Ahliya Journal of Allied Medico-Technology Science
[Published by Palestine Ahliya University]
Vol. 02 Issue 02 (2025)
ISSN: 3007-9489

Basic Life Support Awareness Level Among Students of Health Sciences at PAU: A Cross Sectional Study

Obaida Al-Saleh[1], Zakaria Awad[1], Malik Abu Shamsieh[1], Amal Alyan[1], Israa Saleh[1] and Riham Melhem[2]
[1] Allied Medical Sciences College Nursing Department, Palestine Ahliya University (Palestine)
✉ 22210005@paluniv.edu.ps
✉ 22110029@paluniv.edu.ps
✉ 22110089@paluniv.edu.ps
✉ 22110617@paluniv.edu.ps
✉ 22110086@paluniv.edu.ps
[2] Palestine Ahliya University (Palestine)
✉ r.melhem@paluniv.edu.ps

Received:14/10/2025 Accepted:07/11/2025 Published:31/12/2025

Abstract: ***This study assesses Basic Life Support (BLS) awareness levels and associated factors among health sciences students at Palestine Ahliya University. Employing a descriptive quantitative cross-sectional design, data were collected between March 20 and April 5, 2025, from 322 students (97.58% response rate) enrolled in nursing, physiotherapy, radiology, and therapeutic medical nutrition programs using an electronic questionnaire adapted from American Heart Association BLS examination items. Analysis via SPSS v.27 revealed a critically low mean knowledge score (8.52±3.95 out of 20), with 62.4% of participants scoring "poor" (<10 points) and only 7.1% achieving "good" or "excellent" levels. Significant differences emerged across gender (females scored higher, p=0.008), academic specialization (physiotherapy and nutrition students outperformed nursing students, p=0.018), educational degree (bachelor's > diploma, p=0.007), academic year (third-year students scored highest, p=0.009), and area of residence (p=0.007). Notably, prior BLS training showed no statistically significant impact on awareness levels (p=0.17), indicating inadequate skill retention or outdated training content. The originality of this research lies in being the first to evaluate BLS awareness specifically among health sciences students at Palestine Ahliya University, uncovering a critical gap between theoretical exposure and practical competency retention within the Palestinian healthcare education context, thereby providing evidence for urgent curricular reform.***

Keywords: Automated External Defibrillator, Basic Life Support, Cardiopulmonary Resuscitation, Chain of Survival, Emergency Medical Services.

1. Introduction

1.1 Background

According to the American heart association (AHA) defines Basic Life Support (BLS) as a variety of essential emergency techniques consisting of cardiopulmonary resuscitation (CPR), airway management, and the administration of automated external defibrillators (AEDs), aimed at ensuring airway passage and supporting respiration and circulation during cardiac arrest, respiratory failure, or airway occlusion [1]. Timely initiation of (BLS) has been shown to considerably increase the chances of survival and give victims of out-of-hospital cardiac arrest (OHCA) better neurological outcomes [2]. Over 70% of global incidence of cardiac arrest occurs beyond the walls of the hospital, making laypersons and first responders including health sciences students a vital link in the chain of survival [3].

Students in health sciences programs - medicine, nursing, pharmacy, and allied health - are required to attain BLS proficiency in their education. They are mostly the first to act in clinical environments such as teaching hospitals and emergency departments and at community outreach programs [4]. However, based on previous studies, knowledge and skills deficiency related to the BLS was noticed.

In Saudi Arabia, a study revealed only 34% of undergraduate health students had satisfactory knowledge of BLS. The confidence levels were identified to be high [5]. In another study conducted between medical students in Egypt, a study assessed their knowledge about cardiopulmonary resuscitation (CPR). It showed less than 20% of medical students were able to correctly clarify how deep chest compressions should be in children and neonates. In Addition, only 12.4% of students understood the correct way to deliver rescue breaths to infants. These findings indicate that there are important gaps in the knowledge of BLS concepts among medical students, especially about the elements of depth of chest compression and rescue breathing [6]. Those critical elements are crucial to maintain blood circulation and oxygenation during cardiac arrest, it will directly affect the chance for the individual to survive.

