JHWCR JOURNAL OF HEALTH, WELLNESS AND COMMUNITY RESEARCH 3007-0570

https://doi.org/10.61919/9axtn645

Original Article

Evaluation of Knowledge and Attitudes Regarding Advanced Life Support (ALS) Skills Among Nursing Students in Lodhran.

Mehnaz Kosar[1], Shamim akhtar[1], Aasma Batool[2], Muhammad Danish[3], Qurat Ul Ain[4]

[1] Head Nurse, Nishtar Hospital Multan, Multan, Punjab, Pakistan

[2] Head Nurse, Chaudhary Pervaiz Elahi Institute of Cardiology, Multan, Punjab, Pakistan

[3] Nursing Intern, Shahida Islam Teaching Hospital, Lodhran, Punjab, Pakistan

[4] Vice Principal, Shahida Islam Nursing College, Lodhran, Punjab, Pakistan

***Corresponding author: Qurat Ul Ain, quratulainm196@gmail.com**

"Cite this Article" Received: 17 October 2026; **Accepted**: 16 March 2026; **Published**: 30 March 2026

Author Contributions: Concept: MK, SA, AB, MD, QUA; Design: MK, SA, AB, MD, QUA; Data Collection: MD; Analysis: MD, QUA; Drafting: MK, SA, AB, MD, QUA. **Ethical Approval**: Shahida Islam Nursing College, Lodhran, Pakistan. **Informed Consent**: Written informed consent was obtained from all participants; **Conflict of Interest**: The authors declare no conflict of interest. **Funding**: No external funding; **Data Availability**: Available from the corresponding author on reasonable request; **Acknowledgments**: N/A.

ABSTRACT

Advanced life supports ALS is a critical component in managing life threatening emergencies and adequate knowledge and positive attitudes among nursing students are essential for effective patient care. This study aimed to access the knowledge and attitude regarding ALS skills among nursing students in Lodhran. A quantitative cross sectional study design was used and a total of 95 nursing students were selected through convenient sampling. Data were collected using a structured questionnaire consisting of demographic variable knowledge based questions and attitude related statements. Data were analyzed using descriptive statics including frequency percentage and mean scores. The result revealed that the overall mean knowledge score was 49.9% indicating a moderate level of knowledge. Students demonstrated good understanding of basic ALS concepts such as pulse checking before CPR (97.9%) and compression ratio (62.1%) . However ,deficiencies were observed in technical areas including chest compression (26.3%) AED knowledge (27.4%) and drug dosage (31.6%). In contrast the attitude of participants was generally positive . A majority of students supported the inclusion of ALS training in undergraduate education (68.4%) and expressed confidence in administrating emergency drugs (77.9%) and saving lives (65.3%). The study concluded that although nursing students possess moderate knowledge their positive attitude provides an opportunity to improve ALS competencies through structured training programs.It is recommended that ALS training be integrated into the curriculum along with regular workshops and stimulation based learning to enhanced practical skills. Key Words: Advanced Life Supports, Nursing Students, knowledge, Attitude, CPR, ALS Training.

INTRODUCTION

Advanced life support (ALS) is a core component of emergency and critical care practice and encompasses a coordinated set of evidence-based interventions used in the management of life-threatening conditions such as cardiac arrest, respiratory failure, shock, and other acute deteriorations. These interventions extend beyond basic life support and include advanced airway management, rhythm recognition, defibrillation, administration of emergency drugs, and post-resuscitation stabilization. Timely and accurate implementation of ALS measures is essential for improving survival and minimizing morbidity, particularly in high-acuity clinical settings where delays or errors in intervention may adversely affect patient outcomes (1). Because nurses are often among the earliest healthcare professionals to identify clinical deterioration, their preparedness to participate effectively in resuscitative efforts is fundamental to safe and responsive patient care.

Nursing students represent the future frontline workforce and are expected to transition from supervised learners to independent practitioners capable of responding appropriately during emergencies. Their knowledge of ALS principles and their attitude toward emergency response training are therefore important determinants of future clinical readiness. Adequate theoretical understanding supports recognition of emergency situations and correct selection of interventions, while a positive attitude toward ALS training enhances willingness to engage in learning, confidence during emergencies, and motivation for continued competency development. Deficiencies in either domain may contribute to delayed action, poor technical performance, and reduced effectiveness in critical situations, especially in settings where nurses are required to make rapid initial decisions before senior assistance becomes available (2,3).

