Knowledge and Skills of Cardiopulmonary Resuscitation among Critical Care Nurses in Kuwaiti Hospitals

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Abstract **Background**: The ability of nurses and the other health care professionals to deal with cardiac arrest effectively depends largely on their knowledge and skills regarding the cardiopulmonary resuscitation (CPR) procedure. **Purpose**: The purpose of this study was to identify the level of knowledge and skills about CPR and the factors influencing the level of CPR knowledge and skills among critical care nurses in Kuwait. **Methods**: To meet the purpose of this study, a descriptive, cross-sectional, and correlational design was used. A sample of 204 critical care nurses from two governmental hospitals completed the study. Three instruments were used to collect data, including the demographic questionnaire, the CPR certification exam quiz, and the Basic Life Support Skills Checklist. **Results**: About 56.4% of the study participants passed the skills exam about CPR. However, only 15.7% passed the knowledge test about CPR. Better CPR Knowledge was associated with working in Hospital 2, receiving formal training in CPR, and being AHA certified. Better CPR skills was related to working in Hospital 2, male gender, experience in nursing, experience in travelling with patients for seeking treatment outside Kuwait, being AHA certified, and receiving formal training in CPR (P<0.05). **Conclusion**: Frequent education and training in CPR in the hospital and having CPR accreditation from AHA are required for critical care nurses in order to increase their ability to save the life of critically ill patients who are at risk for cardiac arrest.

Keywords: knowledge, skills, cardiopulmonary resuscitation, critical care nurses, Kuwait

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1. Introduction

Cardiac arrest is defined as a sudden interruption of the systemic circulation, which involves cessation of the heart activity [1]. In developed countries, cardiac arrest is considered a common cause of mortality [2]. Worldwide, millions of sudden cardiac arrests occur every year and they are responsible for high morbidity and mortality, even in hospital settings [3]. Recently, cardiac arrest is considered the third leading cause of mortality in the USA, following heart disease and cancer [4]. In the USA, it was estimated that about 395 thousands people living in the community experienced cardiac arrest in 2013 [5]. In hospitals, about 200 thousands incidence of cardiac arrests occur every year in USA [6]. To date, there is no any official statistics about the incidents of cardiac arrest are available in Kuwait.

Cardiopulmonary resuscitation (CPR) is a procedure performed by skilled nurses and physicians as a "basic life support" in response to either respiratory or cardiac arrest [7]. During the CPR procedure, oxygen is supplied artificially to lungs accompanied with chest compressions to re-establish blood circulation and respiration [8,9]. The purpose of the CPR procedure, therefore, is to re-establish breathing and the cardiac function in patients who have suffered from cardiac arrest [10]. The CPR is an emergency procedure as the cardiac arrest usually occurs suddenly and immediate life-saving actions would be necessary [11]. During this procedure, an emergency intervention is performed manually to save the life of a patient with cardiac arrest and to keep brain function intact until additional interventions are provided to restore normal and spontaneous breathing and circulation [12].

Failing to perform CPR effectively after cardiac arrest will result in inadequate oxygen supply to the tissues. This also might result in respiratory acidosis and permanent brain and heart damages in addition to other complications within few minutes [13]. The timing of performing the CPR procedure is essential. If CPR is not provided quickly after cardiac arrest, loss of consciousness will happen, followed by irreversible damage of the brain and the other vital organs. However, if the CPR procedure performed effectively and shortly after cardiac arrest, then there is a chance for patients to recover completely without having irreversible consequences or disabilities [4]. Previous studies have shown low survival rates among patients experience cardiac arrest [5,14]. In addition, the cost of treatment and providing care for disability, which might occur after cardiac arrest, is large, compared with other life-threatening conditions such as cancer [15].

However, research has reported high survival rates among patients who come to the hospital in a short time after cardiac arrest [16].

There are wide disparities in CPR outcomes documented in the literature as a result of differences in patients' health status and quality of care provided for patients experience cardiac arrest [17]. Patients' health status could be a non-modifiable factor that could influence the CPR outcomes in many situations. However, improving quality of care provided for patients experience cardiac arrest utilizing current knowledge and practice is needed to improve the CPR outcomes among patients [18]. In fact, the ability of nurses and the other health care professionals to deal with cardiac arrest effectively depends largely on their knowledge and training regarding the CPR procedure [19].

