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Research Article

Exploring Nurses' Knowledge and Attitudes Concerning Basic Life Support: A Questionnaire Survey Study

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Abstract

Background: Nurses are usually the first witnesses to sudden cardiac arrest in the hospital. Nurse training efficiency determines the effectiveness and outcomes of cardiopulmonary resuscitation (CPR). Basic life support (BLS) was designed to achieve this goal. However, when received by adequately trained healthcare professionals, BLS reduces in-hospital deaths. *Objective*: To assess nurses' knowledge regarding basic life support and cardiopulmonary resuscitation among nursing professionals and to design a proposed training program for nurses working in Al-Najaf Teaching Hospital to meet their training needs. *Method*: A descriptive cross-sectional study design was conducted at Al-Najaf City in the southern region of Iraq in Al-Najaf teaching hospital from February 24th, 2022, to March 20th, 2022, in order to assess the nurses' knowledge concerning basic life support. The methodological strategies for data collection used a needs assessment questionnaire survey, participative observation, and questionnaires to evaluate the need to learn, the educational practices, and their methodology, allowing for grouping the results according to nurses' expectations. *Results*: As the study shows, most of them had not attended some BLS training previously, and their knowledge about BLS was poor. The current study results showed that most nurses had a low-to-moderate knowledge level. *Conclusion*: Knowledge about BLS is mandatory for health professionals, and knowledge about basic life support and resuscitation skills is very low among nurses working in Al-Najaf Teaching Hospital.

Keywords: Cardiac arrest; Cardiopulmonary resuscitation; Critical care nursing; Basic life support.

استكشاف معارف الممرضات ومواقفهن فيما يتعلق بدعم الحياة الأساسي: دراسة استقصائية للاستبيان

الخلاصة

الخلفية: عادة ما تكون الممرضات أول شهود على السكتة القلبية المفاجئة في المستشفى. تحدد كفاءة تدريب الممرضات فعالية ونتائج الإنعاش القلبي الرئوي وتم تصميم دعم الحياة الأساسي لتحقيق هذا الهدف. ومع ذلك، عندما يتم استخدامها من قبل متخصصي الرعاية الصحية المدربين تدريبا كافيا تقلل من الوفيات داخل المستشفى. **الهدف**: تقييم معرفة الممرضات فيما يتعلق بدعم الحياة الأساسي والإنعاش القلبي الرئوي بين كوادر التمريض وتصميم برنامج تدريبي مقترح للممرضين العاملين في مستشفى النجف التعليمي لتلبية احتياجاتهم التدريبية. **الطريقة**: تم تصميم دراسة وصفية مقطعية في مدينة النجف في المنطقة الجنوبية من العراق في مستشفى النجف التعليمي في الفترة من 24 فبراير 2022 إلى 20 مارس 2022، من أجل تقييم معرفة الممرضات فيما يتعلق بدعم الحياة الأساسي. استخدمت الاستراتيجيات المنهجية لجمع البيانات استبيانا لمعرفة وتقييم الاحتياجات، والملاحظة التشاركية، واستبيانات لتقييم الحاجة إلى التعلم، والممارسات التعليمية ومنهجيتها، مما يسمح بتجميع النتائج وفقا لتوقعات الممرضات. **النتائج**: كما تظهر الدراسة، لم يحضر معظمهم بعض تدريبات دعم الحيات الأساسي سابقا، وكانت معرفتهم حول أجراء دعم الحيات الأساسي ضعيفة. أظهرت نتائج الدراسة الحالية أن معظم الممرضات لديهم مستوى معرفة منخفض إلى متوسط. **الأستنتاج**: يجب أن تكون المعرفة حول اجراءات دعم الحياة الأساسي إلزامية للمهنيين الصحيين، والمعرفة حول مهارات دعم الحياة والإنعاش الأساسية منخفضة جدا بين الممرضات العاملات في مستشفى النجف التعليمي.