Existing literature shows that knowledge and preparedness regarding life support skills among healthcare students and professionals remain inconsistent across settings. Studies conducted among healthcare professional students have reported moderate awareness of life support concepts but insufficient mastery of practical and technical components, suggesting that classroom exposure alone may not be sufficient to ensure clinical competence (2). Similar findings have been reported among health sciences students, many of whom demonstrated limited confidence and inadequate preparedness for performing life-saving interventions, particularly when formal training opportunities and simulation-based practice were lacking (3). Other investigations have also shown that students often complete professional training with gaps in essential emergency knowledge, reinforcing concerns about the adequacy of pre-service life support education (7,14).

Comparable deficiencies have been observed among practicing healthcare providers. Junior doctors in Egypt were reported to have inadequate knowledge of advanced life support protocols despite a favorable attitude toward receiving additional training, while healthcare workers in Ethiopia similarly demonstrated limited knowledge of advanced cardiac life support, highlighting a broader educational challenge that extends across professional groups and healthcare systems (4,5). Among nursing staff, positive attitudes toward life support education have frequently coexisted with insufficient practical knowledge and skill application, suggesting that motivation alone does not translate into competency without repeated exposure, supervision, and structured reinforcement (6). A systematic review from Arab countries further demonstrated variability in knowledge, attitudes, and perceptions regarding life support among healthcare workers, concluding that a lack of standardized training and limited access to competency-based educational models were major contributors to poor preparedness (15).

International resuscitation bodies have consistently emphasized that ALS competence depends on recurrent training, practical reinforcement, and periodic reassessment rather than one-time theoretical instruction. Contemporary guidance from resuscitation councils highlights the importance of simulation-based education, algorithm familiarity, team coordination, and repeated refresher sessions to improve retention and performance under pressure (8,13). These recommendations are particularly relevant in educational environments where students may receive fragmented exposure to emergency care or limited hands-on experience with defibrillators, airway equipment, drug preparation, and rhythm-based decision-making. In such contexts, the gap between what students know conceptually and what they can execute in practice may widen over time, reducing preparedness for real-world emergencies.

In Pakistan, evidence related to ALS knowledge among nursing students remains limited, and the available literature has more often focused on broader nursing competencies or adjacent clinical domains rather than advanced emergency response capacity. Regional studies from South Punjab have pointed toward educational and preparedness deficits in nursing populations. For example, critical care nurses have shown only moderate knowledge and attitudes in specialized care domains, while nursing students in the region have demonstrated a persistent theory-practice gap that may undermine confidence and readiness in complex clinical situations (9,10). Other local evidence has identified

deficiencies in nurses' knowledge, attitudes, and practices in occupational health and gaps in emergency nurses' awareness of emerging treatment approaches, further suggesting that emergency-related education may not be sufficiently robust across training environments in the region (11,12). Taken together, these findings indicate a broader need to assess preparedness in skill-intensive domains such as ALS among nursing trainees.

Despite the recognized importance of advanced resuscitation skills, there remains a paucity of evidence specifically examining the knowledge and attitudes of nursing students toward ALS in Lodhran. This is an important gap because local educational practices, institutional resources, student exposure to emergency cases, and curriculum emphasis may shape preparedness differently from other national or international settings. Without context-specific data, it is difficult to determine whether current undergraduate nursing preparation is sufficient to support effective emergency response or to identify which components of ALS knowledge require targeted strengthening. Examining both knowledge and attitude is particularly valuable because moderate or poor knowledge in the presence of positive attitudes may indicate strong receptiveness to structured educational intervention, whereas low scores in both domains would suggest deeper curricular and motivational shortcomings.

Therefore, this study was designed to assess the level of knowledge regarding advanced life support skills among nursing students in Lodhran and to evaluate their attitudes toward ALS training and emergency care responsibilities. By identifying areas of strength and weakness, the study seeks to generate evidence that may inform curriculum refinement, practical skills training, and institutional strategies aimed at improving emergency preparedness among future nurses. It was hypothesized that nursing students would demonstrate only moderate knowledge of ALS despite generally positive attitudes toward its learning and application in clinical practice (2,9,10,15,16).

