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A Study to Assess Knowledge, Practice and Attitude on Cardiopulmonary Resuscitation to Save Lives in Cardiac Arrest Among Nursing Staff Working at Tertiary Care Hospital

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Abstract—Background*: Cardiac arrest is one of the leading causes of mortality globally and in India. According to the American Heart Association (AHA), cardiovascular diseases account for millions of deaths annually worldwide, while in India approximately 5–6 lakh deaths occur every year due to sudden cardiac arrest, with a significant proportion affecting individuals below 50 years of age. Early recognition of cardiac arrest and initiation of high-quality cardiopulmonary resuscitation (CPR) are essential to improve survival outcomes. As per the latest AHA 2025 Basic Life Support (BLS) guidelines, high-quality CPR includes chest compressions at a rate of 100–120 compressions per minute, compression depth of 5–6 cm, complete chest recoil, minimal interruptions, and delivery of effective rescue breaths with an appropriate airway technique. Nurses and healthcare professionals play a vital role in the early management of cardiac arrest; therefore, adequate knowledge, skill, and attitude toward BLS and CPR are essential.* ***Methods****: A hospital-based cross-sectional study was conducted over a period of 2 months from November 2025 to December 2025 among 40 nursing staff working at Trinay Hospital, Jodhpur, Rajasthan. Among the participants, 26 were from critical care areas (ICU and Emergency) and 14 from non-critical care areas (wards and OPD). Data were collected using a pre-tested structured questionnaire based on the latest AHA 2025 BLS and CPR guidelines. Knowledge was assessed using 20 multiple-choice questions, while practice was assessed using a 10-point skill checklist for high-quality CPR. Attitude was assessed through verbal responses during simulated CPR scenarios. Scores were categorized as poor (<40%), average (41–60%), good (61–80%), and excellent (>80%). Data analysis was performed using SPSS software with descriptive and inferential statistical methods.*
Result*: The median knowledge score among nursing staff was 14.5 (72.5%), while the median practice score was 7 (70%). Nursing staff working in critical care areas demonstrated comparatively higher knowledge and practice scores than those in non-critical areas; however, the difference was not statistically significant. Among all participants, 5% (2) had poor knowledge scores, 27.5% (11) had average scores, 57.5% (23) had good scores, and 10% (4) achieved excellent scores. Nursing staff with more than 5 years of clinical experience and those posted in ICU and Emergency units showed better performance in knowledge, practice, and attitude related to high-quality CPR. Nearly all participants expressed a positive attitude toward BLS training and recommended regular refresher courses and continuing nursing education programs.* ***Conclusion****: The present study revealed that the overall knowledge, attitude, and practice regarding high-quality BLS and CPR among nursing staff were satisfactory, with better performance observed among nurses working in critical care areas and those having greater clinical experience. However, nursing staff working in non-critical areas and with limited experience demonstrated comparatively lower scores in knowledge and practical skills. Regular hands-on training sessions, simulation-based learning, and mandatory annual BLS certification programs based on the latest AHA 2025 guidelines are recommended to improve competency and ensure effective cardiac arrest management among healthcare professionals.*

Keywords— *High-quality CPR, Basic Life Support, BLS, Sudden Cardiac Arrest, Nursing Staff, AHA 2025 Guidelines.*

I. INTRODUCTION

Cardiac arrest is a major global public health issue and remains one of the leading causes of sudden death worldwide. Cardiovascular diseases contribute significantly to mortality and morbidity across all age groups. According to the American Heart Association (AHA), sudden cardiac arrest causes millions of deaths globally every year. In India, approximately 5–6 lakh individuals die annually due to sudden cardiac arrest, many of whom are under the age of 50 years.

High-quality cardiopulmonary resuscitation (CPR) is the cornerstone of successful resuscitation during cardiac arrest. Immediate initiation of CPR significantly improves survival outcomes and neurological recovery. The latest AHA 2025 guidelines emphasize the importance of early recognition of cardiac arrest, rapid activation of emergency response systems, immediate chest compressions, timely defibrillation using Automated External Defibrillators (AEDs), and effective post-resuscitation care.