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INTRODUCTION

Cardiac arrest is a significant public health issue, accounting for 15-25% of all deaths in both poor and wealthy countries. It is more common in people who have a history of cardiovascular disease. Outside of hospitals, the global incidence of sudden cardiac arrest (SCA) varies between 20 and 140 per 100,000 people, with an unacceptably low survival rate ranging between 2 and 11% [1]. So Basic life support (BLS) is an emergency procedure that comprises recognizing indicators of sudden cardiac arrest, stroke, heart attack, foreign-body airway blockage, CPR, and defibrillation with an automated external defibrillator (AED). Basic life support is seen as a critical emergency skill that all healthcare practitioners must be familiar with. Early CPR initiation and activation of the survival chain are critical variables in preserving the lives of cardiac arrest patients [2]. Immediate and effective CPR based on sufficient knowledge and practical skills is critical to improve this condition, as the quality of this intervention influences patient survival. Cardiopulmonary resuscitation (CPR) is a set of life-saving actions that increase the likelihood of survival after a cardiac arrest. Basic life support is a degree of medical care provided to individuals suffering from life-threatening conditions until they can receive full medical care. CPR is a strategy for delivering BLS until advanced cardiac life support (ACLS) or spontaneous circulation or ventilation can be delivered. It can be administered by qualified medical workers, such as emergency medical technicians and laypeople who have obtained BLS training [3]. Initially, cardiopulmonary resuscitation training was intended primarily for healthcare professionals. In the hospital, nurses are typically the first to recognize the need for and perform CPR on patients experiencing cardiac arrest. When administered by properly educated healthcare workers, CPR has been found to minimize in-hospital fatalities [4]. Later, it was discovered that many of these instances occurred outside of the hospital setting, and that bystanders who witnessed the event were required to provide early CPR. As a result, CPR is considered a skill for everyone. Even in the absence of healthcare experts, victims with prompt bystander CPR have a higher quality of life [5]. Because nurses are with patients around the clock and spend significant time with them, they are frequently the first to notice cardiac arrest in the hospital. According to the literature, nurses' CPR knowledge and skills varies depending on their fields of work and experience [6]. CPR knowledge and skills varies amongst healthcare workers in developed and underdeveloped countries. Nurses are frequently the first healthcare personnel to notice a patient in cardiac arrest in the hospital setting, and as a result, they must be competent to perform effective resuscitation. Cardiopulmonary resuscitation has been used for more than 50 years. Many studies have found that knowledge and skills in CPR diminish within six months of initial training. When all nurses are certified and practicing the required life support training courses, performance improves [7]. Poor knowledge and skill retention for nursing and medical workers following cardiopulmonary resuscitation training has been observed throughout the last 20 years. Because nurses frequently uncover victims of in-hospital cardiac arrest, cardiopulmonary resuscitation training is essential for nursing staff. Many alternative approaches for increasing retention have been developed and tested [8]. This includes individuals who work in "intensive care units, pediatric ICUs, neonatal ICUs, cardiac care units, cardiac catheter labs, progressive care units, emergency departments, and recovery rooms," according to the American Association of Critical-Care Nurses. ICU nurses are another name for critical care nurses [9]. They handle critically ill and unstable patients, which necessitates more frequent nurse assessments and the use of life-sustaining technology and medications. Despite the fact that their contribution to effective CPR is critical, whether individually or as a member of a rapid response team, studies have frequently revealed that they have mediocre knowledge and low abilities in comparison to worldwide norms and recommendations. CPR training programs would greatly lower nurses' anxiety and boost their self-esteem. As a result, individual or team effectiveness in dealing with a SCA could be increased [10].

Study Significance

Cardiac arrests are more common and can occur at any time. Annually, about 400,000 out-of-hospital abrupt cardiac arrests occur, with 88 percent of cardiac arrests occurring outside of the hospital. Four out of every five cardiac arrests occur at home [11]. The American Heart Association annually trains over 12 million people in CPR to provide Americans with the skills needed to perform bystander CPR. Even in affluent countries, healthcare personnel' CPR knowledge and skills vary. Many CPR studies undertaken in affluent nations such as the United States of America, the United Kingdom, Finland, and Ireland indicated that registered nurses lacked basic CPR knowledge and abilities [12]. There are no fixed mandated CPR training programs in Iraq, and there is a severe requirement to renew the license or certification for basic life support for hospital-based healthcare practitioners, resulting in a significant gap in CPR knowledge and practice. As a result, in light of worldwide norms and recommendations, the researcher felt the necessity to analyze basic life support knowledge and abilities among nurses working in Al-Najaf hospital teaching. The goal of this study is to describe and investigate nurses' professionals' levels of knowledge and practice regarding BLS, whether they are appropriately up-to-date, and to confirm whether critical care nurses' CPR training courses were effective in improving health personnel's knowledge levels to support code blue team efficiency for effective

