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ASSESSMENT OF KNOWLEDGE OF BASIC LIFE SUPPORT AMONG NURSING STUDENTS AT GLOBAL COLLEGE OF NURSING, HYDERABAD

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Abstract

Introduction: Basic Life Support (BLS) is a critical emergency intervention that includes early recognition of cardiac arrest and prompt initiation of cardiopulmonary resuscitation (CPR) to maintain circulation and breathing until advanced care is available. Nursing students must possess adequate knowledge of BLS as they are often first responders in clinical settings. **Objective:** To assess the knowledge of Basic Life Support among undergraduate nursing students at Global College of Nursing, Hyderabad. **Methodology:** A descriptive cross-sectional study was conducted at Global College of Nursing, Hyderabad, from September to

December 2025. A total of 70 undergraduate Bachelor of Science in Nursing students were selected using a non-probability convenience sampling technique. Data were collected using a structured questionnaire consisting of demographic information and knowledge-based items related to BLS. SPSS version 27 was used for data analysis. Descriptive statistics including frequency, percentage, mean, and standard deviation were applied. **Results:** The majority of participants correctly identified the full form of BLS (95.7%). However, gaps were observed in critical areas including initial emergency response, infant compression techniques, compression depth and rate, and AED terminology, with 50.0% incorrectly identifying AED meaning. The mean knowledge score was 2.05 ± 0.29, indicating an average level of knowledge. Overall, 50% of participants had average knowledge, 30% good knowledge, and 20% poor knowledge. **Conclusion:** Nursing students demonstrated an average level of knowledge regarding BLS, with notable deficiencies in essential life-saving skills. Strengthening simulation-based and practical BLS training is recommended to improve competency among future nurses.

Introduction

Basic Life Support (BLS) is an essential emergency procedure that involves the early recognition of cardiac arrest and immediate initiation of cardiopulmonary resuscitation (CPR) to maintain circulation and breathing until advanced medical care becomes available.[1] Nurses are often the first healthcare professionals to respond during emergencies; therefore, adequate knowledge regarding Basic Life Support is necessary for effective patient care and survival.[2] Globally, cardiovascular diseases are the leading cause of death, accounting for approximately 17.9 million deaths annually. Out-of-hospital cardiac arrest (OHCA) remains a major public health problem, with survival rates reported between 8% and 10%. Early cardiopulmonary resuscitation significantly improves survival outcomes and can double or triple the chances of survival in cardiac arrest patients.[3, 4] Basic Life Support training is an important component of nursing education and includes essential skills such as chest compressions, airway management, rescue breathing, and use of an Automated External Defibrillator (AED). Despite its importance, several international studies have reported inadequate knowledge and poor competency regarding Basic Life Support among nursing students and newly graduated

nurses.[5, 6] In Pakistan, cardiovascular diseases and emergency conditions continue to contribute significantly to mortality and morbidity. However, awareness and training regarding Basic Life Support remain limited among healthcare students.[7] Previous studies conducted in Pakistan have identified deficiencies in knowledge related to cardiopulmonary resuscitation techniques, compression depth and rate, and AED use among nursing and medical students.[8]

High-quality cardiopulmonary resuscitation is essential for improving outcomes during cardiac arrest. Proper chest compression depth, adequate compression rate, minimal interruptions, and effective ventilation are important components of successful resuscitation.[9] Nursing students, as future healthcare providers, should possess sufficient knowledge and skills to manage emergencies effectively.[10] Assessing the knowledge of nursing students regarding Basic Life Support is important to identify educational gaps and improve emergency care training within nursing institutions. Therefore, this study was conducted to assess the knowledge of Basic Life Support among nursing students at Global College of Nursing, Hyderabad.

Methodology

A descriptive cross-sectional study design was conducted at College of Nursing, Global Institute of Medical and Health Sciences, Hyderabad, from September to December 2025. The study population comprised undergraduate Bachelor of Science in Nursing students enrolled from first to final year, including both male and female students. A non-probability convenience sampling technique was used to recruit participants who met the inclusion criteria and were available during the data collection period. The sample size was determined using the Raosoft sample size calculator with a 95% confidence level and a 5% margin of error. Based on a total population of 85 students, the final sample size was 70 participants. Students included in the study were those enrolled in the undergraduate Bachelor of Science in Nursing program from first to final year, willing to participate, and present during data collection. Both male and female students were included. Registered or graduated nurses, students absent during data collection, those who refused to participate, and students from non-nursing departments were excluded from the study. Data were collected using an adopted structured questionnaire titled “A Cross-International Study to Evaluate Knowledge and

Attitudes Related to Basic Life Support among Undergraduate Nursing Students," which assessed knowledge regarding Basic Life Support. The questionnaire consisted of two sections: demographic information and knowledge-based items related to Basic Life Support. Prior to data collection, informed consent was obtained from all participants after explaining the purpose of the study. The questionnaire was administered in person, and participants completed it during their break time. Confidentiality and privacy were strictly maintained throughout the study, and all collected data were securely stored and used only for research purposes. Data were analyzed using SPSS version 27. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize demographic characteristics and knowledge scores of participants. Approval for the study was obtained from the Executive Director of Global College of Nursing, Hyderabad. Participation was voluntary, and respondents had the right to withdraw from the study at any stage without any penalty or consequences.