High-quality CPR includes:

- Chest compression rate: 100–120 compressions/minute
- Compression depth: 5–6 cm in adults
- Complete chest recoil after each compression
- Minimizing interruptions during compressions
- Delivering effective ventilation with proper airway management
- Compression-to-ventilation ratio of 30:2 in adults
- Use of CAB sequence (Circulation-Airway-Breathing)

Nursing staff are often the first responders during in-hospital cardiac arrest situations. Therefore, adequate theoretical knowledge, practical skills, and positive attitude toward CPR are essential among nurses working in both critical and non-critical areas.

Despite advancements in emergency care, several studies in India have shown inadequate knowledge and skill retention among healthcare professionals regarding BLS and CPR. Continuous training, practical demonstrations, and simulation-based education are necessary to improve resuscitation outcomes.

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The present study was conducted to assess and compare the knowledge, attitude, and practice regarding high-quality BLS and CPR among nursing staff working in critical and non-critical areas at a tertiary care hospital.

II. Review of Literature

Several national and international studies have evaluated the knowledge and skills of healthcare professionals regarding CPR and BLS.

Madden (2006) reported that nursing students showed inadequate retention of CPR skills after training and emphasized the need for periodic refresher sessions.

Remmen et al. (2001) found that theoretical knowledge alone does not ensure adequate psychomotor performance during real-life resuscitation.

Sasson et al. (2010) demonstrated that early CPR and defibrillation significantly improved survival following out-of-hospital cardiac arrest.

Suzuki et al. conducted a study among Japanese medical students and reported that less than 20% could correctly perform standard CPR techniques.

Indian studies have also shown deficiencies in BLS awareness among healthcare professionals, especially among non-critical care staff and newly recruited nurses.

As a result, the current study was designed to assess the current level of knowledge and practical skills of nurses in providing high-quality CPR in both critical and non-critical care settings.

III. Aim of the Study

To assess the knowledge, attitude, and practice regarding High-Quality Basic Life Support (BLS) and Cardiopulmonary Resuscitation (CPR) among nursing staff working in critical and non-critical care are

Objectives

1. To assess the knowledge regarding High-Quality CPR among nursing staff.
2. To assess the practice skills regarding BLS and CPR.
3. To assess the attitude of nursing staff toward CPR training.
4. To compare knowledge and practice scores between critical and non-critical area nursing staff.
5. To identify factors associated with better CPR performance.

IV. Materials and Methods

Study Design

Hospital-based cross-sectional observational study.

Study Duration

2 months (November 2025 to December 2025)

Study Setting

Trinay Hospital, Jodhpur, Rajasthan.

Study Population

Nursing staff working in critical and non-critical areas.

Sample Size

Total participants = 40 nursing staff.

- Critical area staff = 26
- Non-critical area staff = 14

Inclusion Criteria

- Nursing staff willing to participate.
- Staff working in ICU, Emergency, Wards, and OPD.

Exclusion Criteria

- Staff who refused consent.
- Staff on long leave during data collection.

Study Tool

A pre-tested structured questionnaire based on AHA 2025 guidelines consisting of:

1. Demographic profile
2. 20 multiple-choice questions for knowledge assessment
3. 10-point skill checklist for practice assessment
4. Verbal scenario-based questions for attitude assessment

Scoring Criteria

Score Percentage	Interpretation
<40%	Poor
41–60%	Average
61–80%	Good
>80%	Excellent

Statistical Analysis

Data were entered in Microsoft Excel and analysed using SPSS software version 25.