MATERIALS AND METHODS

This study employed a quantitative cross-sectional descriptive design to evaluate knowledge and attitudes regarding advanced life support among nursing students enrolled at Shahida Islam Nursing College, Lodhran. The cross-sectional approach was considered appropriate because it enabled the assessment of current levels of knowledge and prevailing attitudes within a defined student population at a single point in time, thereby allowing estimation of the frequency and distribution of the study variables in an efficient and methodologically suitable manner for educational research. The study was conducted among undergraduate nursing students undergoing their academic and clinical training at the institution during the data collection period.

The source population comprised 3rd- and 4th-year nursing students currently enrolled at Shahida Islam Nursing College. These students were selected because they had greater exposure to clinical environments and were more likely than junior students to have encountered emergency care concepts during training. Students were eligible for inclusion if they were officially enrolled in the 3rd or 4th academic year and were available during the study period. Students on extended leave, those absent because of medical leave or external clinical rotations during data collection, and those who had already completed a formal internationally recognized ALS or ACLS certification were excluded to reduce heterogeneity arising from advanced external training exposure. Recruitment was carried out using a convenience sampling approach, whereby eligible students who were accessible during the study period were invited to participate after being informed about the purpose and voluntary nature of the study.

The sample size was determined using Cochran's formula for estimating a proportion in a cross-sectional survey with a 95% confidence level, an anticipated population proportion of 0.5, and a margin of error of 0.1. The resulting minimum sample size was 95 participants, and 95 nursing students were ultimately included in the final analysis. Although convenience sampling does not ensure random selection, efforts were made to approach all accessible eligible students from the target academic years in order to maximize participation and improve representativeness within the institutional context. Participation

was entirely voluntary, and informed consent was obtained from all respondents before questionnaire administration.

Data were collected using a structured questionnaire adapted from the instrument reported by Ralapanawa et al. for assessing knowledge and attitudes related to advanced life support practices (17). The questionnaire consisted of three sections. The first section recorded socio-demographic and training-related characteristics, including age, academic year, gender, and clinical unit placement. The second section assessed ALS knowledge using item-based objective questions covering fundamental and technical components of emergency response, including the concept of ALS, initial emergency actions, pulse assessment before cardiopulmonary resuscitation, chest compression site and depth, compression ratio and rate, automated external defibrillator terminology, shockable rhythm recognition, and adrenaline dosage in pulseless electrical activity. The third section evaluated attitude toward ALS through structured statements related to training adequacy, need for ACLS instruction, curricular inclusion of ALS, confidence in administering emergency drugs, perceived role in resuscitation, and confidence in saving a life during emergencies.

Questionnaire administration was conducted anonymously in an academic setting after permission had been obtained from the relevant institutional authorities. Participants completed the instrument independently to minimize interviewer influence and social desirability pressure. The purpose of the study and instructions for completing the form were explained uniformly to all participants prior to distribution. No personally identifying information was collected, and completed questionnaires were checked for completeness at the point of submission to reduce missing responses and maintain data integrity. Responses were coded numerically and entered into the statistical dataset using a standardized coding scheme. To enhance reproducibility and reduce entry errors, the dataset was reviewed for consistency, category alignment, and out-of-range values before analysis.

The primary study variables were knowledge and attitude regarding advanced life support. Knowledge was operationalized as the proportion of correctly answered knowledge items in the questionnaire and was summarized both at the item level and as an overall mean knowledge score. Attitude was operationalized as the proportion of positive responses to the attitude statements reflecting confidence, acceptance of ALS training, and support for curricular integration. Demographic variables, including age, gender, academic year, and clinical unit placement, were treated as explanatory characteristics for descriptive profiling of the participants. Because the purpose of the study was primarily descriptive, the analysis focused on the distribution of knowledge and attitude measures within the study population rather than on causal inference.

Potential sources of bias were considered during study planning and implementation. Selection bias was an inherent possibility due to the non-probability convenience sampling technique, and this limitation was partly addressed by including students from both eligible academic years and different clinical units who were available during the study period. Information bias was minimized by using a previously adopted structured questionnaire and by administering the survey in a standardized, self-completed format. Social desirability bias was further reduced through anonymous participation and assurance that responses would be used only for research purposes and would not affect academic standing. Students with formal ALS/ACLS certification were excluded to reduce confounding by advanced external training exposure that could artificially inflate knowledge scores relative to the general undergraduate student population.

