



International Conference on “Shaping the Future of Healthcare 5.0: Insights from Nursing Research – 2025” 24th and 25th September 2025

Conference article

A Descriptive Study to Access the ACLS-Related Drug Knowledge among 4th Semester B.Sc. Nursing Students at Smt. Nagarathamma College of Nursing, Bangalore

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Abstract

Homesickness is a common psychological challenge among students transitioning to hostel life, with potential consequences on emotional well-being and academic engagement. First-year General Nursing and Midwifery (GNM) students are particularly vulnerable due to simultaneous adjustment to academic and clinical demands. This descriptive cross-sectional study assessed the prevalence, contributing factors, and coping strategies of homesickness among first-year GNM students in selected nursing colleges of Bangalore. Findings revealed that 55% of respondents were aged 18–25, with 58.3% reporting frequent loneliness, 50% missing family and friends, 58.4% experiencing difficulty adjusting to the new environment, and 40% feeling disconnected from family support. Coping strategies included regular communication with family and friends (96.7%) and seeking counseling support (61.7%), while fewer relied on social events (30%) or hobbies (15%). Academic impact was reflected in 68.3% experiencing poor concentration, 65% feeling overwhelmed, and 56.7% missing classes. The study highlights the need for institutional counseling and peer-support initiatives.

Introduction

Cardiac arrest is a life-threatening emergency where every second counts. In such critical moments, health professionals rely on Advanced Cardiac Life Support (ACLS) to guide timely and effective care [7]. ACLS not only provides a step-by-step approach to resuscitation but also emphasizes the correct use of life-saving drugs such as epinephrine, amiodarone, atropine, and lidocaine [7]. Knowing when and how to use these drugs can make the difference between life and death [5].

For nursing students, who will soon be at the patient's bedside, this knowledge is more than just part of their curriculum — it is a responsibility. Their confidence and preparedness during cardiac emergencies depend

heavily on how well they understand these medications [9]. Lack of awareness can result in hesitation, medication errors, and delays that could affect patient outcomes [6].

This study was carried out with the aim of understanding how well 4th semester B.Sc. Nursing students at Smt. Nagarathamma College of Nursing know about ACLS drugs, identifying the areas where they struggle, and suggesting ways to strengthen their knowledge through education and training.

Background of the Study

Cardiac arrest is one of the most frightening and urgent moments in healthcare — a moment where every second matters and the right action can save a life [7]. Around the world, thousands of people experience

More Information

How to cite this article: Saha A, Nanjappan D, Vijayamalar S. A Descriptive Study to Access the ACLS-Related Drug Knowledge among 4th Semester B.Sc. Nursing Students at Smt. Nagarathamma College of Nursing, Bangalore. Eur J Med Health Res, 2025;3(S1):176-81.

DOI: 10.59324/ejmhr.2025.s1.29

Keywords:

Academic Impact, Coping Strategies, First-Year GNM Students, Homesickness, Psychological Adjustment.



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sudden cardiac arrest every day, and survival often depends on how quickly and correctly the medical team responds [7]. Advanced Cardiac Life Support (ACLS) provides a clear roadmap for such critical situations, combining high-quality CPR, timely defibrillation, airway management, and the safe use of emergency drugs [7]. Medications such as epinephrine, amiodarone, atropine, and lidocaine are at the heart of this process, and knowing when and how to use them can make a life-changing difference for the patient [5]. For nursing students, especially those in their clinical training, ACLS knowledge is not just an academic requirement — it is a vital skill that prepares them to act confidently when faced with real emergencies [9]. These students may be called upon to assist in resuscitation, prepare drugs, or support the team during critical situations. However, many students struggle with recalling drug indications, routes, contraindications, and side effects when under pressure [9]. This can lead to hesitation and missed opportunities during emergencies, which can directly affect patient outcomes [6].

Understanding how well nursing students know about ACLS-related drugs helps educators design better teaching strategies and practical sessions [8]. Bridging these gaps through interactive learning, simulation training, and periodic refreshers not only builds students' confidence but also ensures they are ready to be an effective part of the healthcare team [1,2,4]. In the end, strengthening this knowledge is about much more than passing an exam — it is about preparing future nurses to save lives with skill, speed, and assurance.