Results

A total of 70 undergraduate nursing students participated in the study. The demographic profile of participants is presented in Table 1. The majority of students were aged 18–22 years (54.3%), followed by 21–25 years (42.9%), while only 2.9% were above 25 years. More than half of the participants were male (55.7%), whereas 44.3% were female. Regarding academic level, nearly half of the students were in the 4th year (47.1%), followed by 2nd year (22.9%), 1st year (21.4%), and 3rd year (8.6%). In terms of clinical exposure, 58.6% had less than 1 year of experience, 25.7% had more than 2 years, and 15.7% had 1–2 years of clinical exposure (Table 1).

Table 1: Demographic Characteristics of Participants (n = 70)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18–22	38	54.3%
	21–25	30	42.9%
	≥25	2	2.9%
Gender	Male	39	55.7%
	Female	31	44.3%
Year of Study	1st Year	15	21.4%
	2nd Year	16	22.9%
	3rd Year	6	8.6%

	4th Year	33	47.1%
Clinical Exposure	<1 year	41	58.6%
	1–2 years	11	15.7%
	>2 years	18	25.7%

The majority of participants (95.7%) correctly identified the full form of BLS. In emergency response, less than half of the students correctly selected the recommended actions, with 45.7% stating that an ambulance should be called after confirming unresponsiveness and 54.3% identifying the correct site for adult chest compressions. However, several knowledge gaps were observed in critical components of BLS. Only a limited proportion demonstrated correct understanding of infant compression site, compression depth, and compression rate, indicating inconsistency in practical knowledge. In addition, half of the participants (50.0%) incorrectly identified the meaning of AED, reflecting poor awareness of defibrillation terminology. Similarly, variation was seen in choking management and infant rescue breathing techniques (Table 2).

Table 2: Knowledge Regarding Basic Life Support (BLS) Among Participants (n = 70)

Item	Response Category	Frequency (n)	Percentage (%)
BLS abbreviation stands for	Basic Life Support	67	95.7%
	Best Life Support	2	2.9%
	Basic Lung Support	1	1.4%
First action in unconscious victim	Clear airway	26	37.1%
	Ensure scene safety	25	35.7%
	Start chest compressions	19	27.1%
Next step after unresponsiveness	Call ambulance	32	45.7%
	Perform CPR	31	44.3%
	Recovery position	6	8.6%
	Observation	1	1.4%
Adult chest compression site	Centre of chest	38	54.3%
	Left side	13	18.6%
	Right side	9	12.9%
	Xiphoid process	10	14.3%
Infant chest compression site	Bottom sternum	20	28.6%
	Xiphoid area	25	35.7%

	Central sternum	23	32.9%
	Upper sternum	2	2.9%
CPR depth in children	1/3 chest depth	24	34.3%
	½ chest depth	22	31.4%
	1.5 chest depth	16	22.9%
	2.5 chest depth	8	11.4%
Compression rate	≥100/min	33	47.1%
	>100/min	10	14.3%
	80/min	9	12.9%
	120/min	18	25.7%
AED stands for	Automated External Defibrillator	19	27.1%
	Automated Electrical Defibrillator	35	50.0%
	Advanced Electrical Defibrillator	13	18.6%
	Advanced External Defibrillator	3	4.3%
Choking management	Abdominal thrust	30	42.9%
	Chest hit	21	30.0%
	Interview confirmation	16	22.9%
	Rescue breaths	3	4.3%
Infant rescue breaths	Mouth-to-mouth & nose	37	52.9%
	Mouth-to-mouth or nose	18	25.7%
	Mouth-to-nose only	4	5.7%
	Mouth-to-mouth only	11	15.7%

The mean knowledge score was 2.05 ± 0.29, with scores ranging from 2 to 3. This indicates that the overall level of knowledge among participants was average (Table 3).

Table 3: Descriptive Statistics of Total Knowledge Score (n = 70)

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Total knowledge score	70	2	3	2.05	0.29

Among the participants, 50% demonstrated an average level of knowledge, followed by 30% with good knowledge, while 20% showed poor knowledge (Figure 1).