resuscitation. The following is a research question: The researcher conducted the study to answer the question: Is basic life support training required for all critical care nurses?

METHOD

Study design

A descriptive cross-sectional study was conducted at Al-Najaf City in the southern region of Iraq in Al-Najaf teaching hospital from February 24th, 2022, to March 20th, 2022, in order to assess the nurses' knowledge concerning cardiopulmonary resuscitation and basic life support. The study used the problem-based learning methodology, which focused on problem situations involving cardiopulmonary arrest.

Population and study sample

The study comprised roughly 200 nurses who had completed their education and worked in clinical settings. Nurses can articulate their experiences well because they are still transitioning from college training to their places of employment. Participants must also have worked for at least 6-12 months (Figure 1). This was put in place to collect data from nurses with some experience. Participants can discuss their therapeutic experiences and obstacles up until the time of the survey. Nurses who had not worked in a critical care unit for more than a year were not eligible. A non-probability, convenience sampling technique was used to select 254 nurses from Al-Najaf teaching hospital's male and female medical wards, the coronary care unit (an intensive care unit), the respiratory care unit, the emergency department, the operating room, and the surgical wards. The study population consists of all nurses at Al-Najaf Teaching Hospital. During the study period, there were 200 eligible nurses; all of them were targeted.

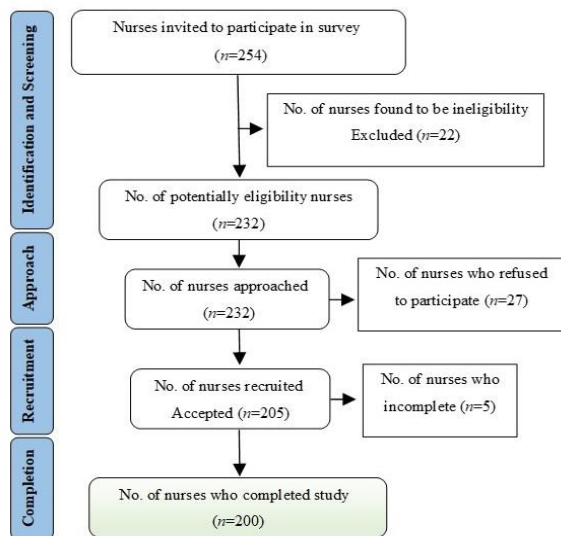**Figure 1**. Flowchart of the study participants.

Data collection tool

For the current investigation, the researcher created a semi-structured survey questionnaire. It was divided into two halves. The first section investigated demographic and academic data such as age, level, parent's education, and so on. The second section assessed participants' attitudes toward BLS, including their views on the necessity of BLS, attitudes toward practicing CPR, and views on including BLS in the curriculum. It also examined their BLS awareness and competence. The questionnaire was subjected to content and face validity tests to determine the relevance of all items and the clarity of the material. Cronbach's alpha was also calculated to assess internal consistency. Data was collected over a 20-day period to allow participants to answer when it was convenient for them. The survey was created using a Google Form by the researcher. Only subjects who agreed to participate in the survey were given access to the Google Form survey.

Ethical considerations

The study was approved by Al-Najaf Health Directorate and the district hospitals' research committees. Each subject provided informed consent and participated voluntarily. All participants were given a code number, and the same numbers were used to assess their knowledge and skills. The data were maintained in a secure location, with only the researcher having access to them. Furthermore, throughout the analysis, just the questionnaire number and anonymous codes were acquired and segregated from the primary data.

