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Original Research Article

Assessment of Basic Life Support (BLS) and Cardiopulmonary Resuscitation (CPR) Knowledge Among Healthcare Trainees and Providers in Tertiary Hospitals of India

Article History:

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Abstract: ***Background:*** Basic Life Support (BLS) and Cardiopulmonary Resuscitation (CPR) are lifesaving interventions. Knowledge gaps among healthcare trainees and providers can compromise patient outcomes. ***Objective:*** To assess BLS and CPR knowledge among MBBS students/interns, BDS students, nursing students, and paramedical staff in four tertiary hospitals in India. Methods: A cross-sectional study was conducted with 250 participants (100 MBBS, 50 BDS, 50 nursing, 50 paramedical). A 15-item Likert scale questionnaire based on AHA guidelines was administered. Data were analyzed using descriptive statistics and visualizations. ***Results:*** MBBS students showed relatively higher knowledge (20% good, 65% moderate), while nursing and paramedical staff demonstrated significant deficiencies (over 50% poor knowledge). Awareness of AED use and compression depth was low across all groups. ***Conclusion:*** Knowledge of BLS/CPR is inadequate among healthcare trainees/providers. Structured training and mandatory refresher courses are urgently needed.

Keywords: Basic Life Support, Cardiopulmonary Resuscitation, Healthcare trainees, India, Knowledge assessment

INTRODUCTION

Sudden cardiac arrest remains a leading cause of mortality worldwide. Immediate and effective BLS and CPR can double or triple survival rates. In India, where tertiary hospitals manage high patient loads, healthcare trainees and providers are often the first responders. Despite this, studies suggest inadequate training and poor retention of CPR skills among healthcare workers. This research aimed to evaluate the current level of BLS and CPR knowledge among different categories of healthcare trainees and providers in tertiary hospitals of India.

OBJECTIVES

1. To assess the baseline knowledge of BLS and CPR among MBBS, BDS, nursing, and paramedical trainees/providers.
2. To compare knowledge levels across different professional groups.
3. To identify gaps and recommend strategies for improvement.

MATERIAL AND METHODS

- Study Design: Cross-sectional descriptive study.
- Setting: Four tertiary-level hospitals in India (National Institute of Medical Sciences Jaipur 303121, Jaipur, Rajasthan, India; Government Institute of Medical Sciences, Gautam Buddha Nagar 201310, Uttar Pradesh, Fortis Hospital, Malviya Nagar, Jaipur 302017, Rajasthan, India;

Dental College and Hospital, Bagru, Jaipur, Rajasthan, Rajasthan; College of Nursing, Bagru, Jaipur Rajasthan)

- Participants:
  - 100 MBBS students and interns
  - 50 BDS (dental) students
  - 50 nursing students
  - 50 paramedical staff (nurses and technicians)
- Sample Size: 250 participants.
- Data Collection Tool: Structured questionnaire based on American Heart Association (AHA) guidelines, covering:
  - Recognition of cardiac arrest
  - Sequence of BLS steps
  - Chest compression depth and rate
  - Use of automated external defibrillator (AED)
  - Team dynamics in resuscitation
- Analysis: Responses were scored, and knowledge levels categorized as:
  - Good (>75% correct)
  - Moderate (50–75% correct)
  - Poor (<50% correct).

Inclusion & Exclusion Criteria

Inclusion:

- MBBS students and interns enrolled in tertiary hospitals
- BDS students in clinical training
- Nursing students in final year
- Paramedical staff (nurses, technicians) working in tertiary hospitals

Exclusion:

- Participants with prior advanced life support certification
- Non-clinical staff (administrative, clerical)
- Incomplete questionnaire responses