Objectives of the Study

1. Assess knowledge of ACLS drugs (indications, routes, contra-indications) among 4th semester B.Sc. Nursing Students.
2. Identify gaps in knowledge of commonly used ACLS Drugs.
3. Determine association between knowledge scores and demographic variables.
4. Recommend strategies to improve ACLS drug knowledge based on findings. Assess knowledge of ACLS drugs (indications, routes, contraindications) among 4th semester B.Sc. Nursing students.

Purpose of the study

Cardiac emergencies do not wait, and in those critical moments, the healthcare team must act with speed, confidence, and accuracy. Nursing students, as future front-line caregivers, are often present during such emergencies and play a vital role in patient care. Their ability to recognize the situation, assist in drug preparation, and support the resuscitation team can directly influence whether a patient survives. However, knowledge gaps in ACLS drug indications, routes, and precautions can lead to hesitation, errors, and delays —

consequences that no patient in cardiac arrest can afford.

Assessing the level of ACLS drug knowledge among nursing students is therefore not just an academic exercise but a step toward saving lives. By identifying where students struggle — whether with drug actions, contraindications, or clinical decision-making — educators can design targeted interventions, simulation training, and refresher programs to strengthen their competence. When students are better prepared, they respond faster, make safer choices, and contribute more effectively in real emergencies. This study is needed to bridge the gap between classroom knowledge and bedside practice, ensuring that nursing students are equipped not just with theoretical understanding but with the confidence and readiness to act when life hangs in the balance.

Value of the Research

This study holds significant value for both nursing education and patient care. By assessing the knowledge of ACLS-related drugs among nursing students, it highlights the strengths and gaps in their preparedness to handle life-threatening cardiac emergencies. Understanding these gaps allows educators to implement focused teaching strategies, simulation exercises, and refresher sessions that not only enhance students' knowledge but also build their confidence and clinical judgment. Beyond academic learning, the study emphasizes the real-world impact of nursing competence on patient outcomes. Well-prepared nursing students can act decisively during cardiac arrests, ensuring timely administration of emergency drugs and supporting the healthcare team effectively. By bridging the gap between theory and practice, this research contributes to safer patient care, fosters professional growth among students, and nurtures a generation of nurses who are ready to respond with skill, empathy, and assurance in critical situations.

Hypothesis

H₀ (Null Hypothesis): ACLS drug knowledge and demographics do not affect students' preparedness for cardiac emergencies.

H₁ (Alternative Hypothesis): ACLS drug knowledge and demographics affect students' preparedness for cardiac emergencies.

Review of Literature

Nursing students often find themselves at the frontline during cardiac emergencies, where every second matters. Studies show that having solid knowledge of ACLS drugs helps students act quickly and safely, reducing errors and improving patient outcomes [5]. Knowing the right drug, dose, and route can truly make the difference between life and death.

Research reveals that students generally perform well on commonly used drugs like epinephrine and atropine, but many struggle with less familiar drugs or

understanding side effects [9]. This gap underscores the importance of focused teaching and reinforcement to ensure students are fully prepared.

Experience matters. Students who have prior ACLS/BLS training or more clinical exposure tend to have stronger knowledge and confidence during emergencies [6]. Hands-on practice and repeated exposure help translate theory into action.

Interactive workshops, simulation-based learning, and refresher sessions have been shown to boost both knowledge and confidence [8]. These approaches allow students to practice critical thinking, make timely decisions, and feel ready to respond when real emergencies occur [1,2,4].

While many studies assess ACLS knowledge, few examine both drug understanding and readiness to act in real-life emergencies. Addressing this gap can help educators design training that not only teaches facts but also builds confidence and clinical competence.

