

KNOWLEDGE, ATTITUDE, AND PRACTICES TOWARDS
CARDIOPULMONARY RESUSCITATION AMONG NURSES AT A
TERTIARY CARE HOSPITAL IN KARACHI, PAKISTAN: A DESCRIPTIVE
CROSS-SECTIONAL STUDY

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Abstract**Background**

Cardiac arrest remains a major public health concern worldwide and is associated with high mortality rates. Cardiopulmonary resuscitation (CPR) is a lifesaving intervention that significantly improves survival outcomes when performed promptly and correctly. Nurses are often the first healthcare professionals to respond to cardiac arrest events; therefore, adequate knowledge, positive attitude, and competent practice of CPR are essential.

Objective

To assess the knowledge, attitude, and practices regarding cardiopulmonary resuscitation among nurses working in critical care units of a tertiary care hospital in Karachi, Pakistan.

Methods

A descriptive cross-sectional study was conducted at Dr. Ruth K. M. Pfau Civil Hospital Karachi over six months. Eighty-two registered nurses working in the Intensive Care Unit (ICU), Coronary Care Unit (CCU), Emergency Room (ER), and Operating Theatre (OT) were selected using purposive sampling. Data was collected using a structured questionnaire assessing CPR knowledge, attitude, and practice. Data was analyzed using SPSS, and associations between demographic variables and CPR competency domains were assessed using Pearson's Chi-square test.

Results

Among the participants, 53% were female and 46% were aged between 26–30 years. Approximately 63% were Basic Life Support (BLS) certified. The mean knowledge score regarding CPR was 52%, while positive attitude and correct practice scores were 76% and 56%, respectively. Gender showed a significant association with CPR knowledge ($p=0.01$). BLS certification was significantly associated with attitude ($p=0.003$) and practice ($p=0.02$).

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Conclusion

Although nurses demonstrated positive attitudes towards CPR, deficiencies in knowledge and practical skills were identified. Regular refresher training, mandatory BLS renewal, and simulation-based practice sessions are recommended to enhance CPR competency among nurses.

INTRODUCTION

Cardiac arrest remains a huge medical problem as well as public health concern. Despite all the recent advances, it is a leading cause of death in most parts of the world. In the United States alone, annually 300,000 cases of out of hospital cardiac arrest (OHCA) are reported, while in Europe around 350,000 individuals die following OHCA.

Cardiac arrest can occur both inside and outside the hospital setting, which necessitates the need for early recognition and treatment. It is possible to reduce the high mortality rate associated with cardiac emergencies by ensuring adequate knowledge and practice of basic life support (BLS) skills. The American Heart Association (AHA) has issued comprehensive guidelines for both in and out of hospital management, adult cardiac arrest chain of survival, immediate recognition of cardiac arrest, early activation of emergency medical services (EMS), early cardiopulmonary resuscitation (CPR), and defibrillation.

CPR, in particular, is a simple maneuver which if performed correctly can greatly increase the likelihood of return of spontaneous circulation (ROSC) and survival. As healthcare professionals encounter several life-threatening emergencies on a daily basis, they are expected to have profound knowledge of the CPR guidelines. The inadequate knowledge of resuscitation has been reported globally. Studies from India, Turkey, Greece, Nigeria and Nepal also cite a lack of knowledge regarding CPR among healthcare professionals. In addition, the absence of BLS and CPR inclusion in the medical school curriculum is also an important contributing factor.

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CPR should only be performed when a person shows no signs of life or when they are: unconscious, unresponsive. Not breathing or not breathing normally (in cardiac arrest, some people will take occasional gasping breaths, they still need CPR

Nurses are generally the first healthcare professionals to detect CRA(cardiopulmonary arrest) and activate the chain of survival at the healthcare institutions (Nyman & Shivonen, 2000) and it is crucial that they keep their knowledge and skills updated (Dal & Sarpkaya, 2019).

STUDY OBJECTIVE:

- Assess Knowledge, Attitude and Practices towards Cardiopulmonary Resuscitation among Nurses at Tertiary Care Hospital in Karachi Pakistan

SIGNIFICANCE OF THE STUDY:

- Cardiac arrest is an emergency and effective CPR is one of the keys in better outcome. Nurses are performing tremendous role in CCU, ICU, ER and OT care. Thus BLS, ACLS trained nurses are required in this critical area. The knowledge, attitude and practices related to BLS and ACLS among nurses is crucial.

