

Assessment Nursing Knowledge about Cardiopulmonary Resuscitation in the Cardiac Care Unit

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Abstract: **Background:** Cardio-pulmonary resuscitation (CPR), in many emergency situations, is an essential life- saving technique. It is a vital skill that all members of the medical community, including students, should learn since it can save a patient's life if it is performed early. **Objective:** To assess nursing knowledge about cardio- pulmonary resuscitation. **Methodology:** A descriptive study design was used to assess nursing knowledge about cardio-pulmonary resuscitation for the period from (October 28th, 2024 to April 28th, 2025). Results: The study shows that the level of nursing knowledge about cardio-pulmonary resuscitation was fair at the mean of score 1.5. **Conclusions:** The study revealed that more than half of the participants had moderate knowledge about CPR. Recommendations: Training courses should be conducted regularly and periodically to develop the nursing staff working in critical care settings, including basic and necessary information on cardiopulmonary resuscitation (CPR) and advanced cardiac life support.

Key points: Cardiopulmonary Resuscitation; Nursing Knowledge.

I. Introduction

Cardiopulmonary resuscitation (CPR) is a life-saving emergency procedure that combines chest compressions and artificial ventilation to maintain steady blood circulation to the brain. In the event of a sudden cardiac arrest, even when CPR techniques were used, recent research revealed that the survival rates for hospital heart attacks and outpatient heart attacks were still low, at 23.8% and 11.4%, respectively (Beth, 2022). Medical professionals have long understood that CPR involves a set of evaluations and procedures rather than a single ability. In more recent times, we have also realized that cardiac arrest is not a single issue and that the CPR procedures may need to change depending on the kind of cardiac arrest or its cause. According to (Moghbeli et al., 2024), CPR is a medical procedure for all cardiac arrests. Due to decreased blood flow, cardiac arrest can cause irreversible brain damage and ultimately death if left untreated. When someone experiences a sudden heart attack, they can be revived using a technique called cardiopulmonary resuscitation, or CPR. Until the heart rate and respiration return to normal and medical treatment arrives, this is accomplished by either providing breathing assistance or administering oxygen to the lungs and chest compressions to drain blood. (Perkins et al., 2021). In the cardiovascular system, cardiac arrest is the most common cause of medical emergencies. If the electrical mechanism of the heart malfunctions and creates irregular rhythms, cardiac arrest may result in abrupt death. Since the onset of symptoms happens quickly, it is impossible to anticipate with confidence when a person may experience cardiac arrest (Hirsch et al., 2024). Cardiopulmonary resuscitation, which attempts to restore blood circulation throughout the body and avoid organ failure, particularly in the brain, is the most appropriate care of this situation. In cases of cardiac arrest, the initial few minutes are

crucial for improving the effectiveness of CPR. According to American Heart Association (AHA) study, the success rate of treating cardiac arrest increases with the timing of CPR (Einvik et al., 2025). As a result, it is now evident that additional steps are required to address the connection between CPR and cardiac arrest-related mortality. Basic first aid training is one way to address this issue. It equips bystanders to respond and treat a wide range of situations quickly and effectively, such as calling the Emergency Medical System (EMS), maintaining the airway, breathing, and circulation emergencies, and respiratory and cardiac arrest (Xiao et al., 2025). In addition to CPR training, more thorough first aid training addresses injuries to the bones, muscles, and joints; wound treatment; injuries to the head and spine; unexpected medical emergencies; environmental emergencies; and automated external defibrillation (AED) certification. Globally, first aid and CPR training have been widely promoted, and while the connection between CPR administered by laypersons and survival from cardiac arrest has produced conflicting results in previous studies, it would appear that today their effectiveness is undeniable (Sobala et al., 2025). The nurse is often the first to determine the condition of a patient who has suffered a cardiopulmonary arrest in the hospital. Therefore, it is necessary for him to be fully aware of cardiopulmonary resuscitation and to possess the high skill and competence that enables him to perform it correctly. Cardiopulmonary resuscitation has been practiced for 50 years to this day and contributes to saving many lives. Therefore, it is necessary to establish rules and foundations that enable the nurse to know to ensure better performance. Many studies have proven that after the nurse receives training in cardiopulmonary resuscitation, his knowledge and skills regarding the subject decrease after about 6 months, while their performance improves after attending and entering life support courses. Thus, nurses become certified and qualified (Rajeswaran et al., 2018).

Aim of the Study was:

To assess nursing knowledge about cardiopulmonary resuscitation.