All data were entered and analyzed using SPSS version 27.0.1. Descriptive statistics were applied to summarize the data, including frequencies and percentages for categorical variables and means for overall knowledge and attitude indicators. The findings were presented in tabular form to facilitate clear interpretation of participant characteristics and response patterns. Records were reviewed for completeness prior to analysis, and questionnaires with analyzable responses were retained in the final dataset. Ethical approval for the study was obtained from the Institutional Review Board of Shahida

Islam Nursing College, Lodhran. The study was conducted in accordance with ethical principles governing voluntary participation, confidentiality, and informed consent, and all participants were informed that they could decline or withdraw without any academic or personal consequences (17).

RESULTS

A total of 95 nursing students were included in the final analysis. Most participants were aged 22-24 years (68.4%), were enrolled in the 4th year of study (80.0%), and were female (62.1%). With respect to clinical placement, almost half were posted in medical units (47.4%), followed by surgery (17.9%), paediatrics (14.7%), gynaecology (12.6%), and emergency units (7.4%). The sample was therefore predominantly senior and clinically exposed, although emergency-unit representation remained limited.

Table 1. Demographic Characteristics of Participants (n=95)

Variable	Category	n	%
Age	18-21 years	20	21.1
	22-24 years	65	68.4
	25-30 years	10	10.5
Academic year	3rd year	19	20.0
	4th year	76	80.0
Gender	Female	59	62.1
	Male	36	37.9
Clinical unit	Emergency	7	7.4
	Medical	45	47.4
	Surgery	17	17.9
	Gynaecology	12	12.6
	Paediatrics	14	14.7

Knowledge regarding ALS was uneven across domains. Very high correct response rates were observed for pulse checking before CPR (97.9%; 95% CI 92.6-99.7) and the basic concept of ALS (74.7%; 95% CI 64.8-83.1). Moderate performance was seen for the initial emergency step (58.9%; 95% CI 48.4-68.9), compression ratio (62.1%; 95% CI 51.6-71.9), and recognition of a shockable rhythm (62.1%; 95% CI 51.6-71.9). In contrast, technical knowledge remained weak for chest compression location (28.4%; 95% CI 19.6-38.6), compression depth (26.3%; 95% CI 17.8-36.4), AED full form (27.4%; 95% CI 18.7-37.5), adrenaline dose in pulseless electrical activity (31.6%; 95% CI 22.4-41.9), and compression rate (29.5%; 95% CI 20.6-39.7). The overall mean knowledge score reported in the manuscript was 49.9%, indicating borderline-moderate knowledge with marked deficits in technical ALS execution.

Table 2. Knowledge Regarding Advanced Life Support Skills (n=95)

Knowledge item	Correct response	n	%	95% CI	p-value*
Basic concept of ALS	Treat greatest threat first	71	74.7	64.8-83.1	<0.001
Initial emergency step	Ensure safety	56	58.9	48.4-68.9	0.100
Pulse check before CPR	True	93	97.9	92.6-99.7	<0.001
Chest compression location	Lower sternal edge	27	28.4	19.6-38.6	<0.001
Compression depth	6 cm	25	26.3	17.8-36.4	<0.001
AED full form	Automated external defibrillator	26	27.4	18.7-37.5	<0.001
Adrenaline dose in PEA	1 mg	30	31.6	22.4-41.9	<0.001
Compression ratio	30:2	59	62.1	51.6-71.9	0.023
Shockable rhythm	Ventricular tachycardia	59	62.1	51.6-71.9	0.023
Compression rate	100/min	28	29.5	20.6-39.7	<0.001

*Exploratory exact binomial test against a 50% reference proportion.

Attitude toward ALS was more favorable than knowledge. Slightly more than half of respondents believed that internship training was adequate (50.5%; 95% CI 40.1-60.9) and that ALS should be re-evaluated regularly (54.7%; 95% CI 44.1-65.0). Support for ACLS training and inclusion of ALS in the undergraduate curriculum was high and identical at 68.4% (95% CI 58.1-77.6 for both items). Confidence in administering emergency drugs was the most positive attitude indicator at 77.9% (95% CI 68.2-85.8),

while 65.3% (95% CI 54.8-74.8) felt confident that they could save a patient's life during an emergency. These findings indicate that although technical preparedness was suboptimal, receptiveness to ALS training and self-perceived willingness to engage in emergency care were comparatively strong.