Methods

Research Approach

This study adopted a **descriptive research approach** to explore how well 4th semester B.Sc. Nursing students understand ACLS-related drugs and how this knowledge influences their preparedness for cardiac emergencies. A descriptive approach allows researchers to capture the current level of understanding in a natural setting, providing insights into both strengths and areas that need reinforcement. By focusing on students' knowledge, their clinical exposure, and prior training experiences, this approach helps identify gaps that may affect their confidence and performance during real-life cardiac emergencies. It also offers a foundation for designing educational strategies, simulation sessions, and targeted interventions that can improve learning outcomes and ultimately enhance patient care.

Construction of the Tool and teaching

A structured questionnaire was developed to assess 4th semester B.Sc. Nursing students' knowledge of ACLS-related drugs. The tool was designed after reviewing relevant literature, standard ACLS guidelines, and commonly used emergency drugs including epinephrine, amiodarone, atropine, lidocaine, and others. The questionnaire included sections on drug indications, routes, side effects, and contraindications, ensuring a comprehensive evaluation of students' understanding.

The tool was validated by experienced nursing educators and clinical experts to ensure clarity, relevance, and accuracy. Minor modifications were made based on their feedback to enhance comprehensibility and reliability. While the study primarily assessed existing knowledge, the findings will inform future teaching strategies. Insights from this assessment can guide educators in designing targeted

educational interventions, such as interactive workshops, simulation sessions, and refresher modules, to strengthen students' confidence, clinical reasoning, and preparedness for real-life cardiac emergencies.

Sample and Sampling technique

Sample Population: The study included **all 4th semester B.Sc. Nursing students** enrolled at Smt. Nagarathamma College of Nursing who were willing to participate and had completed pharmacology syllabus in nursing and ACLS/BLS training. Students who were absent during data collection or unwilling to participate were excluded.

Sampling Technique: A **convenience sampling technique** was used, allowing the researchers to include students who were readily available and met the inclusion criteria. This approach ensured that the study captured a realistic snapshot of students' ACLS drug knowledge and preparedness within the available cohort.

Inclusion and Exclusion Criteria

Inclusive Criteria:

- 4th semester B.Sc. Nursing students enrolled at Smt. Nagarathamma College of Nursing.
- Students who have completed pharmacology Syllabus in nursing and ACLS/BLS training.
- Students willing to participate and provide informed consent.

Exclusion Criteria:

- Students absent during data collection.
- Students unwilling to participate.
- Students who have not completed the required pharmacology or ACLS/BLS training.

Ethical Consideration

This study was conducted with full respect for the rights, dignity, and well-being of all participants. Informed consent was obtained from each student after explaining the purpose, procedures, and potential benefits of the study. Students were assured that their responses would remain confidential and anonymous, and that participation was entirely voluntary. They were also informed that they could withdraw from the study at any time without facing any consequences or affecting their academic standing. The data collection process was designed to be non-intrusive, supportive, and respectful, ensuring that students felt comfortable and safe while sharing their knowledge and experiences. The study prioritized creating an ethical, transparent, and trustworthy environment throughout the research process.

Data Collection

Data were collected during class hours from 4th semester B.Sc. Nursing students in a supportive and organized manner. Students were briefed about the study, assured of confidentiality, and encouraged to answer honestly. A structured questionnaire on ACLS

drugs, including indications, routes, side effects, and contraindications, was distributed and collected after completion, ensuring a comfortable and respectful environment.

Data Analysis

The collected data were carefully reviewed, coded, and entered for analysis to ensure accuracy and reliability. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize students’ knowledge levels of ACLS drugs. Inferential statistics, such as the Chi-square test were applied to explore relationships between knowledge scores, demographic characteristics, and preparedness for cardiac emergencies. The analysis was conducted thoughtfully to provide meaningful insights into students’ understanding, highlight knowledge gaps, and guide recommendations for teaching strategies, simulation sessions, and interventions aimed at enhancing their clinical competence and confidence.

Results

The data revealed that most students had not received prior BLS or ACLS training, highlighting a critical gap in their preparedness for emergency cardiac care. This underscores the need for structured training and hands-on practice to build confidence and ensure students are equipped to respond effectively in real-life resuscitation situations.

