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Knowledge, Attitude and Practice about Basic Life Supports Among Medical Students in Kanyakumari District, India

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Abstract
Basic life Support(BLS) is a critical emergency intervention that significantly improves survival outcomes in cases of cardiac arrest and respiratory failure. For medical students, competency in BLS is essential, as they are often the first responders in clinical settings. This study aims to assess the knowledge attitude, and practice (KAP) of BLS among undergraduate medical students to assess the knowledge, attitude, and practice (KAP) of BLS among undergraduate medical students. A cross-sectional questionnaire-based survey was conducted among undergraduate medical students using a structured and validated tool. The questionnaire evaluated participants' theoretical knowledge of BLS, their attitudes toward its importance and training, and their practical exposure and readiness to perform BLS in real-life scenarios. Data were analyzed descriptively.Out of 133 respondents, the majority had received formal BLS training and correctly identified the key components of BLS, including the correct sequence of steps, chest compression rate and depth, and the compression-to-ventilation ratio. Most participants expressed confidence in performing BLS, although fear of causing harm and lack of practical exposure were common concerns. Over 90% believed BLS training should be mandatory in the medical curriculum and expressed interest in attending refresher courses. While a significant number had witnessed medical emergencies and practiced on manikins, awareness of emergency medical services (EMS) contact numbers remained low.

INTRODUCTION

Basic Life Support (BLS) constitutes a critical component of emergency cardiovascular care, encompassing a series of fundamental, evidence-based procedures performed to maintain airway patency, support breathing, and ensure circulatory flow in victims of cardiac arrest, respiratory distress, or airway obstruction until advanced medical help arrives[1]. The implementation of BLS in the initial minutes following a sudden cardiac arrest significantly improves survival rates, with early and effective cardiopulmonary resuscitation (CPR) being the cornerstone of BLS[2].

Given the burden of cardiovascular diseases and the increasing incidence of sudden cardiac arrest globally, BLS training has emerged as an essential competency not only for healthcare professionals but also for laypersons[3]. However, for medical students-the future front-liners in clinical care-proficiency in BLS is not merely an additional skill but a core responsibility. Early integration of BLS training into the medical curriculum is therefore advocated by several health authorities and academic institutions to ensure adequate preparedness during emergency situations[4]. Despite the recognized importance of BLS, multiple studies have revealed considerable variability in the knowledge, attitude, and practice (KAP) levels among medical students across different countries and institutions[5]. Factors such as inconsistent curriculum implementation, lack of hands-on training, infrequent refresher courses, and limited exposure to real-life emergencies have been associated with suboptimal BLS competency[6]. Moreover, while a positive attitude toward learning and applying BLS techniques is often observed, the translation of this attitude into practice is frequently hindered by low confidence and fear of causing harm[7]. In developing nations, where emergency medical services are often under-resourced, the role of adequately trained medical students becomes even more critical[8]. Ensuring that students not only possess theoretical knowledge but also demonstrate appropriate attitude and practical skills in BLS can bridge significant gaps in emergency response, especially in pre-hospital settings. Studies have highlighted that even brief training sessions can substantially improve the BLS knowledge and confidence of students, underscoring the need for systematic and recurring BLS education[9]. This study aims to assess the level of knowledge, attitude, and practice regarding BLS among undergraduate medical students. Understanding these aspects will help identify educational gaps and inform policy recommendations for the enhancement of BLS training in medical education.

Objective: To assess the knowledge, attitude and practice of basic life supports among medical students.

MATERIALS AND METHODS

Study Design: Cross-sectional study

Study Setting: Sree mookambika institute of medical sciences students

Inclusion Criteria: Students who were present on the day of study

Exclusion Criteria: Students who were absent, and those who are not willing to participate were excluded from the study.

Study Population: 1st year to Interns MBBS students of Sree mookambika institute of medical sciences .