15-Item Likert Scale Questionnaire

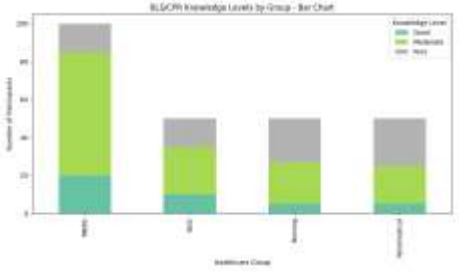
Responses: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

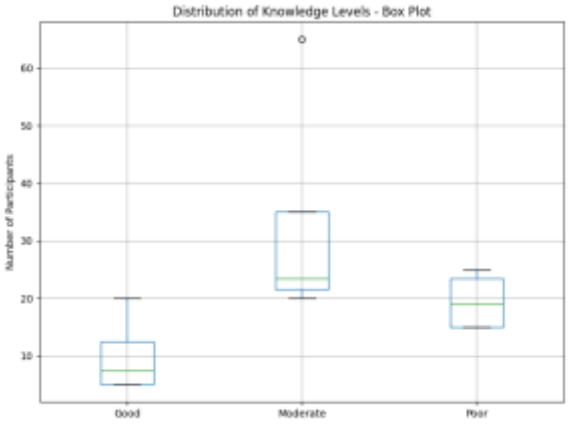
1. I can recognize signs of cardiac arrest promptly.
2. I am confident in initiating chest compressions.
3. I know the recommended compression depth (5–6 cm).
4. I know the recommended compression rate (100–120/min).
5. I am aware of the correct compression-to-ventilation ratio (30:2).
6. I can use an Automated External Defibrillator (AED).
7. I can maintain airway patency during resuscitation.
8. I am familiar with the sequence of BLS steps.
9. I can perform rescue breathing effectively.
10. I understand team dynamics in resuscitation.
11. I have attended formal CPR training.
12. I feel confident performing CPR in real emergencies.
13. I know when to stop resuscitation efforts.
14. I am aware of the latest AHA guidelines.
15. I believe regular refresher training is necessary.

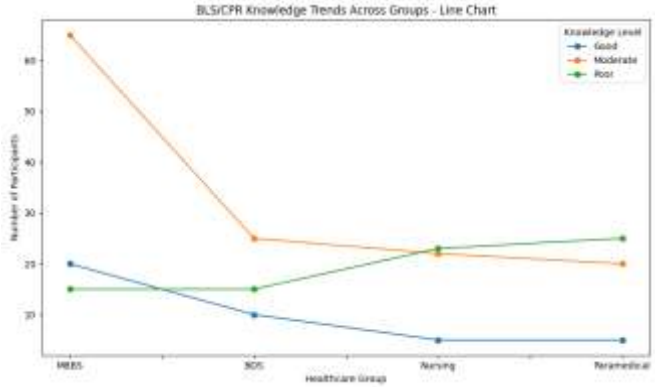
RESULTS

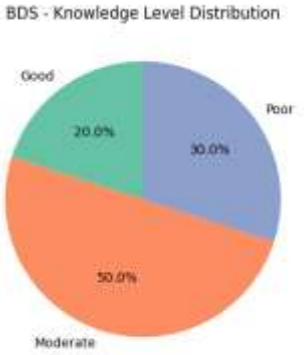
- **Overall Knowledge:**
  - MBBS students/interns: 65% demonstrated moderate knowledge; 20% good; 15% poor.
  - BDS students: 50% moderate; 10% good; 40% poor.
  - Nursing students: 45% moderate; 5% good; 50% poor.
  - Paramedical staff: 40% moderate; 5% good; 55% poor.

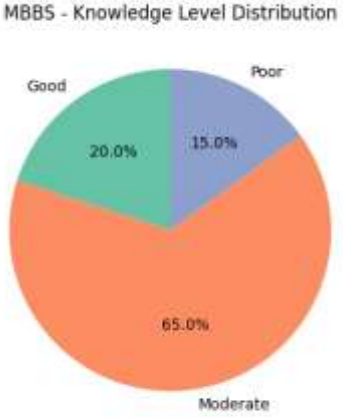
- **Key Findings:**
  - Only 30% of participants correctly identified the recommended chest compression depth (5–6 cm).
  - 25% knew the correct compression-to-ventilation ratio (30:2).
  - Awareness of AED use was highest among MBBS students (60%) but lowest among paramedical staff (20%).
  - Retention of knowledge was poor among groups without formal CPR training sessions.