In the Palestinian context, the necessity of teaching (BLS) to healthcare students is. Recent literature has shown a gap in the knowledge and skill of BLS among health care providers in Palestine. For instance, a national cross-sectional study on Palestinian nurses indicated a significant decline in knowledge about BLS after two years from the initial certification; 85.2% of the participants failed to score the passing mark during the follow-up assessment [7] Efforts targeting practicing nurses for BLS training are limited, and this points to a noticeable gap with respect to the institutionally organized training and assessment on BLS for students in health sciences. These students are the frontline responders of the future and therefore require

preparedness with effective and recurrent training.
Despite the general understanding of its need for BLS education, many health sciences students lack the theoretical knowledge and practical application of these skills [8] For instance, a study done in Jordan revealed that only 24.9% of medical students knew the appropriate hand placement for chest compressions, highlighting a clear deficiency in the basic knowledge of BLS [9].
Recent study identified the benefits of simulation (HFS) training as between Palestinian nursing students. For example, the research showed how training has improved attitude while reducing anxiety and stress. The findings suggest that simulation training is good for strengthen BLS skills by nursing students [10].
Despite the various training programs available at the universities for BLS training, very limited studies exist analyzing the BLS awareness among the students of health sciences. Therefore, this research aims to assess BLS awareness and its related factors among health sciences students at Palestine Ahliya University.

1.2 Research Significance

This study is significant for emphasizing the level of awareness regarding Basic Life Support (BLS) among the health sciences students who are future primary caregivers. When administered early and effectively, BLS can greatly improve survival rates in life-threatening emergencies like cardiac arrest. Therefore, it is a must-have skill for all those going for higher studies in health- related fields. By assessing the level of awareness among students, this study can identify gaps in knowledge and can assist the educational institutions in deciding whether there is a need to introduce or improve the present BLS training included in their syllabus. Moreover, the study results help to enhance emergency preparedness and ensure that graduates possess core life- saving skills that are vital for clinical settings as well as their respective communities. Thus, the study will enhance the health system by increasing the number of professionals suitable for confidently and effectively responding to emergencies.

1.3 Research Objectives

1. To assess the awareness level towards the Basic Life Support among health sciences students at Palestine Ahliya University.
2. To determine whether prior exposure to BLS training has an effect on health sciences students' awareness levels at Palestine Ahliya University.
3.To investigate the relationship between socio-demographic characteristics (such as age, gender, educational program, residency and academic year) on the awareness level of health sciences' students towards BLS.

1.4 Research Questions

1.What is the level of awareness of Basic Life Support among health sciences students at Palestine Ahliya University?
2. Does prior exposure to Basic Life Support training affect the awareness level of health sciences students at Palestine Ahliya University?
3. Is there a statistically significant relationship between the level of Basic Life Support awareness and students' sociodemographic characteristics (such as age, gender, educational program, residency and academic year) at Palestine Ahliya University?

1.5 Research Variables

Dependent Variable:
Awareness level of Basic Life Support of Palestine Ahliya University health Sciences students.
Independent Variables:
Age, gender, field of study, educational degree, year of study, previous training with BLS, overall GPA, Area of residence.

1.6 Conceptual Framework

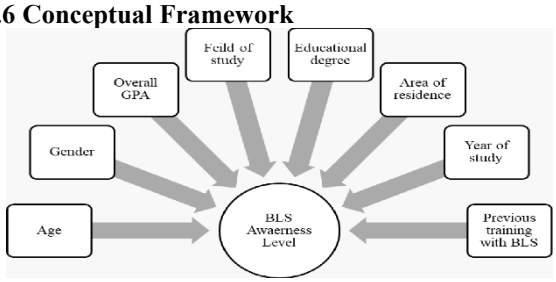

Figure 1: Conceptual Framework

2. Literature Review

A study conducted in Jordan by aimed to determine the level of awareness and knowledge of medical students regarding Basic Life Support (BLS) [9]. Using a cross-sectional design, the study included 886 participants. The results showed that only 281 students (37.1%) had sufficient level of awareness, while 605 students (62.3%) had insufficient level of awareness, with a mean score of 10 (±3.8) out of 20. There was a significant relationship ($p < 0.001$) between awareness levels and demographic factors, such as gender—where female students showed higher levels of awareness.
A study conducted in Riyadh, Saudi Arabia evaluated university students' awareness and participation in BLS [1]. In this cross-sectional study of 1,546 students, the most (69.9%) manifested low awareness of BLS. However, (77.9%) expressed interest in participating in BLS training. Students related to healthcare fields revealed greater knowledge (AOR = 5.96, 95% CI = 4.66–7.63, $p < 0.05$). Furthermore, female students and those who are studying health-related majors were more willing to attend BLS courses compared to other majors.
In contrast, a study conducted in Ethiopia focused on graduating students at Dilla University College of Medicine and Health Sciences [4]. This cross-sectional study included 167 students and showed that 56.9% had great knowledge, 51.5% was good practice, and 94% had a positive attitude towards BLS. The results emphasized the need for enhanced training, recommended that BLS education should be integrated into health programs.
An international study evaluated BLS awareness and knowledge between 2,114 medical students across Syria, Iraq, and Jordan [11]. The findings manifested that 18.3% of students had high BLS knowledge, 72.8% had intermediate knowledge, and 8.9% had low knowledge.in addition, 78.3% of participants had never attended a BLS course. The study recommended that those who received BLS training had better knowledge