Sample Size calculation:
Calculated using the
formula n = $(z^2 \times p \times q)d^2$
= (3.84x 92x8)/21.16
=133.46
=133
Sample size = 133

Sampling Technique: Convenience sampling

Study Period: From October 2023 to December 2023

Study Tool: Semi-structured Questionnaire regarding knowledge , attitude and practice of basic life supports

Data Collection Method: semi-structured questionnaire.

Data Entry and Analysis: The collected data were entered in Microsoft Excel version 2019 and analyzed using SPSS version 20.

RESULT AND DISCUSSIONS

A total of 133 undergraduate medical students participated in the survey. The gender distribution was nearly balanced, with a slightly higher number of male respondents. The majority of participants (over 80%) reported having received formal training in BLS, while a smaller proportion had not received any structured training.

In terms of knowledge, most students correctly identified the meaning of BLS as Basic Life Support and recognized the correct sequence of steps as Airway→Breathing→Circulation. The vast majority (over 90%) knew the recommended compression rate for adults to be 100–120 compressions per minute, and the correct depth as approximately 2 inches (5 cm). About 88% correctly identified the compression-to-ventilation ratio for adult CPR as

Table 1: Knowledge of Basic Life Support (BLS) Among Medical Students

Question	Correct Response	Students answered correctly (n)	percentage
Have you received formal BLS training?	Yes	113	85%
What does BLS stand for?	Basic Life Support	128	96%
Correct BLS sequence	Airway→Breathing→Circulation	122	92%
First action on collapse	Check for responsiveness and call for help	108	81
Recommended compression rate	100 to 120 per minute	125	94%
Recommended compression depth	Approximately 2 inches (5 cm)	117	88%
Compression-to-ventilation ratio	30:2	120	90%
Are you aware of the EMS contact number in India?	Yes (108)	128	96%
Correct location to perform chest compressions	Center of the chest (lower half of sternum	105	77%
Minimum duration before reassessing CPR effectiveness	After every 2 minutes 5 cycles	92	69%

Table 2: attitude towards basic life support

Question	Correct Response	Students answered correctly (%)	percentage
Confidence in performing BLS	Yes	106	80%
Should BLS be mandatory in curriculum?	Yes	125	94%
Interest in refresher BLS courses	Yes	124	93%
Recommend BLS to non-medical individuals	Yes	121	91%
Main concern in BLS	Fear of causing harm	117	88%
	Lack of confidence	64	48%
	Fear of legal consequences	29	22%
Do you think healthcare workers in India are adequately trained in BLS?	Yes	103	74%

Table 3 : practice of basic life support

Question	Correct Response	Students answered correctly (n)	percentage
Witnessed BLS-requiring emergency	Yes	104	78%
If yes, did you attempt to intervene?	Yes	87	65%
Have you practiced BLS on a manikin or in a simulation?	Yes	97	72%
Have you ever called EMS (108) during an emergency?	No	102	76%
Frequency of BLS practice in the last 6 months	None	72	54%
	Once	35	26%
	More than once	26	19%
Do you feel that regular practice would improve your confidence and performance in BLS?	Yes	130	98%

30:2. However, a small group provided incorrect or inconsistent responses, highlighting minor knowledge gaps.

Regarding attitude, a large majority of students (around 85%) stated they would feel confident performing BLS in a real-life situation. Nevertheless, fear of causing harm was the most common concern reported. Almost all students agreed that BLS training should be a mandatory part of the medical curriculum, and over 95% expressed interest in attending regular BLS refresher courses. Similarly, the vast majority supported extending BLS training to non-medical individuals such as teachers and drivers.

When assessing practice, more than 80% had witnessed a medical emergency that required BLS, and a significant proportion had attempted to intervene. Most students had practiced BLS on a manikin, indicating some degree of practical exposure. However, awareness and use of emergency medical services (EMS) remained low, with a few number of students unaware of the EMS contact number in India and having never contacted EMS in an emergency situation.