Out-of-hospital cardiac arrest has become an important research concern and a leading cause of death in the Arab world [20]. Research has shown that most deaths usually occur out of the hospitals [21]. To date, there is no any official statistics about the incidents of cardiac arrest are available in Kuwait.

High quality CPR procedure should be assured both in-hospital settings and during transport of the patient to another location [22,23]. However, inadequate knowledge regarding the CPR procedure among the health care providers who accompany the patient during transfer outside the hospital might have a negative impact on the quality of the CPR procedure.

Poormirza et al. [24] reported that CPR procedure is the most important life-saving skill for registered nurses. Besides, adequate knowledge and skills regarding CPR among critical care nurses and other health care providers is essential to increase the chance of survival and to avoid the post CPR complications [19]. According to Gempeler [25], having adequate CPR knowledge among the trained healthcare professionals is essential to perform CPR immediately and effectively, and to improve survival of patients who experience cardiac arrest. Most often, physicians may not be available near the patient when cardiac arrest occurs and nurses are often the first ones to provide care for the patient immediately after cardiac arrest [12]. Moreover, critical care nurses are frequently provide care for patients suffering from life-threatening conditions who are at high risk for suffering from cardiac arrest. Therefore, adequate knowledge, skills, and expertise in CPR among critical care nurses are essential to enable them to perform CPR effectively when needed. However, recent studies conducted in developed countries to examine CPR knowledge have shown knowledge deficit regarding CPR among registered nurses working in various hospital settings [1,12,19,26].

1.1. Purpose of the Study

The purpose of this study was to identify the level of knowledge and skills about CPR and the factors influencing the level of CPR knowledge and skills among critical care nurses in Kuwait who are going to accompany patients to travel abroad from Kuwait.

The CPR knowledge was assessed using an Exam Quiz, while the CPR skills were assessed using two advanced simulators for children and adults. The two advanced simulators are used in teaching and training of staff on basic and advanced life support.

1.2. Research Questions

The study had the following research questions:
1. What are the levels of knowledge and skills about CPR among critical care nurses?
2. What are the aspects of CPR that critical care nurses have knowledge deficit with them?
3. Is there a relationship between registered nurses characteristics (i.e age, gender, education level, experience, previous training in CPR, and working area such as CCU or ICU) and the levels of CPR Knowledge and skills?

2. Subjects and Methods

2.1. Study Design

To meet the purpose of this study, a descriptive, cross-sectional, and correlational design was used.

2.2. Sample

Because of the limited number of nurses employed in the intensive care units in Kuwait, a convenience sampling method was used to recruit the participants who completed this study. The critical care nurses were eligible to participate in the study if they met all of the following criteria: (a) being a registered nurse employed in the intensive care unit; (b) is going to accompany patients to travel abroad from Kuwait; (c) able to speak, read, and write in English.

In the current study, the researcher investigated the relationship between nurses' categorical demographics and their ability to pass in CPR knowledge and skill tests. In this study, 204 critical care nurses were recruited.

2.3. Settings

This study was conducted in Kuwait, which is considered one of the Arabian Gulf countries. Kuwait is considered one of the richest countries in the world relative to the number of the population, as it have around 9% of the world's oil reserves [27]. Currently, there are 15 public hospitals in Kuwait with a capacity of 5,350 beds (excluding the single military hospital) [28]. In Kuwaiti governmental hospitals, the critical care units include a capacity ranges from 10 to 40 beds [28]. The critical care units in Kuwait might include surgical intensive care units, medical intensive care units, mixed intensive care units, and coronary care units. To get the required sample size in this study, the data were collected from critical care units in the largest two public hospitals in Kuwait.

2.4. Instruments

The Demographic questionnaire. This questionnaire inquires about the characteristics of the participants such as age, gender, marital status, education level, experience in nursing, experience in intensive care, previous training

in CPR, nationality, and the working area such as ICU and CCU.

2.4.1. The CPR Certification Exam Quiz

The CPR Certification Exam Quiz was developed by the national health care provider solutions (NHCPS) (www. NHCPS.com) to assess the CPR knowledge and skills among health care providers. In the current study, it was used to identify the current CPR knowledge among the critical care nurses in Kuwait. Permission to use the tool in the current study was obtained from Chief Medical Officer Of NHCPS Dr. Karl Disque. It consists of 25 questions, six of them are (true or false) and 19 are multiple choice questions. These questions are derived from and adhere to the latest 2015 AHA standards and guidelines. The required score to pass this quiz is more than 80%. The tool was used in the English language as all participants were speaking English.