Table 3. Attitudes Toward Advanced Life Support Skills (n=95)

Attitude item	Positive response	n	%	95% CI	p-value*
Internship training adequate	Yes	48	50.5	40.1-60.9	1.000
Resuscitation usually performed by senior nurse	Yes	55	57.9	47.3-68.0	0.151
ACLS training required	Yes	65	68.4	58.1-77.6	<0.001
ALS in undergraduate curriculum	Yes	65	68.4	58.1-77.6	<0.001
Confident in giving emergency drugs	Yes	74	77.9	68.2-85.8	<0.001
ALS should be re-evaluated	Yes	52	54.7	44.1-65.0	0.452
Confident in saving life	Yes	62	65.3	54.8-74.8	0.005

*Exploratory exact binomial test against a 50% reference proportion.

To extend interpretation beyond the original tables, a domain-level synthesis was derived from the reported item percentages. Recognition and immediate-response knowledge showed the strongest performance, with a mean correct-response level of 77.2%, ranging from 58.9% to 97.9%. In contrast, technical ALS execution showed the poorest performance, with a mean of only 38.2% and item values clustered between 26.3% and 62.1%, remaining largely below the 50% benchmark. Attitudinal domains were more favorable: training orientation averaged 63.9% (range 54.7%-68.4%), while self-efficacy and role perception averaged 62.9% (range 50.5%-77.9%). This pattern shows a clinically meaningful disconnect: students were substantially better at recognizing basic ALS principles and endorsing ALS training than at recalling core technical details required for real-time emergency performance.

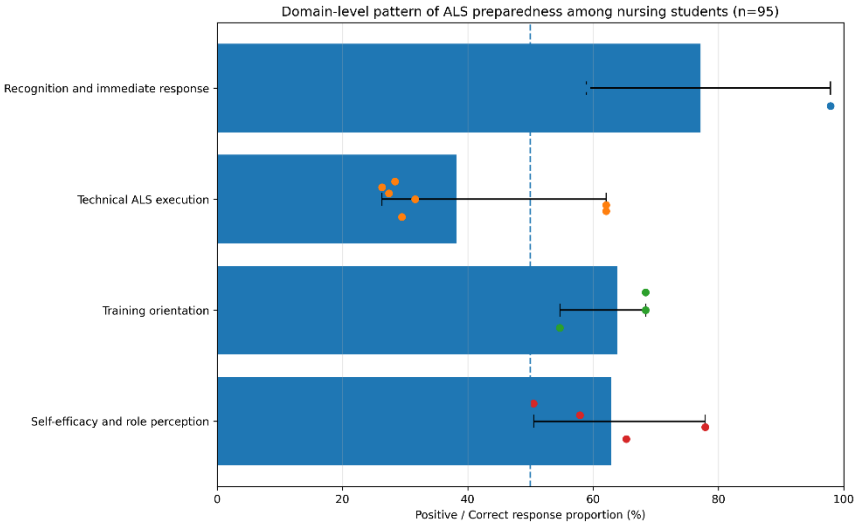

Figure 1 Domain-Level Pattern of ALS Preparedness Among Nursing Students Domain-level aggregation demonstrated that recognition and immediate-response knowledge had the highest mean performance at 77.2%, exceeding the 50% reference level by 27.2 percentage points, whereas technical ALS execution averaged only 38.2%, falling 11.8 points below that threshold. Training orientation and self-efficacy/role perception were comparatively stronger at 63.9% and 62.9%, respectively. The widest spread was observed in recognition and immediate response (58.9%-97.9%), driven by near-universal awareness of pulse checking before CPR, while technical execution remained compressed at low-to-moderate levels (26.3%-62.1%), indicating consistent weakness across multiple procedure-specific items rather than a single isolated deficit. This distribution suggests that the main educational shortfall lies in procedural and pharmacologic ALS competence rather than in conceptual awareness or willingness to participate in emergency care.