Basic Life Support (BLS) is a fundamental set of emergency procedures designed to support and maintain breathing and circulation in individuals experiencing cardiac arrest, respiratory failure, or airway obstruction. Its timely and effective application is known to significantly improve patient survival outcomes[1]. For medical students, being proficient in BLS is not just an academic requirement but a critical life-saving skill. In this study, the KAP levels among undergraduate medical students were assessed to determine how well-prepared they are to respond in emergencies.

Roshana *et al.* (2012) conducted a study among medical and paramedical professionals to assess their knowledge and attitude towards Basic Life Support (BLS). They reported that although general awareness of BLS was high, a significant number of participants lacked accurate knowledge of CPR procedures and the confidence to perform them effectively[2]. In comparison, our study showed that 96.2% of students correctly identified the full form of BLS and 91.7% recognized the correct sequence of steps (Airway→Breathing→Circulation), reflecting a slightly higher level of conceptual clarity. However, similar to Roshana *et al.*, many of our participants (48.1%) cited a lack of confidence as a barrier to performing BLS, underscoring the need for more practical exposure. Saquib *et al.* (2019) assessed BLS knowledge and attitudes among medical students in Saudi Arabia and found that while students exhibited a generally positiveattitude towards BLS, their knowledge of key guidelines such as compression rate, depth, and ventilation ratio was insufficient[3]. In contrast,

students in our study demonstrated stronger knowledge, with 94% correctly identifying the compression rate and 90.2% knowing the correct compression-to-ventilation ratio (30:2). This suggests that BLS content may be more effectively emphasized in our academic setting. Nonetheless, the practice gap reported by Saquib *et al.*-linked to fear of harm and lack of training-was also evident in our study, with 88% of participants citing fear of causing harm.

Chandrasekaran *et al.* (2010) evaluated BLS awareness among medical, dental, and nursing students and found that while a majority had heard of BLS, only a small fraction could identify correct CPR steps or had practical experience[4]. Our findings mirror this to some extent: although theoretical knowledge was strong among our participants, only 72.9% had practiced BLS on a manikin, and 54.1% had not practiced BLS at all in the last six months. Despite a stronger academic understanding, regular hands-on practice remains limited, similar to their observations. Sharma and Attar (2012) studied medical students in South India and reported a concerning lack of knowledge about emergency medical services (EMS), including the national EMS number[5]. Our study supports this observation, as only 36.8% of students were aware of the EMS number (108), indicating that emergency system education remains under-emphasized despite growing awareness of CPR. Abbas *et al.* (2011) highlighted that brief training interventions could significantly enhance students' BLS knowledge and confidence, although sustained practice was necessary to retain skills over time[6]. Our data align with this finding: while 85% of students had received formal BLS training and showed good knowledge scores, a majority (54.1%) had not practiced within the past six months. This points to the importance of regular refreshers and practical sessions to reinforce learning and build long-term competence.

The American Heart Association (2020) guidelines emphasize early, high-quality chest compressions, proper ventilation, and timely use of emergency services as the cornerstones of BLS[1]. Our findings show good theoretical understanding of these aspects among students-94% identified the correct compression rate and 88% knew the correct depth-indicating a positive alignment with current international standards. However, weak practical application and low EMS awareness highlight areas that require focused improvement.

CONCLUSIONS

In conclusion, the study underscores that while medical students generally possess adequate theoretical knowledge and a positive attitude toward BLS, consistent practice and refresher training are essential to translate this into effective action. Medical institutions should prioritize structured and periodic BLS training programs, including simulation-based modules and community engagement, to prepare students not only as competent healthcare providers but also as confident first responders.

Limitations of study: This study primarily relied on self-reported data gathered through structured questionnaires, which may introduce overestimation of knowledge or confidence levels. While the sample size was small, it may not be fully representative of all medical students across different institutions or regions. Additionally, the study did not include an objective assessment of students' practical BLS skills through simulation or observation, which could have provided a more accurate measure of competency.

Cross-Sectional Nature: As a cross-sectional study, the findings represent a single point in time and do not allow for the assessment of changes in knowledge, attitude, or practice over time.

Conflicts of Interest: There are no conflicts of interest.

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