

Original Research Article

A COMPARATIVE CROSS-SECTIONAL STUDY ON KNOWLEDGE AND ATTITUDE OF UNDERGRADUATE MEDICAL STUDENTS ON BASIC LIFE SUPPORT IN A TERTIARY CARE CENTRE, SOUTH KERALA

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 Received
 : 07/03/2025

 Received in revised form : 04/05/2025

 Accepted
 : 29/05/2025

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DOI: 10.70034/ijmedph.2025.2.392

Source of Support: Nil, Conflict of Interest: None declared

Int J Med Pub Health 2025; 15 (2); 2180-2183

ABSTRACT

Background: Cardiac arrest is an unexpected medical emergency which leads to death if not intervened immediately. Basic life support can save lives. Medical profession demands knowledge and skill on BLS. Various studies found out gaps in knowledge among medical students. Medical council of India introduced foundation course for first year undergraduate students for learning basic skills in medical profession from 2019 onwards. The objective of the study was to compare the knowledge and attitude on BLS among first year MBBS students who received BLS training and the students who did not receive BLS training.

Materials and Methods: An institution based cross-sectional study was done among 198 students from first year and second year MBBS, using a predesigned, pretested, self-administered questionnaire. The quantitative variables are expressed in means and standard deviation and qualitative variables are expressed in percentages. Unpaired t test was done as the statistical test and a p value less than 0.05 was considered statistically significant.

Results: The mean age of the total study participants was 19.91 years. Among the total study participants 110 were females and 88 were males. The mean knowledge score among the students who were trained was 7.91 (\pm 1.693) and that among students who were not trained was 6.53 (\pm 2.380) and this association was found to be statistically significant.

Conclusion: There is a significant difference in the knowledge level of students who had training on BLS compared to other students who did not have training on BLS.

Keywords: Knowledge, BLS, Medical students.

INTRODUCTION

Cardiac arrest is a medical emergency which can occur at any age, anytime and anywhere without warning. It is due to an electrical malfunction in the heart leading to irregular heartbeat. This irregularity will disrupt the pumping action of heart resulting in decreased perfusion to the brain, lungs and other vital organs. Ultimately, a person loses consciousness and absent pulse. If immediate intervention is not done death can occur within minutes.^[1] 80% cases of sudden cardiac arrest are due to coronary artery disease, which is the prime cause of death worldwide. According to WHO, 17.9 million deaths occur each year due to the same all over the world.^[2] Early detection of signs and timely initiation of resuscitative effort can improve the survival rate in cardiac arrest.^[3] Basic life support (BLS) is the foundation for saving lives after cardiac arrest. It is the immediate type of care given to a victim until they can be given full medical care at hospital.^[4] By providing BLS, adequate ventilation and circulation can be maintained until a means can be obtained.^[5] Individuals in the community, at least the health care professionals should know how to perform BLS as they encounter such situation very often,^[1] as these emergencies are somewhat more likely to occur within the confines of a hospital.^[6] Various studies imply that the knowledge regarding BLS among medical students is insufficient. The Medical Council of India identified that lack of training has affected the outcome of medical graduates in performing BLS and this paved the way for inclusion of BLS training as a part of foundation course for first year MBBS students. The Foundation Course for the Undergraduate Medical Education Program by the Medical Council of India, is being implemented from the academic year 2019-2020. Training was given by demonstrating individual skills of BLS followed by hands on practice of each skill.^[7] The primary objective of this study was to compare the knowledge on BLS among first year MBBS students who received BLS training and the students who did not receive BLS training.

The Secondary objective was to find out the attitude on BLS training among MBBS students who received training in BLS and those who did not receive training in BLS.

MATERIALS AND METHODS

An institution based cross-sectional study was done at Dr Somervell Memorial C S I Medical College and Hospital, Karakonam, Thiruvananthapuram District in Kerala after obtaining approval from the Institutional Ethics Committee. It is a 650 bedded private tertiary care teaching institute. The students were grouped into two, with first group comprising of first year MBBS students who had BLS training as a part of foundation course and second group comprising of second year MBBS students who did not have BLS training. First year students who were not present during the foundation course and students who were continuously absent on 3 consecutive days during data collection were excluded from the study. The sample size was scientifically calculated to be 108 for each group by taking P1 as proportion of good knowledge before intervention (5%) and P2 as

proportion of good knowledge after intervention (63%) among the study population.^[8]