than those without training.

Similarly, a cross-international study included 748 undergraduate nursing students from Poland, Lithuania, and Spain compared their theoretical and practical knowledge of BLS [12]. All participants said they had exposed to first aid training; many had not provided pre-medical aid. The results showed that most students had an intermediate level of knowledge. The study expressed that additional education, such as first aid training, improved students' theoretical and practical competence in BLS.

Another related study, conducted in Egypt evaluated BLS awareness and knowledge among 1,165 students from six faculties [13]. including medicine, nursing, engineering, and law. 70% of respondents assumed that CPR training should be mandatory, only 29.6% had received training. Female and medical students notched higher in CPR knowledge compared to their peers ($p < 0.05$). In addition, students who had completed training were more confident in doing BLS (35.1%) than those who had not completed (10.2%). These findings concluded the importance of organized CPR education at university programs. In contrast, a cross-sectional study in Iran highlighted low BLS awareness among medical students [14]. Which surveyed 1,210 students in four major medical schools, showed that only 10.9% had previous CPR experience, and none had completed formal training. The most (77.93%) had low awareness levels, with only 4.04% attaining high scores. The study expressed the urgent need to apply formal BLS training in medical education.

3. Methodology

3.1 Study Design

This study used a descriptive quantitative cross-sectional design.

3.2 Study Settings

At Palestine Ahliya University, in West Bank, Palestine.

3.3 Study Population

The study covered all students of both the Faculty of Allied Medical Sciences and applied professions. Bachelor's degree: Nursing, Radiology, Therapeutic Medical Nutrition, and Physiotherapy. Diploma degree: Nursing, Physiotherapy.

3.3.1 Inclusion Criteria

1. Health students in the College of Allied Medical Sciences and Applied Medical Sciences from the second to the fourth year and willing to participate.

3.3.2 Exclusion Criteria

1. First-year students in the College of Allied Medical Sciences.
2. Postgraduate Students.
3. Bridging Students
4. Students who are not willing to participate.
5. Incomplete responses.

3.4 Sampling Technique and Sample Size

The study examines all students in medical specialties at the college, including nursing and physiotherapy (both bachelor's and diploma programs), medical radiology, and therapeutic medical nutrition. We used a sample size calculator application to determine the required sample size, which was 330 students, with a margin of error of 5%.

3.5 Data Collection

Data collection carried out in the period March 20th -5th April 2025. 330 nursing students were recruited for participation in this study through official communication channels of the university including email and class announcements, WhatsApp groups, and QR code. Participation was voluntary, and students who agreed received an adopted, self-administered questionnaire to assess their awareness level toward BLS. From the 330 students invited for participation, 322 completed the questionnaire, producing a response rate of 97.58%. Collection of data was automatic and done via Google Forms platform ensuring accuracy and efficiency in entering data.

3.5.1 Instrument

An online survey via (Google Form) was used, in English, and included two parts. The first part contained socio- demographic data include 5 items, including gender, academic year, educational degree (diploma and bachelor), previous training with BLS, major GPA was classified to Excellent (3.5-4), Very good (3-3.5) Good (2-3), Poor (1-2), and place of residence, after obtaining the student's consent to complete the questionnaire. The second part included 20 multiple-choice questions from the American Heart Association Basic Life Support (BLS) exam questions to assess participants' knowledge of BLS skills (general assessment of unconscious patients and how to handle them, including CPR, handling children and adults, using an automated external defibrillator (AED), and patients suspected of having ischemic heart disease).