2.4.2. The CPR Basic Life Support Skills Checklist

The CPR Basic Life Support Skills Checklist was developed by the national health care provider solutions (NHCPS) (www. NHCPS.com) to assess skills in implementing the CPR for infants, children, and adults among health care providers. The items of the measure were derived from and adhere to the latest 2015 AHA standards and guidelines. For the purpose of this study, the adult checklist was used. Each participant was asked to practice the CPR procedure and being evaluated. Participants who practiced all skills correctly passed the test. The CPR Basic Life Support Skills Checklist is attached.

2.5. Data Collection

Before collecting data, the researcher obtained approval for the study protocol from the Scientific Research Committee at the School of Nursing in the University of Jordan. After obtaining the IRB from the Scientific Research Committee at the University of Jordan, the author obtained a permission to conduct the current study from the two selected hospitals from the Scientific Research Committee at the Kuwait Ministry of Health. A copy letters of the IRB approval was sent to these hospitals. Then, the researcher visited these hospitals and met their administrators and the head nurses in the critical care units and provided them with detailed information about the study. After that, the author visited the critical care units in the selected settings, met the critical care nurses, and invited them to participate in the study. The researcher identified the participants who were willing to travel in coordination with the head nurse in each intensive care unit. In the critical care units, nurses who were willing to have an opportunity to accompany patients during transfer and travel outside Kuwait registered their names in a special record available with the head nurse. In fact, the number of critical care nurses who were willing to travel was relatively large because these nurses get large incentives as a result of the travel. After obtaining the list of nurses who were willing to travel, these nurses were invited to take part in the study. All the potential participants who met the inclusion criteria read the consent form. The researcher answered the questions of the participants about the study before they decided to take a part in the study. The author described the study purpose, the significance of the study, and the expected time of completing the study questionnaires for all participants. In addition, participant's rights including the voluntary participation, the right to withdraw from the study at any time, and confidentially of the participants were assured. Each participant who agreed to participate in the study was asked to complete the demographic questionnaire and the CPR knowledge evaluation questionnaire, and their skills will be evaluated for basic life support. The evaluation of CPR skills performed in a private place within the hospital. All participants were asked to perform the CPR procedure and they were evaluated by two professionals who are certified trainer in the CPR.

3. Results

3.1. Sample Characteristics

A sample of 204 critical care nurses employed in two Kuwaiti governmental hospitals participated in this study, representing a response rate of 100%. Most participants were recruited from Hospital 1 (n=163, 79.9%) and the rest were from Hospital 2 (n=41, 20.1%). About 63.3% of the participants aged 31 - 40 years. Regarding the academic qualifications of the participants, 138 (67.6%) had a Bachelor degree in nursing while only 66 (32.4%) had a diploma in nursing. The vast majority of the participants nurses had more than 5 years' experience in nursing (n=193, 94.6%). Participants were working in four critical care units including general ICU (n=60, 29.4%), medical ICU (n=35, 17.2%), surgical ICU (n=52, 25.5%), and cardiac care unit (n=57, 27.9%). A total of 121 participants (59.3%) received formal training in CPR, 61 of them received the training since less than two years and 60 received the training since more than two years. In addition, 95 (46.6%) participants were certified by the AHA. Finally, 73 (35.8%) participants reported that they have ever accompanied a patient to travel for seeking treatment outside Kuwait.

3.2. Percentages of Nurses Who have Adequate CPR Knowledge and Skills

Descriptive statistics were employed to identify the percentages of nurses who have adequate CPR knowledge and skills. The percentages of nurses who have adequate CPR knowledge and skills are presented in Table 1. About 56.4% of the study participants passed the skills exam about CPR. However, only 15.7% passed the knowledge test about CPR. This indicates an overall moderate skills level and low level of knowledge regarding CPR.