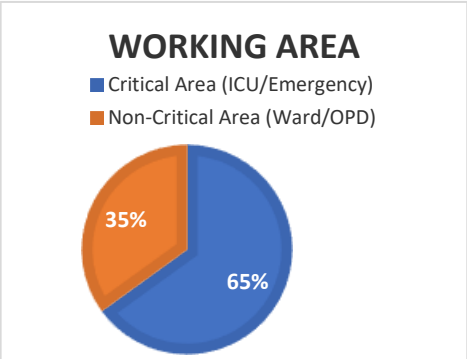
Statistical tools used:

- Mean
- Median
- Percentage
- Chi-square test
- Mann-Whitney U test
- Interquartile range

V. Demographic Profile of Participants

TABLE 1: Distribution of Participants by Working Area

Working Area	Frequency	Percentage
Critical Area (ICU/Emergency)	26	65%
Non-Critical Area (Ward/OPD)	14	35%
Total	40	100%



Graph 1: Distribution by Working Area

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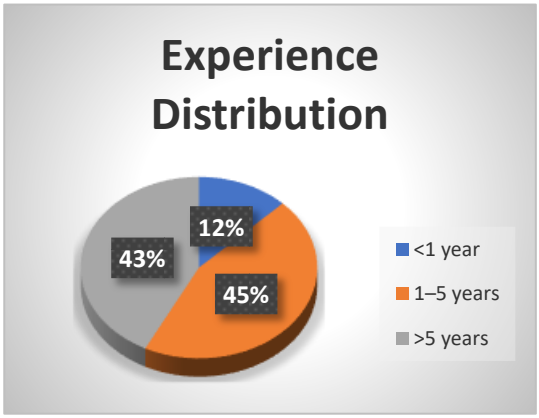
TABLE 2: Distribution by Gender

Gender	Frequency	Percentage
Male	18	45%
Female	22	55%

TABLE 3: Distribution According to Years of Experience

Experience	Frequency	Percentage
<1 year	5	12.50%
1–5 years	18	45%
>5 years	17	42.50%

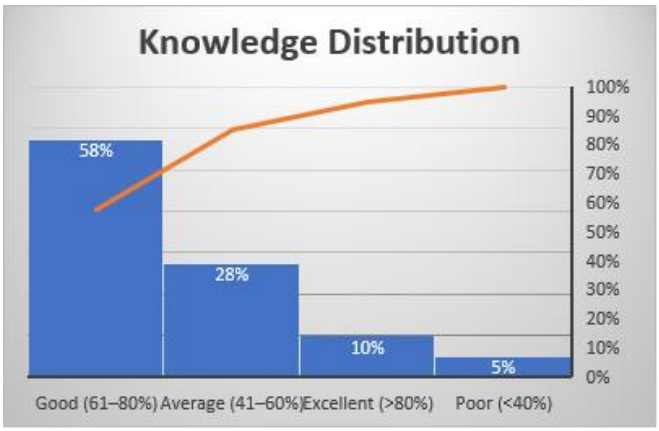


Graph 2:

VI. Result

TABLE 4: Knowledge Score Distribution

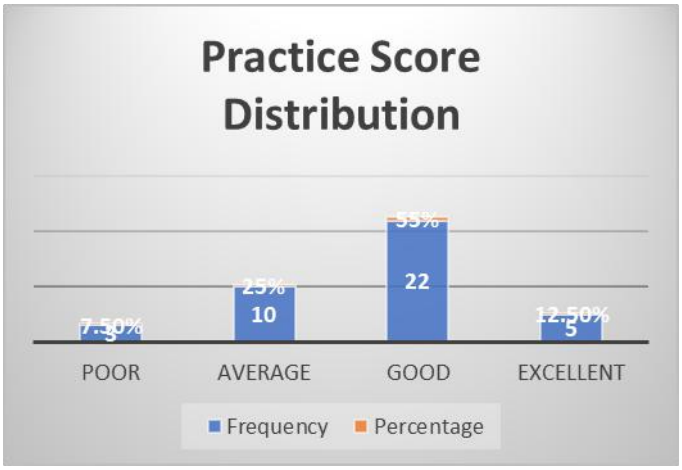
Knowledge Category	Percentage	Frequency
Poor (<40%)	5%	2
Average (41–60%)	27.50%	11
Good (61–80%)	57.50%	23
Excellent (>80%)	10%	4