Statistical Analysis

The data analysis procedure involves using the Statistical Package for Social Sciences computer software to categorize information in SPSS-created graphs and charts. The Statistical Package for Social Sciences version 24.0 for Windows (SPSS Inc., Chicago, IL, USA) was used for statistical analysis. The demographic data and patterns of responses to the various questionnaire items were reported using descriptive statistics; categorical variables were provided as frequency and percentage, and numerical variables were presented as mean standard deviation (S.D.). The poll of trained nursing professionals answers the question of validity, which is whether there is evidence to support the claim. The study is credible because the responses were consistent; nonetheless, it lacks variable measurement methods. In future investigations, the researcher assessed the necessity for a pilot study to investigate potential human and organizational elements that may influence new graduates' competency. The pilot research would give a list of individual and organizational elements, as well as "other" sections for volunteers to specify any other conceivable factors that could impact the study. Following an evaluation of the data's validity and

reliability, a future survey would be conducted to establish nurse professionals' levels of knowledge and practice in basic life support. Recommendations for the demographics study include distinguishing between different types of nursing educational programs associated. Furthermore, the researcher designed the survey questions so that responses might include an explanation. The researcher requested fewer "yes/no" responses and more debate.

RESULTS

Two hundred and ten nurses agreed to participate (response rate = 95.2%; two hundred); the majority of the participants were female (62.5%); the education level was also diverse, with a diploma of about (44.5%). Also, most of the participants work a daily shift (90.0%) and in a multiarea (52.5%). The two age ranges with the most responses were 21–25 years (44.5%), and their mean age was 27.17 and the standard deviation was 4.86. Other sociodemographic data showed experience among (2–5 years) about (45.0%) of participants; their mean years of experience was 5.55, and the standard deviation was 4.48. In addition, the respondents were asked about their previous unit of work as a nurse tech before becoming a nurse in the critical care unit. The percentage of nurses who worked in the critical care unit was slightly higher than that of those who first started in the medical unit as nurses.

Question 1: Do you have basic life support training?

The first question asked if the nurses thought they received training to work alone immediately after graduation. This was a "yes" or "no" question, with 80 (40%) of respondents answering "yes" and 120 (60%) answering "no" (Figure 2).
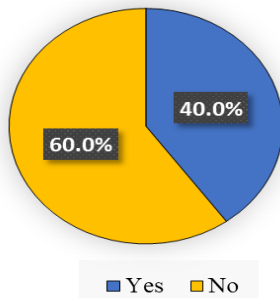
Figure 2: Show respondents to basic life support training.

Question 2: Do you have basic life support algorithm education in the academic organization?
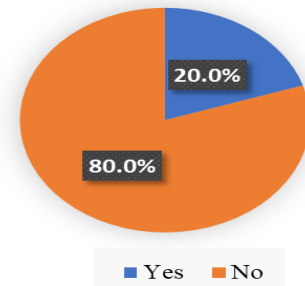
The second question asked if the nurse's ware received hands-on skills taught to them in nursing school to prepare them for the workplace. This was a "yes" or "no" question, with "yes" having 45 (22.5%) respondents and "no" having 155 (77.5%) (Figure 3).
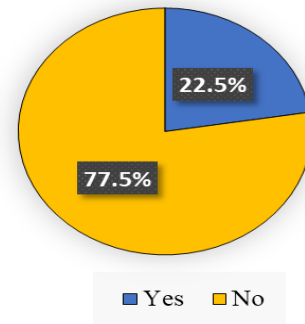
Figure 3: Show hands-on skills education in the academic nursing school.

Question 3: When a code arises, do you have a team readily available on your unit?

The third question asked if they have a team readily available to prepare to respond to code blue in the workplace. Most of the respondents answered "no" with 160 (80%), and respondents were answered "yes" were 40 (20%) (Figure 4).

Figure 4: Show team readily available in the unit

Question 4: Do you know what the response code is?

