

Awareness and Knowledge of Basic Life Support among Intern Doctors, Medical Students and Nursing Staff in Tertiary Care Hospital in West India

Mayur Kalsariya¹, Mukesh Rathod², PB Gupta³, Avinash P Sharma⁴

Author's Affiliation:

^{1,2,4}Resident, ³Professor & Head, Department of Emergency Medicine, Government Medical College, Surat, Gujarat 395001, India.

Corresponding Author:

Mukesh Rathod, Resident, Department of Emergency Medicine, Government Medical College, Surat, Gujarat 395001, India.

E-mail: researchexpert08@gmail.com

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Abstract

Background: To study the level of awareness and knowledge of BLS among Intern Doctors as well as undergraduate students of medical profession and nursing staff in Government Medical College, Surat. Diagnosis, effective management and prevention of life-threatening emergencies are the responsibility of health-care professionals. Life-threatening emergencies can be successfully managed by achieving accurate BLS skills. It was a cross-sectional study was conducted with the help of case record pro forma which included basic questions related to BLS. Out of 273 responders 99 were intern doctors, 90 medical students, and 84 were from nursing staff. Among them 128 were male and 148 were female responders. The overall mean score of awareness was 11.37 + 3.27 (score range 0-20). Out of 273 only 20 (7.33%) had scored 81-100% marks, 75 (27.47%) out of 273 scored 61-80% marks, 117 (42.86%) out of 273 scored 41-60% marks, 59 (21.61%) scored 21-40% marks and only 2 (0.73%) had scored 0-20% marks. The statistical analysis was carried out using MS Excel and SPSS version 20 software. Our participants have knowledge and awareness about the basic life support as the BLS training has the part of our curriculum since last year in department of emergency medicine.

Keywords: Basic life support; CPR; AED awareness.

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Introduction

Basic Life Support (BLS) is a first-aid resuscitation is often used in emergency medical situations till the patient under the care of tertiary level medical importance when individuals found to be facilities. Basic life support techniques are of utmost choking, drowning, unconscious, or suffering from cardiac arrest. Such accidents happen anytime, since India is a developing country, and there is an evidence of industrialization and modernization. The chances of accidents increased due to more complex lifestyles.

Hence, Knowing the accurate and proper steps in providing Basic Life Support can create significant difference between life and death. It may reduce the mortality due to such accidents. Knowledge of Basic life support (BLS) usually includes identification of various danger signs such as sudden cardiac arrest, heart attack, foreign-body airway obstruction, cardiopulmonary resuscitation and defibrillation with an automated external defibrillator.^{1,2}

Adequate knowledge and awareness about Basic life support and cardiopulmonary resuscitation is a vital issue to ensure that individuals can

deliver necessary life-saving measures in cases of emergency.^{2,3} It is expected that health care professionals should have a sound knowledge about Basic life support as they encounter an emergency situation very often.⁴ Health care professionals should be competent and confident enough to resuscitate from the very beginning of their courses. In the American countries, Basic Life Support training course has been suggested for all health care providers since 1966,⁵ particularly to those who are involved in resuscitation.⁶

The level of knowledge and attitude of health care professionals are variable as evidenced by several surveys conducted in different parts of the world. The demand for Basic life support courses is ever increasing in the developed countries. However, in the underdeveloped and developing countries, training is not routinely practiced. A survey conducted in a hospital setup of Nepal revealed that the medical and paramedical professionals are lacking adequate knowledge of CPR/BLS.⁷ Another study conducted by Vinej *et al.* evaluating the dental interns in a subpopulation of India, showed that there was an obvious lack of knowledge related to the management of medical emergencies. Data from the study revealed that 39.89% had below average knowledge regarding BLS.⁶ Hence from the previous review of literature it was evident that accurate and proper knowledge and skills about BLS and CPR was lacking among the healthcare providers at peripheral levels and paramedical workers, even medical students were lacking in accurate skills.

Hence, the present study was conducted to assess the awareness, knowledge, and skills involved in basic life support among medical students and nurses.

Materials and Methods

A cross-sectional study was conducted among intern doctors, medical students and nursing staff of the Government Medical College, Surat, Gujarat, India. A self-administered pre-tested questionnaire having 20 questions was used for data collection during the study period (January 2018-March 2018). The inclusion criteria were all medical students, intern doctors and nursing staff who were present and willing to participate in the survey. Those who were on leave or unwilling to participate were excluded from the study. The questionnaire had 20 questions about the abbreviation of Basic Life Support, EMS, AED, and sequential steps in the BLS and assessment and resuscitation techniques with regard to airway, breathing and circulation in unresponsive victims, techniques regarding removal of foreign body. The questionnaire was pre-tested by trained professionals who are currently involved in many Basic Life Support and ACLS training programs. Results were analyzed using MS Excel and SPSS version 20 software.