The findings show that most students had little to no clinical exposure in Emergency or ICU settings. This limited hands-on experience may affect their confidence and ability to apply ACLS knowledge in real-life critical care situations, highlighting the importance

of increased clinical practice and supervised exposure for skill development.

6. Have you received prior BLS/ACLS training?
50 responses

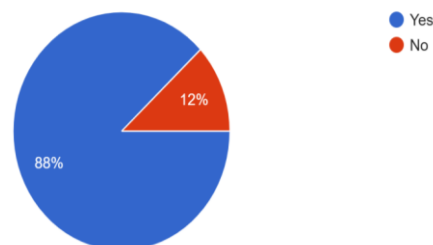


Figure 1: Percentage Values of the Samples according to the idea of prior ACLS/BLS Training (N=50)

7. Clinical Exposure in Emergency/ICU:
50 responses

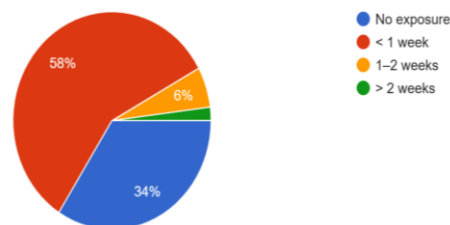


Figure 2: Percentage Values of the Samples according to the Clinical Exposure of the Students in Emergency/ICU

Results of the Samples from the Knowledge Based Assessment

Table 1: Frequency and Percentage Values of the Samples according to the Correct Responses for each ACLS Knowledge Based Questions (n = 20)

Sl No.	Knowledge Based Questions on Medications	Correct Responses (n) (Frequency)	Correct Responses (%) (Percentage)
1	Epinephrine first-line	47	94%
2	Epinephrine side effect	42	84%
3	Amiodarone use	42	84%
4	Amiodarone side effect	38	76%
5	Atropine drug of choice	38	76%
6	Atropine not effective	39	78%
7	Lidocaine high dose	40	80%
8	Magnesium rapid infusion	38	76%
9	Adenosine use	41	82%
10	Adenosine side effect	41	82%
11	Vasopressin use	40	80%
12	Naloxone use	39	78%
13	Sodium bicarbonate	42	84%
14	Calcium gluconate	40	80%
15	Preferred route	42	84%
16	Symptomatic bradycardia drug	40	80%
17	Hyperkalemia cardiac arrest drug	40	80%
18	Narrow-complex tachycardia drug	42	84%

19	Vasopressin advantage	39	78%
20	First drug in ACLS cardiac arrest	47	94%

The results indicate that the 4th semester B.Sc. Nursing students demonstrated a moderate to good level of knowledge regarding ACLS-related drugs. The highest accuracy was seen in fundamental areas, such as identifying epinephrine as the first-line drug and the first drug in cardiac arrest (94%), reflecting strong understanding of core resuscitation protocols. Knowledge of other essential drugs, including amiodarone, adenosine, calcium gluconate, and atropine, ranged from 76% to 84%, showing that most students were aware of indications, side effects, and proper usage. However, slight gaps were noted in areas like amiodarone side effects, magnesium sulfate infusion, and vasopressin advantages (76%–78%), suggesting a need for reinforcement. Overall, while students have a solid theoretical foundation, these findings emphasize the importance of practical training, mock drills, and clinical exposure to enhance confidence and ensure safe and effective application of ACLS drugs in real-life emergency scenarios.

Statistical Summary of ACLS Knowledge Scores:

Mean score: 40.85

Median score: 40

Standard deviation (SD): 2.52

The overall ACLS drug knowledge among the 4th semester B.Sc. Nursing students showed a mean score of 40.85, with a median of 40 and a standard deviation of 2.52, indicating a moderate level of knowledge with slight variability among students.