The fourth question asked if the nurses ware know the response code. The minority of 30 participants (15%) answered "yes" with 170 (85%) answered "no." (Figure 5).
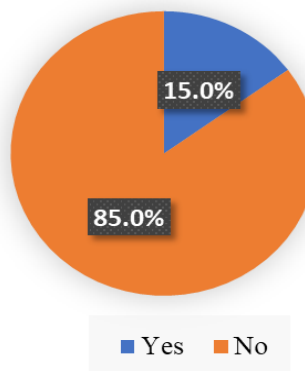

Figure 5: Show response to code blue.

Question 5: Do you know what critical cases should be given D.C shock?

The fifth question asked the nurses if they know recognized critical cases, which indicated giving D.C

shock. This would allow the respondent to intervene immediately in shockable cases such as ventricular fibrillation and pulseless ventricular tachycardia. The majority, 125 (62.5%) answered "no" with 75 (37.5%) answered "yes" (Figure 6).
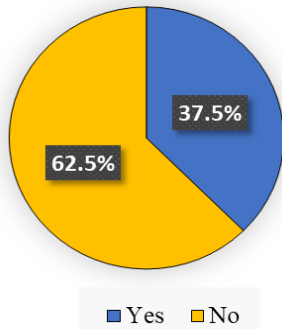
Figure 6: Show response to critical cases indicated to D.C shock.

Question 6: Can you recognize the electrocardiograph (ECG) rhythm changes in critical cases?

The sixth question asked the nurses if they recognized the electrocardiograph (ECG) rhythm changes in critical cases. Most of the respondents answered "no" with 135 (67.5%), and 65 (32.5%) answered "yes" (Figure 7).
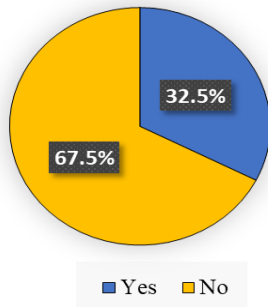
Figure 7: Show recognize the ECG rhythm changes in critical cases.

Question 7: Do you know, in general, what drugs should be given during CPR?

The seventh question asked concerning knowing drugs should be given during cardiopulmonary resuscitation. The majority of the respondents answered "no" with 121 (60.5%) and "yes" with 79 (39.5%) (Figure 8).
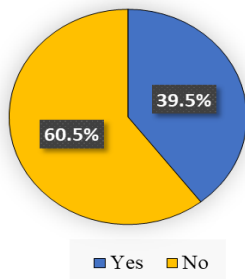
Figure 8: Show the answer to what drugs should be given during CPR.

Question 8: What do you think affects your level of knowledge and competence?

The eighth question asked if there were factors that affect the nurses' level of knowledge and competence. Most of the respondents, 21 (67.5%) answered "basic life support training," 135 (22.5%) answered "unit type which works in" and 20 (10%) answered "years of experience" (Figure 9).
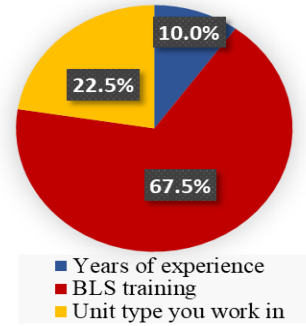
Figure 9: Show effects factors on the level of knowledge and competence.

DISCUSSION

As nurses are commonly the first healthcare professionals in a hospital to recognize that a patient is in cardiac arrest, they must have adequate knowledge of BLS and the relevant skills. This descriptive cross-sectional study contributes to the overall objective of addressing the gap in the present knowledge of nurses around basic life support. The current study's outcome is to examine nurses' knowledge levels. As the study shows, though most of them had not attended some BLS training previously, their knowledge about BLS was poor [13]. According to previous studies, the knowledge of BLS among nurses across the subcontinent was poor. The current study results showed that most nurses had a low-to-moderate level of knowledge concerning basic life support. According to the 2020 American Heart Association BLS guideline in the hospital, the chain of survival of cardiac arrest in adults requires prompt diagnosis of cardiac arrest, rapid activation of emergency medical services, faster CPR, and defibrillation as soon as possible to improve the survival chance. Basic life support theoretical knowledge and practical skills are important determinants of successful CPR technique. BLS techniques are very easy, and even ordinary people should be aware of them. Due to the benefits of CPR, advanced countries have implemented its education even for high school students since some decades ago. This study showed markedly deficient CPR knowledge and skills among registered nurses in Al-Najaf hospital teaching in a resource-limited setting [12]. All previous studies assessing the knowledge and attitudes of health care providers in the BLS have indicated poor staff information. The effective factors included updating their educational materials, time