Graph 3: Knowledge Score Distribution

TABLE 5: Practice Score Distribution

Practice Category	Frequency	Percentage
Poor	3	7.5%
Average	10	25%
Good	22	55%
Excellent	5	12.5%



Graph 4: Practice Score Distribution

TABLE 6: Comparison Between Critical and Non-Critical Areas

Variable	Critical Area	Non-Critical Area
Median Knowledge Score	15.5	12
Median Practice Score	8	6
Positive Attitude	100%	92%

Interpretation:

Nursing staff working in ICU and Emergency areas showed comparatively higher knowledge and practice scores than those working in wards and OPD.

Overall Statistical Findings

- Mean knowledge score = 13.4
- Median knowledge score = 14.5
- Mode knowledge score = 14
- Median practice score = 7
- Critical care staff had better scores compared to non-critical care staff.
- Nurses with more than 5 years of experience performed better in CPR-related knowledge and practice.
- Nearly all participants agreed that BLS training should be mandatory.

VII. Discussion

High-quality CPR is a lifesaving intervention that significantly improves survival during cardiac arrest. The present study assessed the knowledge, attitude, and practice regarding high-quality CPR among nursing staff working in critical and non-critical care areas.

In the current study, most participants demonstrated good knowledge regarding BLS and CPR, with 57.5% scoring in the good category and 10% achieving excellent scores. These findings are comparable to studies conducted by Madden and Remmen et al., which reported improvement in CPR knowledge following structured training programs.

Critical care nursing staff performed better than non-critical care staff due to frequent exposure to emergency situations, regular code blue participation, and repeated practical experience. Similar findings were reported in studies conducted among ICU nurses in tertiary care settings.

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Nurses with more than five years of experience showed better psychomotor skills and confidence in performing CPR. However, newly recruited nurses and ward staff showed comparatively lower scores, indicating the need for regular refresher training and simulation-based practice.

Almost all participants expressed a positive attitude toward BLS education and believed that annual certification and mock drills should be compulsory. This positive attitude is an encouraging finding and highlights the willingness of healthcare workers to improve emergency response capabilities.

Although theoretical knowledge was satisfactory, practical competency still requires improvement. CPR performance depends not only on cognitive knowledge but also on repeated psychomotor practice and confidence during real-life emergencies.

Limitations of the study include small sample size, single-centre design, and non-random sampling technique, which may limit generalizability.

VIII. Conclusion

The present study concluded that nursing staff working in critical care areas demonstrated better knowledge, attitude, and practice regarding high-quality BLS and CPR compared to staff working in non-critical areas. Nurses with greater clinical experience also showed better CPR competency.

However, gaps in practical skills and theoretical knowledge were observed among ward nurses and less experienced staff. Regular structured BLS training programs, mock drills, simulation-based education, and annual refresher courses based on AHA 2025 guidelines are strongly recommended.

Healthcare institutions should implement mandatory CPR certification and continuing nursing education programs to improve emergency preparedness and patient survival outcomes.

Recommendations

1. Mandatory annual BLS certification for all healthcare workers.
2. Regular code blue mock drills in all hospital areas.
3. Simulation-based CPR training programs.
4. Inclusion of BLS and CPR in nursing curriculum.
5. Availability of AEDs in all critical hospital locations.
6. Regular competency assessment and practical evaluation.
7. Continuing Nursing Education (CNE) sessions on emergency care.

Limitations of Study

1. Small sample size.
2. Single-center study.
3. Non-random sampling technique.
4. Limited study duration.
5. Practical skill assessment may vary with observer interpretation.

Ethical Consideration

Ethical approval was obtained from the Institutional Ethical Committee prior to data collection. Written informed consent was obtained from all participants.

Funding

No external funding was received for this study.

Conflict Of Interest

The authors declare no conflict of interest.

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