Table 1. Percentages of Nurses Who have Adequate CPR Knowledge and Skills

Variable	Category	Frequency	Percent
Passed Skills test	No	89	43.6
	Yes	115	56.4
Passed knowledge test	No	172	84.3
	Yes	32	15.7

3.3. Aspects of CPR That Critical Care Nurses Have Knowledge Deficit with Them

The percentages of correct and incorrect answers related to CPR knowledge test were reported. Participants have poor knowledge regarding most of the CPR aspects. The question that was answered correctly by the majority of participants was: "The initial Basic Life Support (CPR) steps for adults are…..", which was answered correctly by 60.3% of the participants. The question that was answered incorrectly by most participants was "The rescuer's exhaled air contains approximately _____ oxygen and _____ carbon dioxide." which was answered correctly by only 42.6% of the participants.

3.4. The Relationship between Registered Nurses' Characteristics and the Levels of CPR Knowledge and Skills

Chi square analysis (Table 2) revealed no significant difference in the levels of CPR Knowledge according to the current area of assignment (i.e General ICU, Medical ICU, Surgical ICU, or Cardiac Care Unit), P-value =0.237. As well, there were no significant differences in the levels of CPR Knowledge according to gender (P-value =0.182), age (P-value =0.549), academic qualification (P-value =0.885), experience in nursing (P-value =0.461), and experience in critical care units (P-value =0.113). However, critical care nurses employed in Hospital 2 were more likely to pass the CPR Knowledge test than critical care nurses employed in Hospital 1 (P <0.01). In addition, critical care nurses who received formal training in CPR (P=0.002) and AHA Certified nurses (P <0.001) were more likely to pass the CPR Knowledge test than other nurses. However, those who were Certified in CPR since 1month - 2 Years were more likely to pass the CPR Knowledge test than nurses who were certified in CPR since more than 2 years and those who were not certified in CPR (P <0.01). Finally, there was no difference in the ability to pass the CPR knowledge test between critical care nurses who have ever accompanied a patient to travel for seeking treatment outside Kuwait and those who did not do so (P=0.856).

Table 2. The relationship between nurses' characteristics and the levels of CPR Knowledge

Variable	Categories	Did not Pass Knowledge exam	Pass Knowledge exam	P-value
Current Area Of Assignment	General ICU	55 (91.7%)	5 (8.3%)	.237
	Medical ICU	30 (85.7%)	5 (14.3%)	
	Surgical ICU	42 (80.8%)	10 (19.2%)	
	Cardiac Care Unit	45 (78.9%)	12 (21.1%)	
Hospital name	Hospital 1	158 (96.9%)	5 (3.1%)	<0.001
	Hospital 2	14 (34.1%)	27 (65.9%)	
Gender	Male	46 (90.2%)	5 (9.8%)	.182
	Female	126 (82.4%)	27 (17.6%)	
Age	25 - 30	21 (77.8%)	6 (22.2%)	.549
	31 - 40	111 (86.0%)	18 (14.0%)	
	41 - 50	40 (83.3%)	8 (16.7%)	
Academic Qualification	Diploma In Nursing	56 (84.8%)	10 (15.2%)	.885
	Bachelors In Nursing	116 (84.1%)	22 (15.9%)	
Experience In Nursing	1- 5 Years	10 (90.9%)	1 (9.1%)	.461
	More Than 5 Years	162 (83.9%)	31 (16.1%)	
Work Experience In Critical Care Units	Month - 11 Months	23 (85.2%)	4 (14.8%)	.113
	1 Year - 5 Years	57 (91.9%)	5 (8.1%)	
	More Than 5 Years	92 (80.0%)	23 (20.0%)	
Formal Training In CPR	Yes	94 (77.7%)	27 (22.3%)	.002
	No	78 (94.0%)	5 (6.0%)	
Are You AHA Certified	Yes	69 (72.6%)	26 (27.4%)	.000
	No	103 (94.5%)	6 (5.5%)	
If Certified In CPR, Since What?	NO CPR Certification	78 (94.0%)	5 (6.0%)	.000
	1month - 2 Years	41 (67.2%)	20 (32.8%)	
	More Than 2 Years	53 (88.3%)	7 (11.7%)	
Have You Ever Accompanied Patient Before To Any Country	Yes	62 (84.9%)	11 (15.1%)	.856
	No	110 (84.0%)	21 (16.0%)	

Table 3. The relationship between nurses' characteristics and the levels of CPR Skills