3.5.2 Validity

The questionnaire used in this study was adopted from a previously published and validated instrument without any modifications. As no changes were made to the original items, the content validity and construct validity established in the original study remain applicable. The original authors reported satisfactory levels of validity, ensuring the appropriateness of the questionnaire for assessing the intended constructs [9].

3.5.3 Reliability

Since the internal consistency of the questionnaire (e.g., Cronbach's alpha) was not reported in the study [9], Cronbach's alpha was computed from the data of the current study to assess the reliability of the instrument. Cronbach's alpha value was 0.83 marked good internal consistency. Then, the questionnaire items measured the awareness of BLS among participants.

3.6 Data analysis

We did the statistical analysis using SPSS Version 27. We used descriptive statistics to identify individual sociodemographic variables. We applied T-tests and one-way ANOVA to determine variations in the study outcomes relies on sociodemographic characteristics. P-value was applied to assure the degree of significance. The factors demonstrated notable differences at the $P < 0.05$ level.

3.7 Ethical Consideration

Ethical approval was obtained from the students before conduct this research. The students were informed of the aim and methodology of the study and that they can withdraw at any time without risks. All participants were

anonymous for respecting privacy. The soft copies were reserved on secure servers, and hard copies were in a safe place.

4. Results

Table 1 showed an overview of the demographic characteristics of the 322 research subjects. females generally represent the majority, female students were (58.7%), male students were (41.3%). Regarding the academic concentration, Nursing students marked as the highest group (58.1%) then Therapeutic Medical Nutrition (16.1%), Radiography (13.7%), and Physiotherapy (12.1%). With just a small percentage (10.6%) registered in diploma programs, the majority of students (89.4%) were pursuing a bachelor's degree. Most were in their clinical years; 40.4% in their fourth year and 32.6% in their third year. This is important as clinical experience is assumed to advance practical understanding about (BLS). Still, 60.6% of respondents said they had never had any prior BLS instruction.in addition, only 8.4% of students attained "excellent" academic achievement, most students said their GPA was "good,".

Geographically, the most participants were from Bethlehem (41%) and Hebron (23%). This distribution affords understanding of how geographical diversity could influence exposure to education and training.

Table 1: The demographic characteristic of the study sample (N=322)

Variables		Frequency	(%)
Gender	Male	133	41.3
	Female	189	58.7
Academic specialization	Nursing	187	58.1
	Physiotherapy	39	12.1
	Radiology	44	13.7
	Therapeutic Medical Nutrition	52	16.1
Educational Degree	Diploma	34	10.6
	Bachelor	288	89.4
Academic Year	2nd Year	87	27.0
	3rd Year	105	32.6
	4th Year	130	40.4
Previous training with BLS	Yes	127	39.4
	No	195	60.6
Overall, Degree (GPA)	Excellent	27	8.4
	Very good	84	26.1
	Good	172	53.4
	Poor	39	12.1
Area of residence	Hebron	74	23.0
	Bethlehem	132	41.0
	Jerusalem	64	19.9
	North West Bank	36	11.2
	Negev	16	5.0

Table 2 assess participants' knowledge of BLS through a series of questions. The responses show variation in awareness. 76% of participant correctly illustrate what BLS stands for, and 61% correctly chose the adult CPR ratio (30:2), knowledge on other important aspects of BLS was lacking. Only 34% of respondents knew the first response when finding someone unresponsive in the road is to ensure safety. Likewise, only 42% correctly demonstrated that activating EMS is the immediate next step. The knowledge about compression sites on the chest was better, with 60% identifying the mid-chest correctly. However, less than half of the students answered correctly about infant techniques. For example, only 47% knew the correct compression location for infants, and just 47% knew the appropriate method of giving rescue breaths to infants. Moreover, only 24% correctly explained the required compression depth for adults, and 21% answered the rate of compressions correctly. Knowledge about specialized topics, such as the compression-to-ventilation ratio for neonates and the management of drowning victims, was especially poor, with only 23% and 16% answering correctly. This exhibited a clear gap in understanding emergency care. Overall, the table shows inconsistent and insufficient knowledge levels.