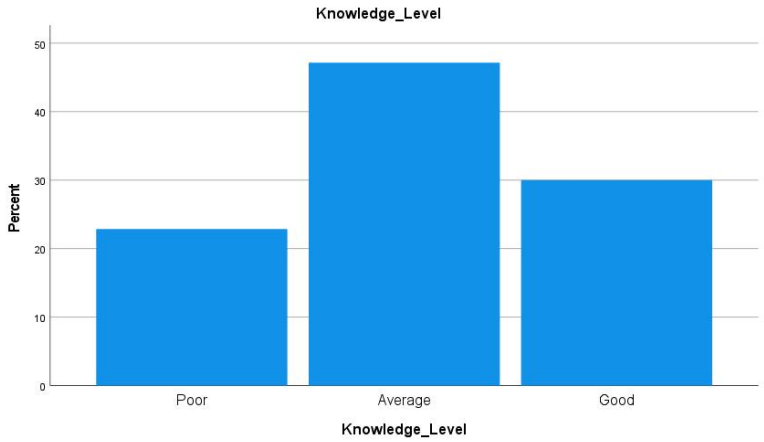

Figure 1: Level of Knowledge Regarding Basic Life Support among Participants (n = 70)

Discussion

The present study revealed an overall average level of knowledge (50%) with significant gaps in critical areas such as AED usage, infant compression technique, and compression rate. Similar findings have been reported in a study conducted in Pakistan, where nursing students demonstrated moderate BLS knowledge but showed clear deficiencies in essential CPR skills and AED awareness, indicating inadequate practical competency.[11] In the current study, most participants correctly identified the full form of BLS (95.7%); however, practical application of knowledge was comparatively weak. Only 45.7% correctly identified calling an ambulance as the immediate response to unresponsiveness, and 54.3% identified the correct site for adult chest compressions. Comparable results were reported in a study conducted in Pakistan, where although 84.6% of students recognized BLS terminology, practical knowledge and application of CPR steps remained inadequate.[12] This suggests that theoretical awareness does not necessarily translate into clinical competency. The present study further revealed deficiencies in pediatric CPR knowledge, including compression depth, rate, and infant compression site. Similar gaps have been reported in a previous study, where nursing students demonstrated poor performance in CPR skill-based assessments, with only a small proportion correctly applying recommended guidelines during simulations.[11,13] These findings highlight that lack of hands-on training and simulation-based learning may contribute to poor retention of psychomotor skills. In addition, 50% of participants incorrectly identified the meaning of Automated External Defibrillator (AED). This finding

is consistent with international studies showing low awareness of AED usage among nursing students, despite its critical role in improving survival in cardiac arrest cases.[14] A study from Pakistan also reported that AED awareness remains limited among healthcare trainees, emphasizing the need for improved curriculum integration of defibrillation training.[14] The mean knowledge score in the present study was 2.05 ± 0.29, indicating an overall average level of knowledge. Similar moderate knowledge levels have been reported in studies, where nursing students demonstrated inadequate preparedness for real-life emergencies.[15,16] This reflects a global concern regarding insufficient BLS training in undergraduate nursing education.

The findings indicate that nursing students possess basic theoretical knowledge of BLS; however, significant gaps exist in applied skills and emergency decision-making. These deficiencies may be related to limited clinical exposure, inadequate simulation-based training, and lack of refresher courses. Similar evidence from the literature shows that structured training, repeated skill practice, and simulation-based learning improve BLS competency and knowledge retention among healthcare students.

Limitations and Future Suggestions

This study was conducted in a single institution with a small sample size, which limits generalizability. The use of convenience sampling may introduce selection bias, and only theoretical knowledge was assessed, not practical skills.

Future studies should include larger, multi-center samples and assess both knowledge and skills using simulation-based methods. Regular refresher training programs are also recommended to improve BLS competency and retention among nursing students.

Conclusion

The study concluded that nursing students had an average level of knowledge regarding Basic Life Support, with adequate understanding of basic concepts but significant gaps in critical areas such as emergency response, AED use, and infant CPR techniques. Strengthening structured training, simulation-based practice, and regular refresher courses is essential to improve BLS competency and preparedness for real-life emergencies.

Conflict of Interest: None

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Authors' Contributions

ZL: Conception and study design; drafted the manuscript.

SNS, NH: Supervision; final manuscript revision and approval.

SNS, TL: Statistical analysis; results interpretation.

MAJ, ZAB, ZL: Discussion; manuscript review.

MKL, SC: Literature review; conceptual input.

MKL, ZAB: Data collection; preparation of tables and figures.

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