & Stuart, 2021). The final level, "does," indicates that learners can competently perform BLS procedures independently after the training session (Sarvan & Efe, 2022; Shrestha et al., 2020). Notably, repeated training, along with learner experiences and reflections, aligns with Kolb's Cycle (Nash et al., 2019). Another possible factor contributing to the positive outcomes in this study was the participants' high motivation to use simulation in training. Simulation in training is the key factor in enhancing participant motivation (Umuhoza et al., 2021). Moreover, the facilitator informed the learners that they would receive a completion certification at the end of the BLS session training, as recommended by a previous study that utilized certification rewards to increase learners' motivation (Giacalone, 2017).

Confidence refers to nurses ability to utilize their knowledge and skills to provide the best possible care to their patients (Hamilton, 2020). The results of this study showed that the experimental group had a significantly higher level of confidence than the control group. The confidence level in BLS among healthcare providers increased as they enhanced their knowledge and practice level (Abelsson et al., 2020; Rajaguru & Park, 2021).

Retention is defined as the ability of the participants to recall knowledge and perform practice correctly after training (Lee et al., 2021). The follow-up tests provide evidence for the efficient use of simulation training as a method that retains participants' knowledge and improves their practice scores. While the control group experienced a decline and returned to their initial levels in knowledge, practice and confidence scores three months after training, the interventional group also saw a decrease, but their scores remained significantly higher than their pre-training baseline. Many previous studies have reported that BLS competencies and confidence decrease over time after training (Dick-Smith et al., 2021; Paliatsiou et al., 2021), particularly in hospital departments that infrequently encounter CPR situations (Lee et al., 2021). Several studies suggest that brief refresher training sessions are effective in maintaining BLS competencies among HCPs (Abelsson et al., 2020; Wilson et al., 2021). Other studies have suggested that BLS providers should renew their BLS training every two years, as recommended by international institutions (Knipe et al., 2020; Nusser, 2021; Perkins et al., 2021).

Nursing Implications. Simulation manikins in healthcare settings for training have become essential to nursing education, as they provide an effective and valuable learning experience for healthcare professionals (Handeland et al., 2021; Nassar et al., 2021). Simulation training has been instrumental in expanding the scope of nursing education, resulting in the development of specialized fields within nursing, including critical care, emergency care, maternity care, and paediatric care (Curl et al., 2016).

Limitations. The researchers in this study have recognized some limitations. Firstly, the study was carried out across only five hospitals out of 121 hospitals in Jordan. Furthermore, the standardized survey helped participants recall their previous responses, which may impact the results.

Conclusion

BLS training is a vital component of healthcare education, equipping healthcare providers with the effective lifesaving skills necessary for emergencies. Simulation-based training has displayed effectiveness in this context. The generalizability of these findings may be limited. Despite limitations, simulation enables learners to practice and refine their competencies in a controlled environment, particularly for newly employed nurses, followed by regular refresher training sessions every three months to maintain competence and confidence retention. Ultimately, integrating simulation-based training into nursing curricula ensures consistent preparedness among future healthcare professionals, particularly in emergency procedures.

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