Variable	Categories	Did not Pass Knowledge exam	Pass Knowledge exam	P-value
Current Area Of Assignment	General Intensive Care Unit	31 (51.7%)	29 (48.3%)	.496
	Medical Intensive Care Unit	14 (40.0%)	21 (60.0%)	
	Surgical Intensive Care Unit	3 (1.5%)	198 (98.5%)	
	Coronary/ Cardiac Care Unit	22 (42.3%)	30 (57.7%)	
Hospital name	Hospital 1	89 (54.6%)	74 (45.4%)	.000
	Hospital 2	0 (0.0%)	41 (100.0%)	
Gender	Male	12 (23.5%)	39 (76.5%)	.001
	Female	77 (50.3%)	76 (49.7%)	
Age	25 - 30	11 (40.7%)	16 (59.3%)	.910
	31 - 40	56 (43.4%)	73 (56.6%)	
	41 - 50	22 (45.8%)	26 (54.2%)	
Academic Qualification	Diploma In Nursing	30 (45.5%)	36 (54.5%)	.716
	Bachelors In Nursing	59 (42.8%)	79 (57.2%)	
Experience In Nursing	1- 5 Years	8 (72.7%)	3 (27.3%)	.047
	More Than 5 Years	81 (42.0%)	112 (58.0%)	
Experience In Critical Care Units	Month - 11 Months	13 (48.1%)	14 (51.9%)	.798
	1 Year - 5 Years	28 (45.2%)	34 (54.8%)	
	More Than 5 Years	48 (41.7%)	67 (58.3%)	
Formal Training In CPR	Yes	33 (27.3%)	88 (72.7%)	.000
	No	56 (67.5%)	27 (32.5%)	
Are You AHA Certified	Yes	23 (24.2%)	72 (75.8%)	.000
	No	66 (60.6%)	43 (39.4%)	
If Certified In CPR, Since What?	NO CPR Certification	56 (67.5%)	27 (32.5%)	.000
	1month - 2 Years	10 (16.4%)	51 (83.6%)	
	More Than 2 Years	23(38.3%)	37 (61.7%)	
Have You Ever Accompanied Patient Before To Any Country	Yes	24 (32.9%)	49 (67.1%)	.021
	No	65 (49.6%)	66 (50.4%)	

Chi square analysis (Table 3) revealed no significant difference in the levels of CPR skills according to the current area of assignment (P-value =.496), age (P-value =.910), academic qualification (P-value =.716), and experience in critical care units (P-value =.798). However, as same as the results of the differences in CPR knowledge, critical care nurses employed in Hospital 2 were more likely to pass the CPR skill test than critical care nurses employed in Hospital 1 (P <.01). However, unlike the difference in CPR knowledge, CPR skills have differed according to gender and experience in nursing. Regarding the gender differences in CPR skills, males were more likely to pass the CPR skill test than females (P=.001), while participants with more than 5 years' experience in the nursing profession were more likely to pass the CPR skill test than those with less than 5 years' experience (P-value = .046). Furthermore, as same as the results of the differences in CPR knowledge, critical care nurses who received formal training in CPR (P<0.001) and AHA certified nurses (P <0.01) were more likely to pass the CPR skills test than other nurses. However, those who were certified in CPR since 1 month - 2 years were more likely to pass the CPR skills test than nurses who were certified in CPR since more than 2 years and those who were not certified in CPR (P <0.01). Finally, unlike the difference in CPR knowledge, critical care nurses who reported that they have ever accompanied a patient to travel for seeking treatment outside Kuwait were more

likely to pass the CPR skills test than nurses who did not do so.

4. Discussion

The purposes of this study were to identify the percentage of critical care nurses in Kuwaiti governmental hospitals who have adequate knowledge and skills on CPR and to explore factors influencing the CPR knowledge and skills among these nurses. The outcomes of this study indicated a problem with the CPR knowledge and skills among the study participants. Specifically, about 56.4% of the study participants passed the skills exam about CPR, while only 15.7% passed the knowledge test about CPR. These outcomes suggest a deficit in CPR knowledge and skills among a large percentage of critical care nurses. However, the outcomes of this study are comparable with the previous studies about CPR conducted in the Arabic Gulf region. For example, Marzooq and Lyneham [29] reported that 58% of the nurses working in a public hospital in Bahrain reported that recalling CPR information is easy. However, only 7% of them passed the test regarding CPR knowledge.