Results

The present cross-sectional study was conducted among total of 401 participants. Out of them 128 questionnaires were found to be incomplete and excluded from the final analysis. Out of the 273 completed forms 99 participants were intern doctors, 90 medical students and 84 nursing staff. 128 responders were males whereas 145 were females. The mean score of the participants was 11.37 ± 3.27 (range of marks obtained 1–19). Nearly 60% of the participants had scored above 50% while only 1.8% had scored below 25% (Figs 1, 2 and 3).

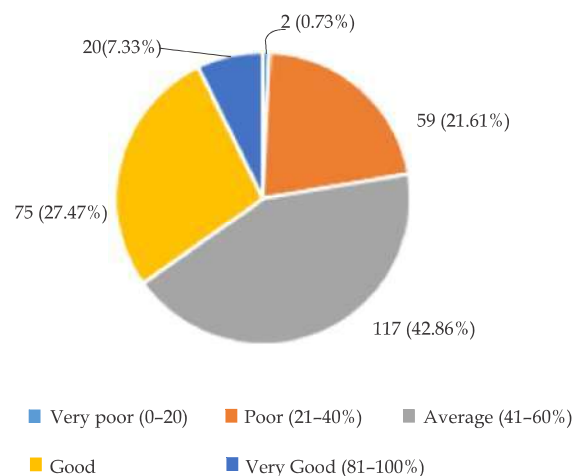


Fig. 1: Distribution of study participants according to profession

Table 1: Association between Mean Total Scores and Level of profession

Score	Intern doctors	Medical students	Nursing staff	Total	Chi Square	p-value
16-20	16	09	07	32	3.076	0.2148
11-15	57	48	26	131	14.44	0.0007
06-10	26	32	47	105	17.40	0.0001
00-05	00	01	04	05	6.119	0.0460
Total	99	90	84	273		

As seen in Table 1, statistically significant association is found between level of professional training and higher total score in BLS awareness. As seen in Table 2, the mean total score of intern

doctor was 12.27 ± 2.92 which was higher than that of medical students (11.67 ± 3.16) and nursing staff (9.97 ± 3.34). The difference in the mean total score of interns and medical students was not statistically

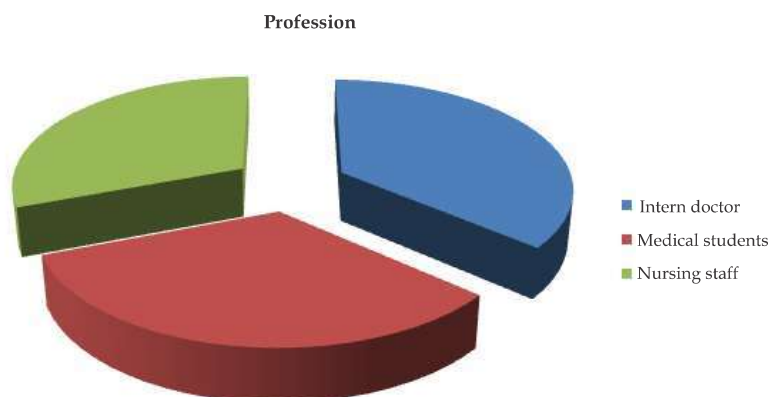


Fig. 2: Distribution of study participants according to Gender

Table 2: Comparison of Mean Scores between Different Levels of Profession

Profession	Number	Mean total score	SD	p-value
Interns	99	12.27273	2.920086	
Medical students	90	11.67778	3.165217	
Nursing staff	84	9.97619	3.347275	<0.05

significant ($p\text{-value} = 0.1822$) whereas the difference in the mean score of interns and medical students with nursing staff was statistically significant ($p\text{-value} < 0.1822$).

As seen in the Table 3, no significant association is found between gender and mean total score, showing that BLS awareness and knowledge is not influenced by gender.

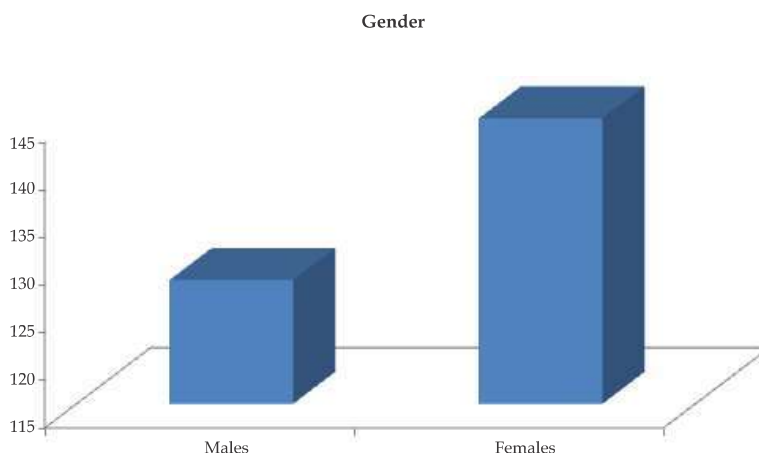


Fig. 3: Performance of study participants according to score

Table 3: Distribution of Scores according to Gender of Participants

Score	Male	Female	Total	Odds ratio	Chi square	p-value
16-20	16	16	32	1.15	0.1411	0.07
11-15	59	72	131	0.8674	0.3455	0.5567
06-10	50	55	105	1.049	0.0367	0.8479
00-05	03	02	05	1.713	0.0198	0.888
Total	128	145	273			