The number of students in both the batches during the year of study was 100 each and hence the entire students from both batches was considered for the study. Finally based on the inclusion criteria, data was collected from 100 students who were not trained and 98 students who were trained in BLS. A self-administered Predesigned. pretested, questionnaire was given to the students in both the groups. Second year students were approached during lecture hours and first years during their practical hours, after seeking permission from Head of the Departments of concerned departments. They were given 15 minutes to fill the questionnaire at the end of lecture or practical hours. For reaching the calculated sample size, students were approached on 3 consecutive days. Students who were continuously absent on these 3 days were excluded from the study. Data was entered in MS Excel and analysed using appropriate statistical software (SPSS 21.0). The quantitative variables are expressed in means and standard deviation and qualitative variables are expressed in percentages. Unpaired t test was done to compare the mean score between the two groups.

RESULTS

The total number of study participants were 198 with a response rate of 99%. The number of students who were trained in BLS (First year MBBS students) were 98 and students who were not trained in BLS (Second year MBBS students) were 100. The minimum and maximum age of total study participants were 17 years and 24 years respectively. The mean age among the study participants was 19.91 years with standard deviation of 1.221 years. Among the total study participants 110 were females and 88 were males. Knowledge on BLS among study participants There were 16 questions for assessing the knowledge on BLS. For each question, a score of 1 was given for right answer and score of 0 for wrong answer. The total minimum score that could be obtained is 0 and maximum score that could be obtained is 16.

Table 1: Assessment of knowledge among study participants.					
Questions on Basic Life support	Students traine	ed in BLS (n= 98)	Students not trained in BLS (n=100)		
	Score 1	Score 0	Score 1	Score 0	
1)Full form of BLS	95 (96.9%)	3 (3.1%)	82 (82%)	18 (18%)	
2)CAB in CPR stands for	94 (95.9%)	4 (4.1%)	87 (87%)	13 (13%)	
3)Full form of CPR	89 (90.8%)	9 (9.2%)	78 (78%)	22 (22%)	
4)First response on seeing an unconscious	44 (44.9%)	54(55.1%)	21 (21%)	79 (79%)	
patient in the ward					
5)CPR aims to restart heart (true or false)	10 (10.2%)	88(89.8%)	18 (18%)	82 (82%)	
6)Characteristics of high quality CPR	77 (78.6%)	21(21.4%)	68 (68%)	32(32%)	
7)Location for chest compression	67 (68.4%)	31(31.6%)	41 (41%)	59(59%)	
8)Rate of compressions per minute	22 (22.4%)	76(77.6%)	21 (21%)	79(79%)	
9)Depth of compression	32 (32.7%)	66(67.3%)	38 (38%)	62(62%)	
10)How long should a pulse check last?	34 (34.7%)	64(65.3%)	17 (17%)	83(83%)	
11)Pulse in an adult checked at	15 (15.3%)	83(84.7%)	24 (24%)	76(76%)	
12)Infants responsiveness checked by	68 (69.4%)	30(30.6%)	56 (56%)	44(44%)	
13)Infants pulse checked in which artery	15 (15.3%)	83(84.7%)	25 (25%)	75(75%)	
14)Chest compression and ventilation ratio in	63 (64.3%)	35(35.7%)	20 (20%)	80(80%)	
adults					

15)AED stands for	27 (27.6%)	71(72.4%)	32 (32%)	68(68%)
16)Steps of operating AED	24 (24.5%)	74(75.5%)	25 (25%)	75(75%)

Among the study participants in both the groups, majority (96.9% and 82 %) of them knew about the correct full form of BLS.68.4% among the students who were trained in BLS knew about the correct location for chest compression, while more than half (59%) of them who were not trained in BLS were unaware of the same. Majority (64.3%) among those who were trained were aware about the ideal ratio of chest compression and ventilation in adults, while only 20 % among the untrained knew the same. [Table 1]

Unpaired t test was done to compare the means among the two groups and a p value less than 0.05 was considered statistically significant.

Table 2: Mean score of knowledge among study participants				
Study participants	Mean knowledge score	Standard deviation	P value	
First year students (n= 98)	7.91	1.693	< 0.001	
Second year students (n=100)	6.53	2.380		

Among the study participants, the mean score (7.91) was more among students who have undergone training compared to the mean score (6.53) of the students who were not trained and this association was highly statistically significant. [Table 2]

The knowledge scores were categorised into poor knowledge (0-4 scores), average knowledge (5-8 scores), good knowledge (9-12 score) and excellent knowledge (13-16 scores).