Methodology:

The study design: The design of the study is a quantitative (descriptive) study to assess the nursing knowledge about CPR from (28th October, 2024) to (28th April 2025). **Administrative Arrangements:** The approval of the Training and Development Department Council/ Al-Diwaniyah Health Department was obtained for the study topic, after which the approval of Al-Diwaniyah Teaching Hospital was obtained to conduct the sample collection for the research entitled. **The Setting of the Study:** The study was conducted in Al-Diwaniyah teaching hospital at cardiac care unit, the researchers chosen this hospital because it is the biggest and the only hospital that contains cardiac care unit in Al-Diwaniyah city. **Sampling of the Study:** A non-probability (purposive) sample was selected to obtain representative and accurate data. From (72) staff working at CCU in Al-Diwaniyah Teaching Hospital, (9) staff were excluded from the study (4 staff have less than one year of employment, and five staff did not fill out the questionnaire correctly). So the total number of CCU staff participating in the study was (63). **Inclusion Criteria:** Nurses who have more than one year of employment. **The Study Instrument:** The study instrument is a questionnaire designed according to the study objective to assess the nursing knowledge about CPR. It is composed of two parts which include: **Part I: Demographic Data Form** The first part is concerned with the socio-demographic data of the students and consists of (5) items including (age, gender, educational level, years of experience in nursing, years of experience in CCU). **Part II: Nursing Knowledge about CPR Form** This part was constructed to assess CCU nursing knowledge about CPR. It consisted of one domain that involves 15 multiple-choice questions. For the purpose of this study, the number of correct answers was used to measure the level of knowledge for each staff, the rating score of answers was (2) for the correct and (1) for incorrect. **Data Collection:** The data has been collected through the utilization of the constructed questionnaire by self report techniques with the subjects who are individually interviewed by using the Arabic version of the questionnaire. Each subject took about (10-15) minutes to complete the questions. The data collection process has been performed from 18th January to 27th February, 2025 **Statistical Data Analysis:** The SPSS (Statistical Package of Social Sciences) version 25 was used to analyze the collected data of the study.

Result**Table (1): Distribution of Study Sample According to the Socio- demographic and Employment Characteristic (n=63)**

Variables Data	Rating and Interval	n(%)
Age / Years Mean \pm S.D (25.7 \pm 4.65)	21 – 25	45(71.42)
	26 – 30	14(22.22)
	31– 35	1(1.58)
	36 -45	3(4.76)
Gender	Male	26(41.26)
	Female	37(58.73)
Level of Education	Secondary Nursing School	4(6.34)
	Diploma in Nursing	22(34.92)
	Bachelor in Nursing	35(55.55)
	Master and above	2(3.17)
Years of Experience in nursing	1 – 5	57(90.47)
	6 – 10	2(3.27)
	10 +	4(6.34)
Years of Experience in CCU	1 – 5	59(93.65)
	6 – 10	2(3.17)
	10 +	2(3.17)

=Frequency, %=Percentage

The results reflect descriptive statistics of socio-demographic characteristics in terms of frequencies and percentages. Out of (63) subjects participated in our study, the majority of the age group was among the ages 21-25 years of old and constituted (71.42 %) of the study sample. Gender-related results indicate that female was (58.73%) of study findings Regarding educational level, the study showed that a relatively high percentage (55.55%), of the participating in the study, are bachelor in nursing, while Years of Experience in nursing the study showed the participants (1-5)was (90.47%), Finally in this table, among the study findings most of the participants for years of experience ICU (1-5) , it composed (93.65%).

Table (2): Assess' ICU Staff's Knowledge About Cardiopulmonary Resuscitation n=(63)

Knowledge Items	Correct f(%)	Incorrect f(%)	Mean (SD)	Assess.
1- It's the heart's function?	60(95.2)	3(4.8)	1.95(0.21)	Good
2- Normal heart beat ranges from...	50(79.4)	13(20.6)	1.79(0.40)	Good
3-..... Responsible for supplying the heart muscle with the blood and oxygen	33(52.4)	30(47.6)	1.52(0.50)	Fair
4- What is the normal beat volume per heartbeat?	15(23.8)	48(76.2)	1.24(0.42)	Low
5- It is the main pacemaker of the human heart?	7(11.1)	56(88.9)	1.11(0.31)	Low
6- CPR is a mixture of.....?	49(77.8)	14(22.2)	1.78(0.41)	Good
7- How long should you check for breathing during CPR?	23(36.5)	40(63.5)	1.37(0.48)	Fair
8- Check circulation by feeling a pulse in?	23(36.5)	40(63.5)	1.37(0.48)	Fair
9- When giving chest compressions?	31(49.2)	32(50.8)	1.49(0.50)	Fair
10- How can CPR help someone with a heart attack?	47(74.6)	16(25.4)	1.75(0.43)	Good
11- How does an automatic external defibrillator (AED) help a person with a heart attack?	48(76.2)	15(23.8)	1.76(0.42)	Good