constraints, and extremely intensive work schedules due to the manpower shortage in many state hospitals in Iraq, the insufficiency of equipment such as advanced mannequins to train resuscitation skills due to being expensive, a lack of appropriate teaching materials for pre-training study, forgetting the acquired knowledge over time, a lack of job experience in newly employed staff in ICU, and the absence of any mandatory regulations for the BLS certification in the nurses, possibly due to a lack of educational staff, workspace, and suitable educational equipment. Therefore, the curriculum needs to replace such an educational program [6]. Regarding socio-demographic characteristics of nurses, the current study included 200 participants; most were females, and about a third and a half were diploma nurses. This was in accordance with the results reported by Qalawa *et al*. (2020) and Sánchez Garcia *et al*. (2015) in their study on the assessment of basic life support knowledge among nursing professionals, and they detected that most of the studied group were females; half of them were diploma nurses. One-quarter of them worked in intensive care units (ICU). It was assumed that females preferred the nurse job more than males [14]. The nurse job is indeed the basic science of mother instinct, so females are more interested in this job, even from school or university, the female-dominated field [15]. Even in fact, there are a lot of nursing activities that need a male nurse to fulfill the basic needs of the patient; an example is a unit that has patients who lose their consciousness and mobility and were completely helped by the nurse, and the other sensitive needs were performed by the opposite gender. The present study revealed that most respondents were aged between 21 and 25 years old, and more than half of them had work experience ranging from 1 to 5 years, with more than half of the respondents not attending any basic life support training courses. These findings agreed with Qalawa *et al*. (2020); they showed in their study that more than two-fifths of subjects were in the age group thirty to less than forty years old, which also agreed with Zayed and Saied (2020), who reported that most of their respondents were between 23 and 40 years old and had 2 to 10 years' experience, with half of the respondents having no training on basic life support [14, 16]. Age is an item affecting the growth and development of human physiology. It also affects one's process of thinking. With the increase in someone's age, the thinking process would become more critical gradually in the adult phase. In the early adult phase, one's focus would be on the job and surrounding socialization. At this age level, someone would spur themselves on through competition and productivity. They would use their decent motoric ability in learning to master new skills and their mental ability to remember things that have been learned before, analogical reasoning, and creative thinking, supported by their efficient physical ability, so that they could compete in their environment. The previous study also showed that

in the early adult phase, a nurse would be encouraged to participate in competition with their colleagues to show their productivity in their work. Most of the nurses in Al-Najaf Teaching Hospital were in the early adult phase, so it was implied that that condition could greatly benefit the nursing service. In that state, they have a high spirit of competitiveness toward their colleagues. Thus, it was expected that this optimal competitive atmosphere could bring improvement to the nursing service. Regarding basic life support algorithm education in academic organizations, the present study shows that more than a third of participants don't have education about basic life support algorithms. These findings disagreed with those of Asadi *et al*. (2021), who reported in their study on exploring nurses' knowledge of the basic life support guidelines of the American Heart Association [17]. They detected that most participants in the study had experience learning the BLS algorithm and were averagely trained. The educational school and institution must take care of this, reconsider the curriculum, and place the utmost importance on training nursing students in handling critical cases and requiring basic life support to fill the gap. Also, approximately half of the participants said they don't have a team readily available in the work unit when a code arises, and more than two-thirds don't know the response code. The result of the present study was in line with Hamilton (2005), who found that the majority of participants responded that they weren't trained about code blue, the emergency and critical response code. Health organizations need to rework an active response system and emergency team training to code blue and rapid response [18]. Concerning knowing which critical cases should be given DC shock, the current study showed that most participants, more than a third of our respondents, don't know which critical cases should be given DC shock, and that most participants, about two-thirds, can't tell when the ECG rhythm changes in critical cases. These findings agreed with Sila *et al*. (2019); they found in their study that the description of the knowledge and skill of nurses to interpret basic ECG shows the nurses had adequate general knowledge but didn't have knowledge of the electrocardiograph interpretation ability [16]. They still lacked a lot of experience, but they had learned more through independent or university study, which was the cause of this. This caused worries about the nurse's ability to analyze the result of the ECG. It was worrying that the nurse could not recognize the change in condition in the heart. This could happen in the emergency, intensive care, and inpatient units. A better nurse's knowledge in interpreting the ECG result would simplify the monitoring and management of the patient during their stay in the inpatient unit so that the change in ECG in the emergency condition could get intensive handling immediately. The lack of knowledge might arise due to the lack of curriculum in school, and the skills for interpreting the ECG result could be learned from training. In the question about drugs that