RATIONALE OF THE STUDY:

- Limited study is conducted on knowledge, attitude and practices of CPR among nurses in Pakistan. Thus, current study will evaluate it by using structured Questionnaires.

OPERATIONAL DEFINITIONS:**Cardiac Arrest:**

- Cardiac arrest is the abrupt loss of heart function in a person who may or may not have been diagnosed with heart disease. It can come on suddenly or in the wake of other symptoms. Cardiac arrest is often fatal if appropriate steps aren't taken immediately.

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DOI: <http://doi.org/10.5281/zenodo.21158779>**CPR:**

- Cardiopulmonary resuscitation is an emergency lifesaving procedure performed when the heart stops beating. Immediate CPR can double or triple chances of survival after cardiac arrest.

(AHA)

BLS:

- Basic life support is a level of medical care which is used for victims of life-threatening illnesses or injuries until they can be given full medical care at a hospital. It can be provided by trained medical personnel, such as emergency medical technicians, and by qualified bystanders.

(www.wikipedia.org)

ACLS:

- Advanced cardiac life support, or advanced cardiovascular life support, often referred to by its acronym, [ACLS] refers to a set of clinical algorithms for the urgent treatment of cardiac arrest, stroke, myocardial infarction and other life-threatening cardiovascular emergencies.

(www.wikipedia.org)

RESEARCH METHODOLOGY

A descriptive cross-sectional study was conducted among registered nurses working in critical care units at Dr. Ruth K. M. Pfau Civil Hospital, Karachi, Pakistan. The study was carried out over a period of six months. The target population comprised registered nurses employed in intensive care settings, including the Intensive Care Unit (ICU), Coronary Care Unit (CCU), Emergency Room (ER), and Operation Theatre (OT). A total of 82 nurses were recruited using a purposive sampling technique.

Registered nurses with a minimum of six months of working experience in the ICU, CCU, ER, or OT who were willing to participate were included in the study. Nurses working in departments other than the designated critical care areas, as well as doctors and other healthcare professionals, were excluded from participation.

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Data were collected using a structured, self-administered questionnaire comprising four sections. The first section gathered participants' demographic information, while the second, third, and fourth sections assessed nurses' knowledge, attitudes, and practices regarding cardiopulmonary resuscitation (CPR), respectively.

The collected data were entered and analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequencies and percentages, were used to summarize the demographic characteristics and responses of the participants. Pearson's Chi-square test was applied to determine the association between demographic characteristics and nurses' knowledge, attitudes, and practices regarding CPR. A p-value of less than 0.05 was considered statistically significant.

Ethical Considerations

Permission was obtained from the concerned hospital administration. Participation was voluntary, and confidentiality of respondents was maintained throughout the study.

Results

Most of the participants were 26 to 30 years old (46%) as compared to other participants