12- What is the next step in CPR for an unresponsive adult?	15(23.8)	48(76.2)	1.24(0.42)	Low
13- The process of compression should start within.....from stop cardiac.	30(47.6)	33(52.4)	1.48(0.50)	Fair
14- Which of the following is incorrect when making CPR?	30(47.6)	33(52.4)	1.48(0.50)	Fair
15- What technique is used for bag-mask ventilation during CPR performed by lifeguards?	19(30.2)	44(69.8)	1.30(0.46)	Low

***low (mean of scores 1-1.33), fair (1.34-1.67), high (1.68 and more)**

Table (3.2) shows the assessment of the study sample responses. The study results indicate that the study sample responses are Fair at half of study items while the result showed in the item number (1,2,6,10,11) was good level, and item (4,5,12,15) was low level.

Table (3): Overall Assess' CCU Staff's Knowledge About Cardiopulmonary Resuscitation n= (63)

Items	Level	F	%	Total Mean	Total Knowledge
Overall Staff's Knowledge	Low	8	12.7	1.50	Fair
	Fair	40	63.5		
	Good	15	23.8		

***low (mean of scores 1-1.33), fair (1.34-1.67), high (1.68 and more)**

Table (3.3) shows, The study sample responses are moderate knowledge with a statistical mean of scores (1.50).

Discussion

Part-I: Discussion of the Nursing Demographic Characteristics of the Study Sample, as Shown in Table (3.1): The study finding in the table (3-1) is related to the sociodemographic characteristics of the sample, (63) subjects participated in our study, the majority of the age group was among the ages 21-25 years of old and constituted (71.42 %) of the study sample. The results showed that the distribution of the sample according to gender was female, as they constituted more than half of the participants (58.73%) of the study results. with regard to educational level, the study showed Nearly half of the participants that Bachelor in Nursing was (55.55%). Regarding years of experience in nursing, the category (1-5) years had the highest participation among the study participants, reaching (90.47). while Years of Experience the study findings most of the participants for years of experience CCU (1-5) , it composed (93.65%).

Part-II: Discussion of the Overall Assessment Nursing Knowledge about Cardiopulmonary Resuscitation in the Cardiac Care Unit in Table (3.2); Through Table (3-3), related to the overall assessment of nursing 'knowledge regarding CPR, the finding indicated that more than half of nursing staff(63.5%) of study sample reported Fair level . These results are in mightily agreement with similar studies, which showed that nurses' knowledge of CPR was average at 60% (Adal & Emishaw, 2023). 2020), and in another study conducted by (Abebe et al., 2021; Ihunanya et al.,) showed opposite results with almost the same percentage (63.3%) reporting poor knowledge of CPR among nurses. This result was also consistent with (Elsayed *et al.*, 2021) who reported that two-thirds of nurses had moderate knowledge. Also The results of the study were partially consistent with a similar study conducted by (Rajeswaran et al., 2018), who studied the knowledge of nursing staff about cardiopulmonary resuscitation and found that (48%) of nurses working in the Cardiac care unit in three hospitals in Botswana had a fair level of knowledge. In another study conducted by (Andriyani et al ., 2019) on nurses' knowledge of cardiopulmonary resuscitation showed that the largest percentage of participants (76.7%) had poor levels. While this result variation from the result conducted by (Tomas & Kachekele , 2023), which found that (63%) of participants reported a good level of knowledge. The differences in the above-mentioned results may

be attributed to the possibility of poor education, lack of motivational refresher training, lack of knowledge and skills training courses, and the reluctance of a large group of nurses to participate in development and continuing education activities (Baloyi & Jarvis, 2020; Mbidi & Damons, 2020).

Conclusion and Recommendation

Through the study conducted to assess nursing knowledge about CPR, the results revealed that most of the participants in this study had moderate knowledge. According to the results and conclusions of the present study, the researchers recommended the following: Training courses should be conducted regularly and periodically to develop the nursing staff working in critical care settings, including basic and necessary information on cardiopulmonary resuscitation (CPR) and advanced cardiac life support. Further studies are needed to monitor changes in the knowledge levels of nursing staff working in the cardiac care unit regarding CPR, along with updating CPR techniques, and motivating staff to participate in continuing education programs. Future studies should be conducted on the skill knowledge and correct methods for performing CPR protocols, in addition to conducting further studies to identify and clarify the factors that influence CPR performance.

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