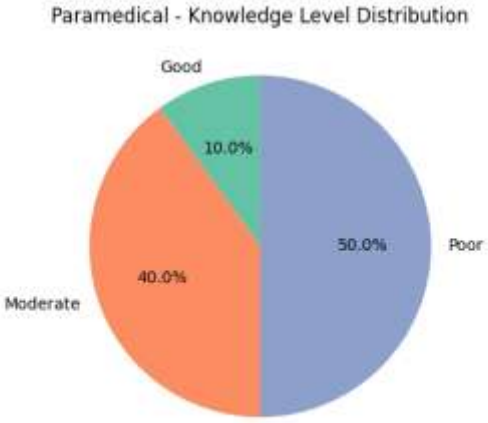


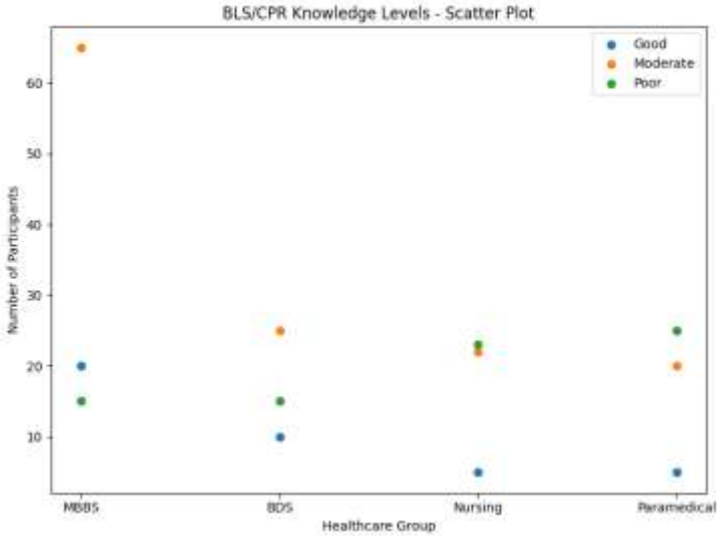












DISCUSSION

The study highlights significant deficiencies in BLS and CPR knowledge among healthcare trainees and providers. MBBS students and interns showed relatively better understanding, likely due to exposure during clinical rotations. However, even among them, knowledge was not uniformly strong. Nursing and paramedical staff, who are often frontline responders, demonstrated concerning gaps. This underscores the need for mandatory CPR certification and regular refresher courses across all

healthcare disciplines.

International studies have shown that repeated hands-on training improves skill retention. In India, integration of BLS/CPR modules into undergraduate and paramedical curricula, along with simulation-based workshops, could bridge these gaps.

CONCLUSION

Knowledge of BLS and CPR among healthcare trainees and providers in tertiary hospitals of India is inadequate, with wide variations across professional groups. Structured training, periodic assessments, and mandatory certification are essential to ensure preparedness in real-life emergencies.

LIMITATIONS

- Cross-sectional design limits causal inference.
- Conducted in only four tertiary hospitals, limiting generalizability.
- Self-reported questionnaire may introduce response bias.
- Practical skills were not directly assessed, only theoretical knowledge.

RECOMMENDATIONS

- Incorporate BLS/CPR training into undergraduate medical, dental, nursing, and paramedical curricula.
- Conduct mandatory refresher courses every 6–12 months.
- Establish hospital-based simulation labs for hands-on practice.
- Ensure availability of AEDs and promote awareness of their use.

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