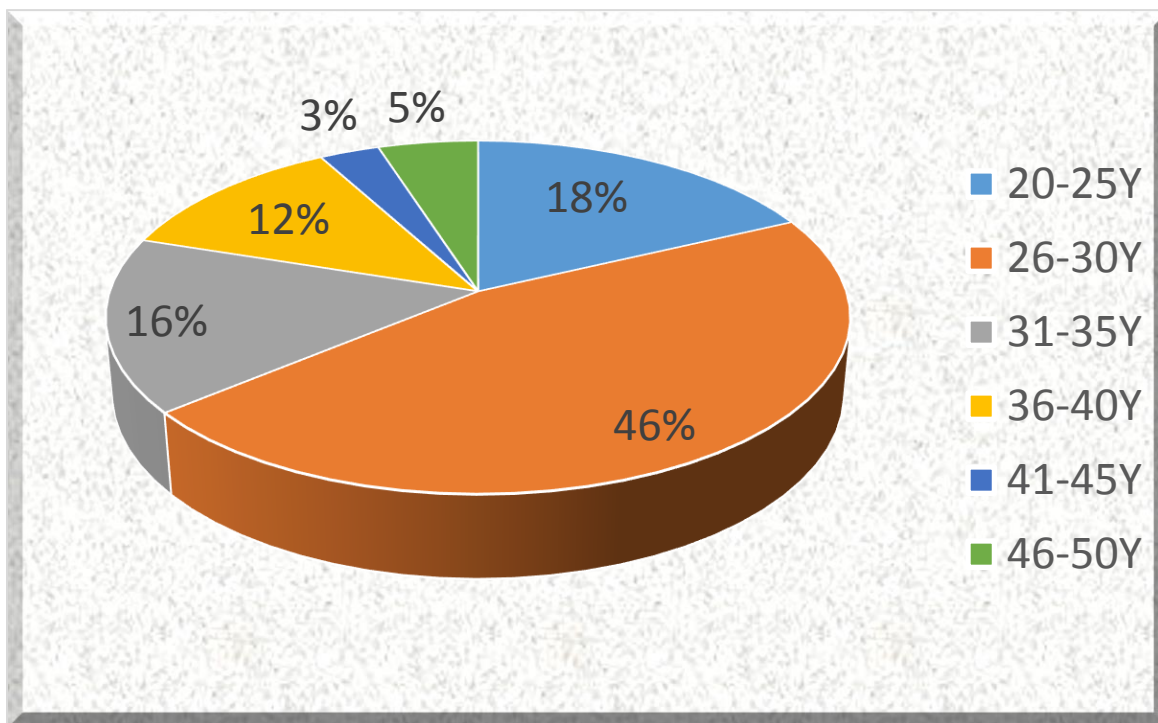


FIGURE 01: DISTRIBUTION OF AGE

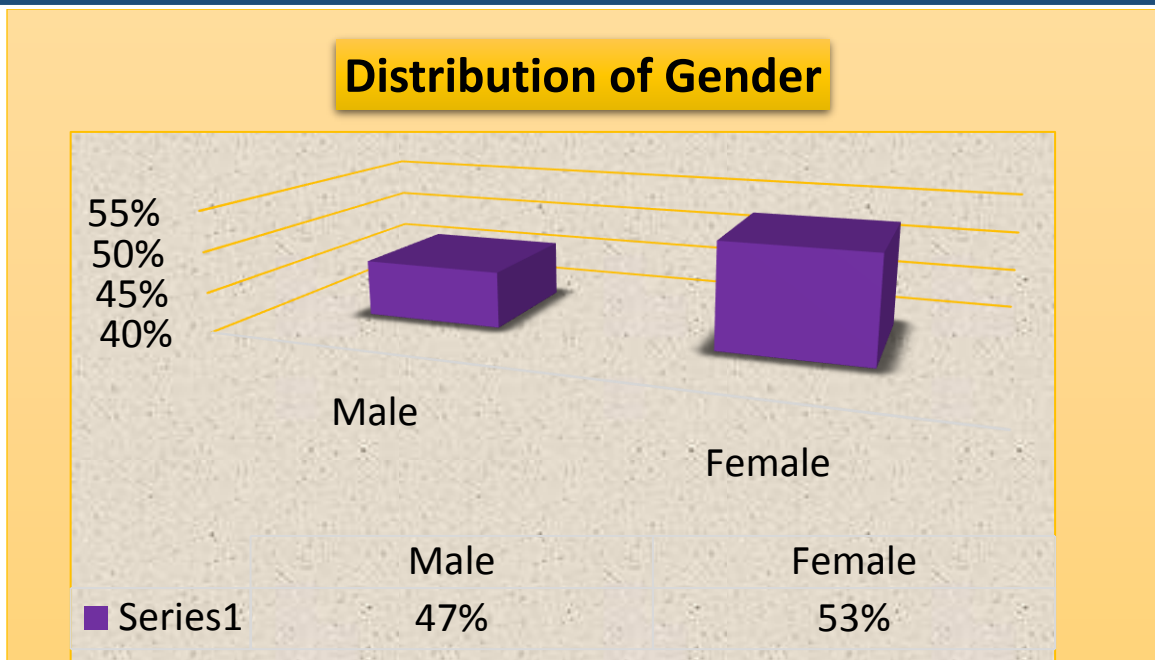


FIGURE 02: DISTRIBUTION OF GENDER

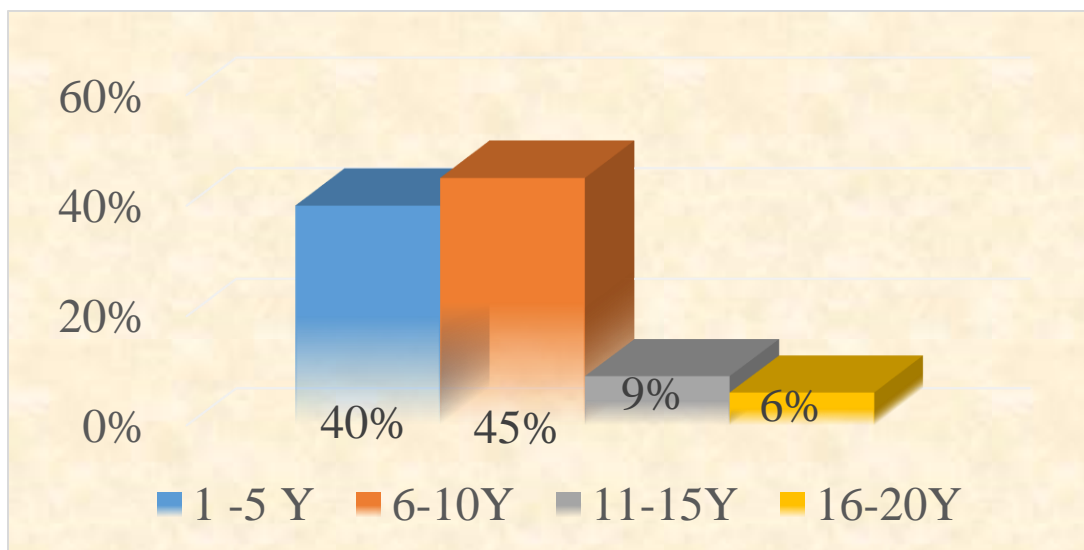


FIGURE 03: DISTRIBUTION OF EXPERIENCE

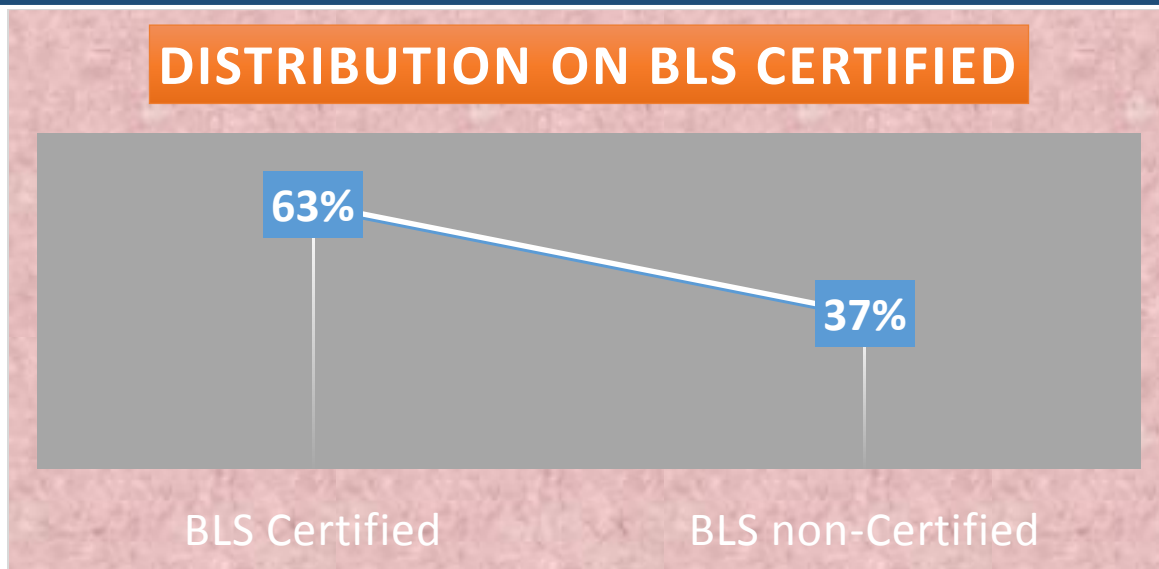


FIGURE 04: DISTRIBUTION OF BLS CERTIFIED

TABLE 01: DISTRIBUTION OF KNOWLEDGE TOWARDS CPR

S.NO	STATEMENT	CORRECT	INCORRECT
1	Chest compressions should be started within _____ of recognition of cardiac arrest.	52%	48%
2	For adult CPR, you deliver chest compressions at a rate of _____ with a depth of _____	56%	44%
3	Which of the following is NOT correct when performing CPR?	60%	40%
4	You find an adult who is unresponsive and not breathing. The scene is safe. What is your next step?	31%	69%
5	In order to assess for a pulse in an adult victim, you would assess the _____ for how long?	63%	37%

6	When performing chest compressions on an adult during 2 person CPR, you would deliver them at a rate of _____ and ratio of _____?	57%	43%
7	Which of the following statements is incorrect about performing chest compressions?	44%	56%
8	After performing 30 high quality chest compressions on an adult victim, the next step is to?	48%	52%