Discussion

This study assessed the knowledge of ACLS-related drugs among 4th semester B.Sc. Nursing students, highlighting both strengths and areas for improvement. The findings reveal that students have a reasonably good theoretical understanding, particularly regarding core drugs like epinephrine, which had the highest correct response rate (94%) [9]. This suggests that basic resuscitation protocols are well recognized, reflecting the emphasis of nursing curricula on foundational emergency care [5]. However, knowledge gaps were observed in areas such as amiodarone side effects, magnesium sulfate infusion, and vasopressin advantages (76%–78%). These gaps indicate that while students understand drug indications, there is room to improve understanding of detailed pharmacology, side effects, and advanced scenario application [9]. Limited prior BLS/ACLS training, minimal clinical exposure in Emergency/ICU settings, and infrequent participation in mock drills may contribute to these deficiencies [6,8]. The study underscores the importance of integrating hands-on practice, simulation-based learning, and mentor-ship alongside theoretical teaching [1,2,4]. By

providing structured exposure to emergency scenarios, students can build confidence, enhance critical thinking, and develop practical competence in administering ACLS drugs safely and effectively [8]. This approach not only improves academic performance but also ensures preparedness for real-life clinical emergencies, ultimately promoting patient safety and quality care [3].

This study highlights the need to strengthen ACLS drug education for nursing students. Integrating hands-on training, simulation exercises, and clinical exposure can bridge knowledge gaps, enhance confidence, and improve practical skills [1,2,4,8]. Strengthening these competencies ensures students are better prepared to respond effectively in emergency situations, promoting patient safety and quality care in clinical practice [3].

Conclusion

The study demonstrates that 4th semester B.Sc. Nursing students have a moderate to good knowledge of ACLS-related drugs, with strong understanding of essential medications such as epinephrine and its role in cardiac arrest. Despite this, gaps were identified in areas like drug side effects, preparation, and application in advanced clinical scenarios. These deficiencies are likely influenced by limited prior BLS/ACLS training, minimal clinical exposure in Emergency or ICU settings, and infrequent participation in mock code or resuscitation drills.

The findings highlight the critical need to integrate practical, hands-on training with theoretical teaching. Simulation exercises, mentor-ship programs, and structured clinical exposure can reinforce learning, improve confidence, and enhance the ability to apply knowledge effectively in real-life emergency situations. By addressing these gaps, nursing educators can ensure students are better prepared to manage critical cardiac events safely, ultimately contributing to improved patient outcomes and the delivery of high-quality, competent care.

Based on the findings of this study, several recommendations can be made to enhance ACLS drug knowledge and preparedness among nursing students:

- a. Structured Training Programs:** Incorporate regular BLS and ACLS workshops into the curriculum to strengthen both theoretical knowledge and practical skills.
- b. Simulation-Based Learning:** Use mock code scenarios and high-fidelity simulations to allow students to practice drug administration, decision-making, and resuscitation in a safe environment.
- c. Clinical Exposure:** Increase supervised exposure in Emergency and ICU settings to help students gain real-world experience in managing critical patients.

d. Mentor-ship and Support: Assign experienced mentors to guide students during practical sessions and provide feedback on performance, enhancing confidence and competence.

e. Continuous Assessment: Periodically assess students' ACLS knowledge and practical skills to identify gaps early and provide targeted remedial training.

f. Integrated Learning: Encourage combining theoretical learning with hands-on practice to reinforce understanding, improve retention, and ensure readiness for real-life emergencies.

These strategies can foster competent, confident, and well-prepared nurses capable of delivering safe and effective emergency cardiac care.

Acknowledgments

I sincerely express my gratitude to Ms. Dency Dennis, whose constant guidance, encouragement, and valuable suggestions were instrumental in the successful completion of this research work. I also extend my heartfelt thanks to all the participants for their cooperation, and to everyone who supported me throughout the study.

Authors' Contributions

Ms. Anushree Saha conceptualized the study, designed the research framework, prepared the questionnaire, supervised data collection, analyzed the findings, and drafted the manuscript. Ms. Dency Dennis provided expert guidance throughout the study, assisted in refining the methodology, validated the questionnaire, and critically reviewed the manuscript for intellectual content. Both authors read and approved the final version of the paper.

Source of Funding

None

Conflict of Interest

None

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