should be given during CPR, more than half of participants in the present study answered that they don't know what drugs should be given during cardiopulmonary resuscitation, and most of the respondents, about two-thirds, answered that basic life support training affects the level of knowledge and competence, and about a quarter thought unit type had an effect on knowledge level. These results agreed with Asadi *et al*. (2021), Qalawa *et al*. (2020), and Sila *et al*. (2019); they reported nurses had relatively minimal experience, and most of them were fresh graduates. The duration of the nurses' work affected their knowledge and skills. The longer their duration of work, the better their quality or performance in nursing care. The working experience would increase their expertise and skills. With that amount of time, the knowledge and skills of the nurse were sharpened with several cases they handled [17,14]. Poor knowledge and skill retention following cardiopulmonary resuscitation training for nursing and medical staff have been documented over the past 20 years. Cardiopulmonary resuscitation training is important for nursing staff, as nurses often discover victims of in-hospital cardiac arrest. Education is an important aspect of preparing nurses for real-life situations. However, excellent instructors in both fields must link nursing theory and practice together in education. The new graduate nurse must feel confident and prepared when undertaking a role in a life-changing environment. Research in this area is vital to providing the workforce with the most prepared and competent nurses.

Study Limitations

The chosen participants may not have been an adequate sample size to be generalized to the larger population. Also, it was possible that some of the participants did not have the necessary experience. Further studies should be pursued with a larger population sampling and possibly more detailed questions to assess nurses' knowledge concerning basic life support. Further research should be conducted to obtain a broader spectrum of the nursing population to determine if these problems were unique to the hospital or if they were generalized problems across the nursing spectrum. Future studies may need to be conducted through hospitals and clinic centers and possibly through surveys in these areas.

Conclusion

Evidence supports the need for BLS training for critical care nurses. Knowledge about BLS is mandatory for health professionals. This study shows that knowledge concerning BLS and basic resuscitation skills is very low among nurses working in Al-Najaf teaching hospital. Nurses must have knowledge and skills about the BLS because they have a key role in the healthcare team and the initial treatment of patients with cardiac

arrest. Also, this study signifies the need for regular, up-to-date training.

Recommendations

Nurses working in settings such as the ICU, ER, and other areas where death lurks should certainly know BLS and continue to recertify as per current AHA recommendations. The evidence supports organized ongoing refresher courses, multidisciplinary mock code blue practice using technologically advanced simulator mannequins, and videotaped reviews to prevent knowledge and skill degradation for effective resuscitation efforts [18]. Medical professionals working in emergency rooms, intensive care units, and other critical departments that handle life-threatening situations also take BLS certification. As nurses often discover patients who have had a cardiac arrest, they should be trained and be able to perform cardiopulmonary resuscitation (CPR) adequately. In their joint statement about decision-making in CPR, the British Medical Association and the Royal College of Nursing (2020) suggest that it should be carried out within accepted clinical guidelines and competence whenever CPR is initiated. Basic life support educational programs should be inevitably conducted for nurses in hospitals, and the effectiveness of these programs needs to be properly monitored. It is critically important for nurses to know the latest, up-to-date medical guidelines and have suitable practical skills and theoretical knowledge.

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