DISCUSSION

The present study demonstrated that nursing students in Lodhran had an overall mean knowledge score of 49.9%, indicating borderline-moderate knowledge of advanced life support, while their attitudes toward ALS training and participation in emergency care were generally positive. The pattern of responses suggests that students were more familiar with broad conceptual elements of emergency

response than with the technical details required for competent ALS execution. Very high recognition of pulse assessment before cardiopulmonary resuscitation and acceptable awareness of the general concept of prioritizing the greatest threat first indicate that foundational emergency principles are reaching students during training. However, poor performance on chest compression location, compression depth, automated external defibrillator terminology, compression rate, and adrenaline dose for pulseless electrical activity points to important deficiencies in procedural and algorithm-based knowledge. This discrepancy is clinically relevant because emergency care competence depends not only on general awareness, but also on accurate recall of time-sensitive technical actions during high-pressure situations (1,8,13).

These findings are broadly consistent with earlier studies reporting moderate awareness but inadequate operational knowledge of life support skills among healthcare trainees. Research among healthcare professional students in Bangladesh found that although awareness of basic life support concepts was present, practical and procedural understanding remained insufficient, particularly for actions that require repeated drills and algorithm familiarity (2). Similar observations were reported among health sciences students in university settings, where knowledge, attitude, and awareness were not uniformly translated into competency, highlighting the persistent disconnect between classroom learning and emergency performance readiness (3). Evidence from graduating health science and medical students has also shown that many trainees approach the end of their professional education without adequate preparation for life-saving interventions, reinforcing concern that emergency education may remain too theoretical in many institutions (7). The current findings align with this literature and extend it to nursing students in Lodhran, where the same pattern of uneven preparedness appears to be present.

The technical knowledge deficits observed in this study deserve particular emphasis because they represent the elements of ALS most likely to affect patient outcomes in real emergencies. Fewer than one-third of participants correctly identified several core technical items, including compression depth, compression rate, AED full form, and adrenaline dose in pulseless electrical activity. Even though moderate proportions answered correctly on compression ratio and shockable rhythm, the broader profile still indicates weak mastery of resuscitation mechanics and pharmacologic components. This pattern is comparable to findings from studies among practicing healthcare workers and junior doctors, where participants often expressed willingness to learn ALS but performed poorly on item-level assessments involving detailed protocol knowledge (4,5). The consistency of this problem across student and professional groups suggests that one-time exposure to emergency content may be insufficient and that knowledge decay may occur rapidly in the absence of repeated practice, simulation reinforcement, and structured reassessment (15).

At the same time, the attitudinal findings of the present study are encouraging. More than two-thirds of students supported ACLS training and favored inclusion of ALS in the undergraduate curriculum, and a substantial proportion reported confidence in administering emergency drugs and in their ability to save a patient's life. This indicates that motivational readiness and receptiveness to training are stronger than actual competence. A positive attitude toward emergency education is an important asset because it increases the likelihood that targeted interventions, such as simulation-based teaching, repeated skills stations, and competency reassessment, will be well received and educationally effective. Similar coexistence of favorable attitudes with limited knowledge has been documented among nursing staff and healthcare trainees in other settings, where participants recognized the importance of life support training even when their practical knowledge remained inadequate (6,14). Thus, the present results should not be interpreted as student disengagement, but rather as evidence of an educational opportunity that can be leveraged through curriculum reform.

Another important observation is that only about half of the participants considered internship training adequate, while many indicated that resuscitation is usually performed by senior nurses. This may reflect restricted active participation of students in emergency care during clinical placements, with

observational exposure replacing supervised hands-on involvement. Such a pattern may contribute to the theory-practice gap already described in regional nursing education literature. In South Punjab, prior work has highlighted disconnects between theoretical preparation and practical performance among nursing students, suggesting that students may acquire general concepts without adequate opportunities to apply them in realistic clinical conditions (10). If emergency procedures are perceived as the domain of senior staff only, students may graduate with limited confidence in algorithm execution despite positive views about ALS learning. This interpretation is also supported by the domain-level synthesis derived from the current data, in which recognition and immediate-response knowledge substantially outperformed technical ALS execution.

The findings also have implications for patient safety and workforce readiness. Nursing students represent the future bedside workforce and are often among the first healthcare providers to encounter patient deterioration, particularly in lower-resource hospitals where staffing patterns may place considerable responsibility on junior personnel. In such settings, deficits in ALS-related technical knowledge may contribute to delayed intervention, incorrect response sequencing, medication errors, and reduced effectiveness of resuscitative efforts. International resuscitation guidance has repeatedly emphasized that emergency competence is maintained through repeated training cycles, rehearsal of protocol-based actions, and reinforcement of both cognitive and psychomotor skills rather than through passive theoretical instruction alone (8,13). The current results therefore support the need to integrate structured ALS content more explicitly into undergraduate nursing education, with particular attention to high-risk technical domains that showed the poorest performance in this study.