Overall, participants have poor knowledge regarding most of the CPR aspects. The question that was answered correctly by most participants was question 10: "The initial Basic Life Support (CPR) steps for adults are…..",

which was answered correctly by 60.3% of the participants. The question that was answered incorrectly by most participants was question 16 "The rescuer's exhaled air contains approximately _____ oxygen and _____ carbon dioxide." which was answered correctly by only 42.6% of the participants. These outcomes suggest a need for updating CPR knowledge among the study participants. Vural et al. [30] reported that even when nurses have adequate CPR Knowledge and skills, the CPR Knowledge and practicing has to be frequently updated considering the current guidelines. Furthermore, the American Heart Association (AHA) suggests that training regarding the CPR for nurses and physicians is needed every 2 years [31], considering that the CPR competency in terms of knowledge and skills declines over time.

The current study revealed that CPR Knowledge does not differ according to the current area of assignment, gender, age, academic qualification, experience in nursing and experience in critical care units. As well, there was no significant difference in the levels of CPR skills according to the current area of assignment, age, academic qualification, and experience in critical care units. These outcomes agree with the previous research which found no association between the CPR knowledge and age, gender, and work experience. However, the outcomes of the current study are not consistent with some previous studies that examined the relationship between academic qualification, experience and CPR knowledge among nurses. For example, Marzooq and Lyneham [29] reported that nurses with less experience and less level of education had less knowledge level regarding the CPR procedure.

In the current study, critical care nurses employed in Hospital 2 were more likely to pass the CPR Knowledge and skills test than critical care nurses employed in Hospital 1. This outcome is due to the presence of a specific department in Hospital 2 that is responsible for providing routine training in CPR and ACLS for nurses, while Hospital 1 does not have such a department. In addition, critical care nurses who received formal training in CPR and AHA Certified nurses were more likely to pass the CPR Knowledge and skills test than other nurses. However, those who were Certified in CPR since 1month - 2 Years were more likely to pass the CPR Knowledge and skills test than nurses who were certified in CPR since more than 2 years and those who were not certified in CPR. These outcomes were supported by several studies. For example, Roshana et al. [32] examined factors associated with the level of CPR knowledge among 121 health care professionals in Nepal. The results indicated that CPR training is associated with better CPR skills and knowledge among the study participants.

In this study, males were more likely to pass the CPR skill test than females. This outcome is difficult to interpret as there are a lot of uncontrolled variables coming with this outcome however, so there is a need to conduct more research to clearly identify the effect of gender on CPR skills. Previous research, to some extent, has supported this outcome and reported that females have lower willingness to initiate CPR attempts and to use an AED device than males [33].

Participants with more than 5 years' experience in the nursing profession were more likely to pass the CPR skill test than those with less than 5 years' experience. This outcome is supported by previous research which indicated that work experience is associated with better skills of CPR [32,33].

4.1. Recommendations and Implications

Nurse administrators in the governmental hospitals in Kuwait a need to provide more CPR training to the critical care nurses based on the recent published guidelines. CPR training should be performed at least every 2 years, considering that CPR skills and knowledge are better among those who were certified in CPR since 1 month - 2 years. In addition, CPR training should be mandatory for all nurses working in critical care units. In addition, nursing administrators, policy makers, and educators need to consider integrating basic and advanced life support into the nursing curriculum as basic and advanced life support are important to save the life of patients.

4.2. Limitations

The current study was conducted in two governmental hospitals in Kuwait, which limits the generalizability about other critical care nurses in other Kuwaiti hospitals. The convenience sampling technique used in this study could limit the generalizability of the study to other nurses in different areas. Finally, the CPR skills were evaluated using simulators that may not reflect the competence of the study participants in real-life situations.

4.3. Conclusion

Overall, participants in the current study have poor knowledge regarding most of the CPR aspects. Specifically, only 15.7% passed the knowledge test about CPR. In addition, only 56.4% of the study participants passed the skills exam about CPR. Frequent education and training in CPR in the hospital and having CPR accreditation from AHA are required for critical care nurses in order to increase their ability to save the life of critically ill patients who are at risk for cardiac arrest. Having adequate knowledge and skills regarding the CPR procedure among critical care nurses in Kuwait is crucial to saving the life of critically ill patients, especially if nurses are going to accompany patients to traveling abroad from Kuwait.

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