9	You suspect a head and neck injury in a victim who is unresponsive and not breathing. How would you open the airway to give breaths?	65%	35%
10	During 2 rescuer CPR on an adult how many cycles of CPR do you perform before switching roles?	45%	55%
11	A victim is in cardiac arrest and you go to place the AED pads on the victim's chest. You notice that the victim is wearing a Nitroglycerin medication patch where you would place an AED pad. What of the statements is NOT true?	32%	68%
12	A 14 year old is in cardiac arrest and the AED arrives on the scene. What type of AED pads will you apply?	47%	53%
13	I believe that CPR is part of nursing role	82%	18%
	MEAN	52%	48%

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TABLE02: ASSOCIATION OF DEMOGRAPHIC VARIABLES WITH BLS KNOWLEDGE

S.No	Variables	Correct	Incorrect	P-Value
1.	Gender			0.01*
	Male	28.2%	28.8%	
	Female	25.9%	1%	
2.	Marital Status			0.30
	Married	25.4%	20.7%	
	Unmarried	28.6%	25.1%	
3.	BLS Certified			0.23
	Certified	35.3%	28.3%	
	Non- Certified	18.6%	17.8%	
4.	Experience			0.3
	1-5Y	23.15%	17%	
	6-10Y	23%	22.07%	
	1-15Y	4.07%	4.76%	
	16-20Y	3.6%	2.08%	

TABLE 03: DISTRIBUTION OF ATTITUDE TOWARDS CPR

S.NO	STATMENT	POSITIVE	NEGATIVE	NEUTRAL
1.	What technique is used for bag-mask ventilation during 2 rescuer CPR?	55%	42%	3%
2	I think that mastering CPR intervention should be made mandatory to all nurses	92%	4%	4%
3	I am able to identify the sign and symptoms of cardiac arrest	83%	14%	3%
4	I do not hesitate to start CPR in a victim	33%	60%	7%
5	I do not feel panic during CPR	73%	16%	11%
6	I feel competent to perform CPR during sudden cardiac arrest	79%	10%	11%
7	I am able to identify the equipment's and drugs in crash cart	82%	9%	9%
8	It is important to me to attend CPR training courses and in-service training	87%	7%	6%
9	I think that CPR skills should be rehearsed at least once per year	80%	11%	9%
10	I believe that following CPR guidelines properly in CPR practice will increase survival rate	89%	8%	3%
11	It is important for me to read CPR guidelines before entering CPR courses	85%	12%	3%

12	I think the practice of CPR in my department is conducted according to updated AHA guidelines	69%	22%	9%
13	It is important to report and document about CPR to improve the quality of care	86%	11%	3%
14	I think all staff nurses in my setting are competent to provide CPR	71%	17%	12%
15	I get adequate team support during CPR	75%	12%	13%
Mean		76%	17%	7%