Table 2: Correct answers to BLS knowledge among participating medical students

Question	Correct Answer	Frequency	%
What does the abbreviation BLS stand for?	Basic Life Support	245	76%
When you find someone unresponsive in the middle of the road, what should your first response be?	Look for safety	108	34%
If you confirm somebody is not responding to you even after shaking and shouting at him, what should your immediate action be?	Activate EMS	135	42%
What is the location for chest compression?	Mid chest	193	60%
What is the location of chest compression in an infant?	One finger breadth below the nipple line	151	47%
If you don't want to give mouth-mouth CPR, which of the following is NOT an appropriate course of action?	No CPR	127	39%
How do you give rescue breaths to infants?	Mouth-to mouth and nose	151	47%
What is the correct depth of chest compression in adults?	1½ – 2 inches	76	24%
What is the correct depth of compression for children?	One half to one-third depth of chest	145	45%
What is the correct depth of compression for neonates?	One half to one-third depth of chest	140	43%
What is the correct rate of chest compression for adults and children?	100/min	68	21%
What is the correct ratio of CPR for an adult when there is a single rescuer?	30:2	197	61%
What is the correct chest compression: ventilation ratio for a neonate?	3:1	73	23%
What does the abbreviation AED stand for?	Automated External Defibrillator	80	25%
What does the abbreviation EMS stand for?	Emergency Medical Services	180	56%
If you and your friend are having food in a canteen and your friend suddenly starts choking, what should your first response be?	Confirm foreign body aspiration by talking to him	136	42%
You witness an infant who suddenly starts to choke while playing with a toy. You have confirmed that he is unable to cry and/or cough, what should	Back blows and chest compression of five cycles each then open	150	47%

your first response be?	the mouth and remove foreign body only when it is seen		
You witness an adult unresponsive who has been just removed from submersion in fresh water. He has spontaneous breathing but is unresponsive. What should your first response be?	Keep him in recovery position	50	16%
You notice your colleague has suddenly developed slurring of speech and weakness of the right upper limb, which one of the following should be done?	Possibly stroke, he may require thrombolysis and hence activate emergency medical services	142	44%
A 50-year-old gentleman presents with retrosternal chest discomfort, profuse sweating and vomiting. What is the most appropriate course of action?	Probably myocardial infarction, hence, activates EMS, give an aspirin tablet and allow him to rest	198	61%

Table 3 uses knowledge test results to rank the awareness degree among the research subjects. The results are shocking. With a standard deviation of 3.95 and a mean score of only 8.52 out of 20, most students scored well below a competent level. Just 6.5% of the students fell into the "good" range (15–17), while just 0.6% scored "excellent" (18–20). A significant proportion of students (30.4%) fell into the “moderate” category, scoring between 10 and 14, while a majority—62.4%—scored below 10, considering a poor awareness level. Most participants were in their clinical years of health sciences school, when BLS proficiency should be important, these findings are worrying. The poor ratings mark to possible defect in curriculum or its clinical application.

Table 3: The level of BLS awareness among study participants (N=322)

Scales	Min.	Max.	Mean	SD	Score	No.	%
BLS awareness (Items=20)	0	20	8.5248	3.95075	Excellent (18-20)	2	0.6
					Good (15–17)	21	6.5
					Moderate (10-14)	98	30.4
					Poor (<10)	201	62.4

Table 4 looks at the variations in BLS knowledge across many demographic and academic backgrounds. With a p=0.008, female students attain higher mean than male students; this maybe a reflection of gender imbalance in academic engagement in medical education. Though nursing students are usually expected to undergo more intense clinical training in life support abilities, physiotherapy and therapeutic nutrition students did better than their classmates in academic specialties. This result might indicate variations in the way some schools include BLS training within their courses. Students working on a bachelor's degree much exceeded those in diploma programs (p=0.007), indicating that knowledge acquisition depends much on duration and depth of study. Fascinatingly, third-year students obtained the greatest mean scores among second- and fourth-year students (p=0.009), suggesting that BLS training is stressed at a certain level of study and may not be sufficiently reinforced later on.Remarkably, pupils who claimed prior BLS training and those who did not had not significantly different awareness levels (p=0.17). This would suggest that the training imparted lacked practical reinforcement, was either antiquated or poorly remembered. Though students with "good" and "very good" grades tended to score better on average, GPA was not notably correlated with awareness levels (p=0.073). Finally, the region of residency seemed to affect awareness; students from Hebron scored lowest (p=0.007) and those from the North West Bank best. This might be a reflection of variations in public health education campaigns across different areas or availability to emergency training tools.