From an educational standpoint, simulation-based learning appears especially relevant. The uneven performance profile seen here suggests that students may benefit less from additional didactic exposure alone and more from repeated scenario-based practice that combines recognition, decision-making, chest compression technique, drug preparation, and role assignment within a team environment. Simulation enables deliberate practice, immediate feedback, correction of errors, and exposure to rare but critical emergency situations without patient risk. It also addresses one of the key controversies in the literature, namely whether theoretical instruction alone can produce meaningful competence in ALS. Available evidence increasingly suggests that while theory provides a necessary framework, psychomotor accuracy and algorithm retention depend on active rehearsal and refresher training, especially in settings where real emergency exposure is inconsistent (5,15). Given the positive attitude demonstrated by the participants, implementation of structured simulation modules is likely to be feasible and potentially impactful.

This study also contributes locally relevant evidence to an area that has been underexplored in Pakistan, particularly in Lodhran. Although regional studies have assessed related issues such as palliative care knowledge, occupational safety awareness, emergency-room preparedness, and theory-practice gaps, specific evidence on ALS among nursing students has remained limited (9,11,12). By documenting both strengths and weaknesses, the current study provides a useful baseline for educational planning. The strongest finding is not simply that knowledge was moderate, but that it was selectively moderate, with specific procedural deficits masked by better performance on a few more familiar items. This distinction is important for curriculum design because broad summary scores alone may underestimate the seriousness of deficiencies in high-stakes components of emergency care.

The study should, however, be interpreted in light of several limitations. The use of a cross-sectional design means that the findings capture knowledge and attitudes at one point in time and cannot establish how competencies evolve during training or in response to educational exposure. Convenience sampling from a single nursing college limits external generalizability and introduces the possibility of selection bias. The analysis was primarily descriptive, which constrains the ability to identify predictors of better knowledge or attitude across demographic and training subgroups. In addition, self-reported attitude measures may overestimate confidence because they are subject to optimism and social desirability

effects despite anonymous data collection. Most importantly, the study assessed cognitive and attitudinal dimensions but did not directly evaluate observed ALS performance in simulation or clinical practice. As a result, actual procedural competence may be lower, equal to, or in some cases better than the questionnaire responses suggest. Future studies should address these limitations by using multi-center sampling, objective structured skills assessments, and analytical models to examine factors associated with stronger ALS preparedness.

Overall, the present findings indicate that nursing students in Lodhran possess a favorable educational orientation toward ALS but insufficient technical preparedness for reliable emergency response. The most appropriate interpretation is therefore not that students lack interest or motivation, but that current training exposure may not be deep, repeated, or practical enough to secure procedural mastery. Strengthening undergraduate ALS instruction through curriculum integration, recurrent workshops, simulation-based assessments, and formal competency checks may help close the gap between positive attitude and effective emergency performance, thereby improving the readiness of future nurses to contribute safely and confidently during life-threatening clinical events (2,6,8,10,15).

CONCLUSION

In conclusion, nursing students in Lodhran demonstrated generally positive attitudes toward advanced life support training and recognized its importance within undergraduate nursing education, yet their knowledge remained only borderline-moderate and was particularly weak in critical technical domains such as chest compression parameters, AED-related knowledge, and emergency drug dosing. This pattern indicates a meaningful gap between conceptual awareness and procedural preparedness, suggesting that current educational exposure may not be sufficient to ensure competent emergency response. Strengthening undergraduate nursing curricula through structured ALS integration, simulation-based learning, repeated refresher training, and competency-focused evaluation is essential to improve technical proficiency, confidence grounded in actual skill, and future readiness for high-acuity clinical care.

REFERENCES

1. Nikolovski S, Cizmovic L. European Resuscitation Council guidelines 2021: adult advanced life support changes related to the guidelines 2015. J Resuscitatio Balcanica. 2021;7(18):298-303.

2. Ahmed S, Islam MJ, Islam KMK, Uddin J, Khandoker F, Fariha T, et al. Awareness, knowledge, and attitude towards basic life support among healthcare professional students in Bangladesh. PLOS Glob Public Health. 2025;5(9):e0005126.