Table 3: Knowledge score distribution in various categories among the study participants						
Study participants Poor knowledge Average knowledge Good Knowledge Excellent knowledge						
	(0-4 scores) (%)	(5-8 scores) (%)	(9-12 scores) (%)	(13-16 scores) (%)		
First year students (n=98)	4 (19)	60 (48.8)	33 (63.5)	1 (50)		
Second year students (n=100)	17 (81)	63 (51.2)	19 (36.5)	1 (50)		

Among the study participants, those students who were trained had good knowledge (63.5%) in BLS when compared to those students who were not

trained (36.5%) in BLS and this association was statistically significant with a p value of 0.006. [Table 3]

Factors associated with knowledge in BLS

Table 4: Association of factors associated with knowledge in BLS					
Factors associated with	Poor	Average	Good Knowledge	Chi-Square	p value
knowledge in BLS	Knowledge	Knowledge		value	
Gender					
Male	24 (57.1%)	54 (42.2%)	10 (35.7%)		
Female	18 (42.9%)	74 (57.8%)	18 (64.3%)	3.87	0.144
BLS Training					
Received (n=98)	6 (14.3%)	75 (58.6%)	17 (60.7%)	26.47	<0.00001*
Not received (n=100)	36 (85.7%)	53 (41.4%)	11 (39.3%)		

Among all the study participants, females (64.3%) had good knowledge compared to males (35.7%). Based on the whether training was received or not, among the students who were trained, 60.7% had good knowledge while only 39.3% of the students who were not trained had good knowledge about BLS and the association was statistically significant. [Table 4]

Attitude of the study participants on BLS training There were 4 questions for assessing the attitude of students on BLS training.

Table 5: Attitude of study participants on BLS training			
Questions on attitude	First year MBBS students who had training (n=98)	Second year MBBS students who did not have training (n=100)	
Positive attitude on need for BLS training	50.3%	49.7%	
Positive attitude on whether the training on BLS should be made mandatory	55 %	45 %	

Among the study participants, 50.3 % who were trained and 49.7 who were not trained, have a positive attitude towards BLS training. 55% among the trained and 45 % among the untrained thinks that the BLS training should be made mandatory in the curriculum.

DISCUSSION

Medical professionals are the ones who have frequent encounter with medical emergencies and sudden cardiac arrest is one among them. Proper and regular training on BLS starting from first year of their medical life is therefore imperative. Good knowledge and proper skill development on BLS can effectively save lives.

The results of this study show that there is a significant knowledge gap between the students who received training and the students who did not receive

training. This stresses the importance of giving BLS training at the start of their medical life.

Comparing the results obtained in this study with other studies conducted, in a study conducted in coastal South India, the proportion of males (53.3%) was slightly higher than females (46.7%) which is similar to the current study where 56 % were females and 44 % were males.^[9]

Fable 5: Discussion of results with other similar studies.						
Study variable	Current study	International study, ^[10]	Indian study, ^[11]	Kerala study, ^[12]		
Knowledge score	Good knowledge-14.1 %	Poor knowledge scores-	Good knowledge-67%	Good knowledge-3.7%		
	Poor knowledge- 21.2%	87.9%		Poor knowledge- 31.1%		
Attitude on BLS	More than 50% -positive	More training needed -77%	Positive attitude on BLS	Positive attitude towards		
	attitude on BLS training	Supported mandatory BLS	training	BLS training-97.5 %		
	_	training- 78.5%	-	_		

Almost all participants (98.76%) in a study conducted in Shillong, thought that BLS is necessary, in contrast to the current study where, almost 50 % of students each among both the groups had a positive attitude towards training. And while 94.34% of participants think that it should be a part of the teaching curriculum, only 55% among trained and 45 % among untrained students in the current study thinks that the training should be made mandatory.^[13]

CONCLUSION

There is a significant difference in the knowledge level of students who had training on BLS compared to other students who did not have training on BLS, and also students had a positive attitude towards the need for having BLS training. The findings in this study shows that BLS training implemented as a part of foundation course from first year MBBS 2019 onwards by the Medical Council of India, has a great impact on the knowledge level of students. Regular and frequent training programs during the MBBS course can improve the knowledge and skill of the undergraduate students. BLS is an important skill that should be practiced by all the healthcare professionals. So adequate training should be made mandatory for healthcare individuals as a part of their course.

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