Table 4: The difference between BLS awareness levels of students based on demographic data (N=322)

Variables		Mean	SD	Test value	p-value
Gender	Male	7.8346	3.69926	-2.65	0.008
	Female	9.0106	4.05807		
Academic specialization	Nursing	7.9679	4.11384	3.41	0.018
	Physiotherapy	9.5897	3.49223		
	Radiology	8.7727	3.74081		
	Therapeutic Medical Nutrition	9.5192	3.54517		
Educational Degree	Diploma	6.7941	3.95259	-2.72	0.007
	Bachelor	8.7292	3.90696		
Academic Year	2nd Year	7.7586	3.67571	4.84	0.009
	3rd Year	9.4476	4.08322		
	4th Year	8.2923	3.90477		
Previous training with BLS	Yes	8.1575	4.11622	-0.134	0.17
	No	8.7641	3.83093		
Overall, Degree (GPA)	Excellent	6.7037	3.59289	2.32	0.073
	Very good	8.5714	3.97670		
	Good	8.8372	4.04900		
	Poor	8.3077	3.44241		
Area of residence	Hebron	7.6216	4.32483	3.60	0.007
	Bethlehem	8.2197	3.65144		
	Jerusalem	9.2500	4.01584		
	North West Bank	10.2778	3.51008		
	Negev	8.3750	3.94757		

5. Discussion

This study investigates the awareness of health sciences’ students toward the basic life support at Palestine Ahliya University. The results showed that the majority of clinical-year learners received poor scores on BLS knowledge, this is in line with a few recent international studies. For example, a recent study done in Jordan, exhibited a similar pattern: a great number of medical students that did poorly in BLS assessments scored similar trends, especially with practical skills such as proper hand placement for chest compressions [15]. Much like our findings, most students during their clinical years do not have updated knowledge on important aspects of BLS, including areas such as compression depth, rescue breathing for infants, and activation of the EMS [16]. This suggests that mere clinical exposure would not guarantee skills of BLS

mastery have been attained.

In Egypt in a recent study by (Ibrahim et al., 2021), about 5% of the medical students scored above 50% on their BLS exams., which is not far from a significant finding in our results where a big percentage, that is, 62.4, scored below 10 out of 20 in the exam (Ibrahim et al., 2021). This highlights all students' gaps in theoretical understanding regarding BLS, even while in clinical years. Also, in Iran it was noted that the level of awareness was low among most participants [14], at 77.93%. These results contradict A study conducted in Malaysia, revealed a high level of awareness towards basic life support with 85 participants (50.9%)[17]. The reason for the difference in awareness levels between studies could be attributed to different sample sizes, characteristics of the populations. Also, the curriculum and method used in education play a prominent role in influencing the research results.

Regarding the variable of gender, the results indicated that female students scored significantly higher than male students. The students attribute this outcome to the level of academic participation of females and their sensitivity to caregiving-related duties, which aligns with the nature of medical education that focuses on human response and care.

This result is consistent with both the study ([18];[13]) which indicated that females showed greater interest in basic life support courses compared to males, and that they had a higher level of knowledge.

A study showed that the sample individuals specializing in physical therapy and therapeutic nutrition scored higher than those in nursing, despite the fact that nursing requires intensive clinical training. Differences in awareness level of BLS across these specialties even within the same university and same Basic life-support curriculum are probably due to levels of clinical exposure, personal interest, the perceived importance of BLS with respect to their professional roles, and how BLS education is incorporated in the curriculum and practice educators. Although nursing is a clinical discipline, physiotherapy and therapeutic nutrition students may have the benefit of an educational and clinical context with more emphasis on emergency care, and thus a greater awareness and practical applicability of BLS skills. This is supported by a study conducted on health sciences students in Vietnam. It found that nursing had a lower level of awareness than other medical specialties [19].

In the same line with a study done[20],where (59.9%) of physiotherapy participants showed good awareness regarding BLS. On the other hand a study stated that the awareness level of physiotherapy students was poor to average[21], those differences due to different sample size, population characteristics as well as different curriculum and method used in education.

Regarding the outcome related to the degree level, bachelor's degree students are attributed to the fact that the duration of study for a bachelor's degree is longer than that for a diploma, which increases students' knowledge and improves the level of understanding.

This result is consistent with the study which emphasized the importance of including BLS training in all health programs [4], aligning with the clear impact of the duration of study. As for the variable of academic year, the results showed that third-year students achieved higher and better results than other students (second and fourth years), which can be attributed to the fact that This is typically the point at which third year students are introduced to core clinical practice and emergency care scenarios.