3. Azlan NZ, Noor NHM, Othman N. Knowledge, attitude and awareness of basic life support among health sciences university students. Int J Care Scholars. 2021;4(Suppl 1):4-12.

4. Khalid YA, Saad MB, Nasreddin ME. Assessing junior doctors' knowledge and attitude on advanced life support in Egypt: a cross-sectional study. Afr J Emerg Med. 2025;15(4):100927.

5. Adal O, Emishaw S. Knowledge and attitude of healthcare workers toward advanced cardiac life support in Felege Hiwot Referral Hospital, Bahir Dar, Ethiopia, 2022. SAGE Open Med. 2023;11:20503121221150101.

6. Gyawali S, Shah R, Shah S. Knowledge, attitude and practice of basic life support among nursing staffs at a tertiary care hospital. J Gen Pract Emerg Med Nepal. 2024;11(17):72-7.

7. Tadesse M, Seid SA, Getachew H, Ali SA. Knowledge, attitude, and practice towards basic life support among graduating class health science and medical students at Dilla University: a cross sectional study. Ann Med Surg (Lond). 2022;82:104588.

8. Lippert A, Rosenberg J, Nielsen JS, Bitzer K, Aaboe M, Breindahl N. European Resuscitation Council Guidelines 2025. 2025.

9. Mulazim S, Bilal M, Khan N, Danish M, Jamal F. Evaluation of knowledge and attitudes toward palliative care among critical care nurses in tertiary hospitals of South Punjab, Pakistan. J Health Wellness Community Res. 2025:e943.

10. Shafiq N, Ali A, Qasim T, Tariq T, Sattar A, Danish M. The theory-practice gap among nursing students in public and private nursing colleges of South Punjab.

11. Shabir K, Ramzan I, Najeeb H, Danish M, Haider R, Fatima A, et al. Assessing emergency room nurses' awareness of novel treatments and emerging innovations in anaphylaxis management. 2025.

12. Ahmad A, Arshad H, Saman M, Naveed M, Shafiq N, Hussain MB, et al. Occupational health hazards among nurses: assessing knowledge, attitudes, and practices in Southern Punjab, Pakistan.

13. Olasveengen TM, Mancini ME, Perkins GD, Avis S, Brooks S, Castren M, et al. Adult basic life support: 2020 international consensus on cardiopulmonary resuscitation and emergency cardiovascular care science with treatment recommendations. Circulation. 2020;142(16 Suppl 1):S41-S91.

14. Alfakey M, Alkarani A. Students' knowledge and attitudes toward basic life support. Int J Eval Res Educ. 2021;10(3):871-7.

15. Alsabri MAH, Elsayed SM, Elshanbary AA, Zaazouee MS, Alqeeq BF, Zehra SA, et al. Knowledge, attitude and perceptions of healthcare workers in Arab countries regarding basic life support: a systematic review and meta-analysis. Arch Acad Emerg Med. 2024;12(1):e32.

16. Chang T, Darshani S, Manikavasagam P, Arambepola C. Knowledge and attitudes about end-of-life decisions, good death and principles of medical ethics among doctors in tertiary care hospitals in Sri Lanka: a cross-sectional study. BMC Med Ethics. 2021;22(1):66.

17. Ralapanawa U, et al. [Questionnaire source as cited by the authors in the manuscript].

18. Sajjad UA, Zulfiqar M, Rehman NA, Rafique A, Majeed A. Assessment of the level of knowledge and attitude regarding advanced life support skills among nurses working in the critical areas (CCU, ICU and ER) of Punjab Institute of Cardiology, Lahore. Nursearcher (J Nurs Midwifery Sci). 2024:09-13.

19. Rabaan AA, Alhumaid S, Mutair AA, Garout M, Abulhamayel Y, Halwani MA, et al. Application of artificial intelligence in combating high antimicrobial resistance rates. Antibiotics (Basel). 2022;11(6):784.

20. Edelson DP, Sasson C, Chan PS, Atkins DL, Aziz K, Becker LB, et al. Interim guidance for basic and advanced life support in adults, children, and neonates with suspected or confirmed COVID-19: from the emergency cardiovascular care committee and get with the guidelines-resuscitation adult and pediatric task forces of the American Heart Association. Circulation. 2020;141(25):e933-e43.