TABLE05: ASSOCIATION OF DEMOGRAPHIC VARIABLES WITH BLS ATTITUDE

S.No	Variables	Positive	Negative	Neutral	P-Value
1.	<u>Gender</u>				
	Male	45.5%	9.13%	2.2%	0.2
	Female	31.8%	8%	3.27%	
2.	<u>Marital Status</u>				
	Married	37.7%	6.6%	1.93%	0.4
	Unmarried	40%	10.3%	3.4%	
3.	<u>BLS Certified</u>				
	Certified	50.3%	10.13%	2.86%	0.003*
	Non- Certified	26.81%	6.93%	2.8%	
4.	<u>Experience</u>				
	1-5Y	29.8%	7.13%	3%	0.2
	6-10Y	35.8%	7.93%	1.3%	

	11-15Y	6.66%	1.46%	0.6%	
	16-20Y	4.86%	0.73%	0.53%	

TABLE 06 : DISTRIBUTION OF PRACTICE TOWARDS CPR

S.NO	STATEMENT	RIGHT	WRONG
1.	After activating the emergency response system the next step is to	42%	58%
2.	You are the 1st rescuer to arrive at the side of a victim. The very 1st step you take is to?	53%	47%
3.	After you assess a victim's pulse and do not feel one, what is the next step?	61%	39%
4.	After performing 30 high quality chest compressions on an adult victim, the next step is to?	66%	34%
5,	During 2 rescuer CPR on an adult victim what is the compression and breath ratio?	48%	52%
6,	You find a victim whose chest is covered with water. The AED arrives to the scene. Before using the AED you would?	65%	35%
	MEAN	56%	44%

TABLE 07: ASSOCIATION OF DEMOGRAPHIC VARIABLES WITH BLS PRACTICE

S.No	Variables	Correct	Incorrect	P-Value
1.	Gender			
	Male	31.5%	25.6%	0.33
	Female	26.5%	16.4%	
2.	Marital Status			
	Married	25.2%	21%	0.3
	Unmarried	32.8%	21%	
3.	BLS Certified			
	Certified	37.8%	25.3%	0.02*
	Non- Certified	20.3%	16.6%	
4.	Experience			
	1-5Y	23.16%	17.16%	0.03*
	6-10Y	26%	19.3%	
	1-15Y	4.3%	04%	
16-20Y	4.6%	1.48%		

Discussion

This study assessed the knowledge, attitude, and practice of CPR among nurses working in critical care settings. The findings revealed moderate knowledge (52%), positive attitudes (76%), and moderate practical competency (56%).

The results are comparable to findings reported by Mersha et al. (2020), who observed positive attitudes toward CPR among healthcare professionals despite deficiencies in practical competencies. Similarly, Shah et al. (2019) reported a mean knowledge score of 82.02% and a mean practice score of 42.42% among nurses in tertiary care hospitals in Pakistan.

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The high proportion of positive attitudes observed in this study indicates that nurses recognize the importance of CPR training and its impact on patient survival. Nevertheless, the moderate knowledge and practice scores suggest a need for continuous professional development and regular competency assessments.

The significant association between BLS certification and both attitude and practice highlight the importance of formal CPR training programs. Nurses who received BLS certification demonstrated better confidence and practical competence than those without certification.

Limitations

- The study was conducted at a single tertiary care hospital, limiting generalizability.
- Only nurses from selected critical care areas were included.
- Self-reported responses may have introduced reporting bias.
- Practical CPR skills were assessed through questionnaires rather than direct observation.

Strengths

- Conducted in a large tertiary care hospital.
- Included nurses from multiple critical care departments.
- Utilized standardized CPR-related assessment questions.
- Examined associations between demographic factors and CPR competency.

Conclusion

The study demonstrated that nurses possessed a positive attitude toward CPR; however, knowledge and practical skills remained suboptimal. Overall knowledge, attitude, and practice scores were 52%, 76%, and 56%, respectively. Significant associations were observed between gender and knowledge, and between BLS certification and both attitude and practice.

Regular CPR training, simulation-based learning, and mandatory recertification programs are necessary to improve nurses' preparedness for cardiac arrest management and enhance patient survival outcomes.

Recommendations

1. Mandatory renewal of BLS certification every two years.
2. Regular CPR drills and simulation-based training sessions.
3. Integration of updated CPR guidelines into continuing nursing education programs.
4. Routine competency assessments for nurses working in critical care units.
5. Further multicenter studies with larger sample sizes to assess factors affecting CPR knowledge retention and performance.

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