The involvement of emergency care practice, hopefully, emphasizes how foundational BLS knowledge and skills will be in students' future career roles. This kind of training affects understanding of theory and practical exercises in the BLS that simulate emergency situations. In contrast, second-year students are less likely to be experienced, while fourth-year students have experienced more (but also, less frequently). Fourth-year students are more advanced than second-year students. This finding demonstrated a gap in basic knowledge among students at different educational levels[6]. Also, the results showed differences among the study sample regarding their places of residence. This can be due to discrepancies in health awareness campaigns or the availability of training in different areas. This found low levels of knowledge in resource-limited areas[7], aligning with the results presented here. In General, we see that the results suggest urgent need for updating educational programs including practical training. Additionally, they focus on the importance of considering geographical and social differences in designing education and training strategies.

6. Conclusion

To assess knowledge, skills, practice, and variables about awareness and understanding of BLS among students of health sciences at PAU. The study revealed a poor awareness and understanding level of BLS among students. Most students scored well below a competent level. The majority of students are involved in incompetent level. These findings point to possible flaws in curricular material or its practical application as well as inadequate instruction. Making BLS a core subject at PAU, creating simulation labs, and regular workshops for BLS. Developers should standardize training modules. Students should practice in groups, researchers should explore BLS awareness, and the ministry of health should require certified BLS training for healthcare jobs.

7. Recommendations

1. Palestine Ahliya University (PAU): Establish simulation labs and organize regular BLS workshops and practical sessions to ensure skill retention.
2. Policy makers: create standardized BLS training modules aligned with international guidelines and Include assessment tools to evaluate both knowledge and skills periodically.
3. Student: Join BLS training and get extra practice through volunteering or simulations, practice with friends in study groups to learn and feel more confident.
4. Researchers: To evaluate BLS awareness, conduct extensive, multi-center research with both medical and non-medical participants.

5. Ministry of Health
• all healthcare occupations must require certified BLS training in order to be licensed or hired.

References

[1] A. R. Panchal *et al.*, "Part 3: Adult Basic and Advanced Life Support: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care," *Circulation*, vol. 142, no. 16_suppl_2, pp. S366–S468, Oct. 2020, doi: 10.1161/CIR.0000000000000916.

[2] A. Mondal *et al.*, "Unfavorable Neurological Outcomes with Incremental Cardiopulmonary Resuscitation Duration in Cardiac Arrest Brain Injury: A Systematic Review and Meta-Analysis," *SN Compr. Clin. Med.*, vol. 6, no. 1, p. 23, Feb. 2024, doi: 10.1007/s42399-024-01652-y.

[3] C. M. Smith, R. Lall, R. T. Fothergill, R. Spaight, and G. D. Perkins, "The effect of the GoodSAM volunteer first-responder app on survival to hospital discharge following out-of-hospital cardiac arrest," *Eur Heart J Acute Cardiovasc Care*, vol. 11, no. 1, pp. 20–31, Jan. 2022, doi: 10.1093/ehjacc/zuab103.

[4] M. Tadesse, S. Assen Seid, H. Getachew, and S. A. Ali, "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)*, vol. 82, p. 104588, Oct. 2022, doi: 10.1016/j.amsu.2022.104588.

[5] Y. A. Alghamdi, T. A. Alghamdi, F. S. Alghamdi, and A. H. Alghamdi, "Awareness and attitude about basic life support among medical school students in Jeddah University, 2019: A cross-sectional study," *J Family Med Prim Care*, vol. 10, no. 7, pp. 2684–2691, Jul. 2021, doi: 10.4103/jfmpc.jfmpc_2557_20.

[6] Z. Mohammed *et al.*, "Knowledge of and attitudes towards cardiopulmonary resuscitation among junior doctors and medical students in Upper Egypt: cross-sectional study," *Int J Emerg Med*, vol. 13, no. 1, p. 19, Apr. 2020, doi: 10.1186/s12245-020-00277-x.

[7] A. J. Abuejheisheh and M. W. Darawad, "A national cross-sectional study on the retention of basic life support knowledge among nurses in Palestine," *BMC Nurs*, vol. 23, no. 1, p. 828, Nov. 2024, doi: 10.1186/s12912-024-02502-x.

[8] H. E. Assaad, B. Osman, M. O. Honeine, P. Abi-Hanna, and M. N. Chahine, "Knowledge, Attitude, and Practice of the Lebanese University Medical Students and Junior Doctors on Basic Life Support Practices," *Global Heart*, vol. 19, no. 1, Nov. 2024, doi: 10.5334/gh.1368.

[9] E. Albazee *et al.*, "Basic life support awareness level among medical students in Jordan: a cross-sectional study," *Frontiers in Emergency Medicine*, vol. 6, no. 1, pp. e1–e1, 2022, doi: 10.18502/fem.v6i1.7673.

[10] M. F. Kassabry, "The effect of simulation-based advanced cardiac life support training on nursing students' self-efficacy, attitudes, and anxiety in Palestine: a quasi-experimental study," *BMC Nurs*, vol. 22, no. 1, p. 420, Nov. 2023, doi: 10.1186/s12912-023-01588-z.

[11] M. S. Alkarrash *et al.*, "Basic life support awareness among medical undergraduate students in Syria, Iraq, and Jordan: a multicenter cross-sectional study," *Int J Emerg Med*, vol. 16, no. 1, p. 44, Jul. 2023, doi: 10.1186/s12245-023-00521-0.

[12] K. Kwiecień-Jaguś, W. Mędrzycka-Dąbrowska, N. Galdikienė, G. Via Clavero, and M. Kopeć, "A Cross-International Study to Evaluate Knowledge and Attitudes Related to Basic Life Support among Undergraduate Nursing Students-A Questionnaire Study," *Int J Environ Res Public Health*, vol. 17, no. 11, p. 4116, Jun. 2020, doi: 10.3390/ijerph17114116.

[13] M. Baklola *et al.*, "Assessing basic life support awareness, and knowledge among university undergraduates: a cross-sectional study," *Ann Med Surg (Lond)*, vol. 87, no. 3, pp. 1251–1258, Mar. 2025, doi: 10.1097/MS9.0000000000003076.

[14] M. Akhlaghdoust *et al.*, "Awareness of Iranian Medical Sciences Students Towards Basic Life Support; a Cross-Sectional study," *Arch Acad Emerg Med*, vol. 9, no. 1, p. e40, 2021, doi: 10.22037/aaem.v9i1.1231.

[15] L. Al-Husinat *et al.*, "Assessment of Basic Life Support Knowledge Among Medical Students in Jordan: Implications for Improving Out-of-Hospital Cardiac Arrest and Road Traffic Accident Survival Rates," *Cureus*, vol. 15, no. 12, p. e50080, Dec. 2023, doi: 10.7759/cureus.50080.

[16] R. Raghavendra *et al.*, "Awareness about basic life support among undergraduate medical students before and after clinical exposure in a tertiary care hospital attached to a medical school in South India," *Asian Journal of Medical Sciences*, vol. 15, no. 4, pp. 141–146, Apr. 2024, doi: 10.3126/ajms.v15i4.60973.

[17] N. Z. Azlan, N. H. M. Noor, and N. Othman, "Knowledge, Attitude and Awareness of Basic Life Support Among Health Sciences University Students," *INTERNATIONAL JOURNAL OF CARE SCHOLARS*, vol. 4, no. Supp1, pp. 4–12, Dec. 2021, doi: 10.31436/ijcs.v4iSupp1.188.

[18] L. A. Alzelfawi *et al.*, "Readiness of University Students in Riyadh to Participate in Basic Life Support Programs: A Cross-Sectional Study," *Cureus*, vol. 16, no. 7, p. e64749, Jul. 2024, doi: 10.7759/cureus.64749.

[19] Duong T. N. B. and Ha T. T., "Awareness about basic life support among health science students at Duy Tan University," *Tạp chí Khoa học Điều dưỡng*, vol. 7, no. 02, pp. 42–51, Mar. 2024, doi: 10.54436/jns.2024.02.745.

[20] R. Pandit and A. K. Berry, "Awareness, Knowledge and Attitude about Basic Life Support among Interns of Maharashtra University of Health Science's Affiliated Physiotherapy Colleges in Pune City: A Questionnaire Based Study," no. 6, 2020.

[21] V. Thakkar and S. Kagdi, "Evaluation of Awareness and Knowledge of Basic Life Support Among Physiotherapy Students," *Int J Health Sci Res*, vol. 14, no. 8, pp. 21–30, Aug. 2024, doi: 10.52403/ijhsr.20240804.