Discussion

The present study was conducted among 273 respondents. Out of them 99 participants were intern doctors, 90 medical students, and 84 nursing staff. 128 responders were males whereas 145 were females. In the study conducted by Roshana Shreshtha *et al.*⁹ out of 121 total participants, 27 were doctors, 21 were dentists, 29 resident medical officers, and 44 nurses and health assistants. The mean age of the participants was 30 ± 8 years. 56% of the total study subjects were males and 44% were female.

Ritesh Gajjar *et al.* in their study among intern doctors observed that the age of the participants (n=122) were ranged from 22-26 years (average 22.7 years). Out of all the participants, seventy two (59%) were male and fifty (41%) were female.

The mean score of the participants was 11.37 ± 3.27 (range of marks obtained 1-19). Nearly 60% of the participants had scored above 50% while only 1.8% had scored below 25%.

Roshana Shreshtha *et al.*⁵ in their study observed that the number and percentage of knowledge score of the participants is listed in Table 2. The percentage of correct answer varied from 19% to 96.7%. The mean score for the participants was 6.6 with a median score of 7 (ranged 1 to 14 for 15 questions). Nine (7.4%) of 121 participants had a score of ≥ 11 , 53 (43%) 7-10, and 58 (48%) < 7 .

In the present study we observed a statistically significant association is found between level of professional training and higher total score in BLS awareness. The mean total score of intern doctor was 12.27 ± 2.92 which was higher than that of medical students (11.67 ± 3.16) and nursing staff (9.97 ± 3.34). The difference in the mean total score of interns and medical students was not statistically significant (p -value = 0.1822) whereas the difference in the mean score of interns and medical students with nursing staff was statistically significant (p -value < 0.1822).

According to Roshana Shreshtha *et al.*⁵ the mean knowledge score was significantly different among different staff (clinical and dental/basic faculty

members, $p < 0.001$). Those participants who were involved in resuscitation frequently had a significantly higher median score than those who were seldom involved or not involved at all ($p = < 0.001$).

No significant association is found between gender and mean total score, showing that Basic Life Support awareness and knowledge is not influenced by gender.

As mentioned in Table 4, we assessed knowledge related to various parameters from Basic Life Support and cardio-pulmonary resuscitation. We compared our findings with the results of study conducted by Shanta Chandrasekaran *et al.*⁸

The study conducted by Roshana Shreshtha *et al.*⁵ revealed that the participants had inadequate knowledge on BLS. Although 52% of the participants answered ≥ 7 of the 15 questions, only 7.4% (n=9) of them could answer 75% of the questions correctly. Other studies also demonstrated inadequate cardiopulmonary resuscitation knowledge in healthcare professionals.

Ritesh Gajjar *et al.*⁹ in their study among intern doctors observed that, twenty-four (19%) interns had BLS training in past. Basic life support and cardio-pulmonary resuscitation abbreviation were correctly recognized by all participants. Fifteen percent of the responders failed to answer the full form of CAB as circulation, airway and breathing. Fifty percent of participants did not know that looking for safety as the first step in BLS. Sixty-four percent failed to insist on activating EMS immediately after confirming the unresponsiveness in an adult. Seventy-four percent did not know that cardio-pulmonary resuscitation is not aimed to restart the heart. Thirty percent of the responders did not know the critical characteristics of high quality cardiopulmonary resuscitation. Twenty-seven percent did not know that the right location of chest compression is the lower half of breast bone. Only thirty one percent of the responders answered the rate of chest compression as 100-120/minute in cardiopulmonary resuscitation. Only eleven percent know that the depth of chest

Table 4: Questionwise Score of Participants

Sr No	Questions	Present study			Chandrasekaran <i>et al.</i> ¹⁰	
		Correct	Incorrect	% correct	% Incorrect	% correct
1.	What Does "BLS" Stand For?	265	8	97.07%	31%	69%
2.	What Does CPR Stand For?	215	58	78.75%	11%	89%
3.	First response to an unresponsive person?	188	85	68.86%	34%	66%
4.	CPR Stand For?	265	8	97.07%	11%	89%
5.	Aim of CPR?	47	226	17.22%	-	-
6.	CAB in CPR Stands For?	243	30	89.01%	-	-
7.	Infants responsiveness checked by?	176	97	64.47%	-	-
8.	Immediate action if someone not responding to your command?	93	180	34.07%	-	-
9.	Site for checking pulse in adult?	171	102	62.64%	-	-
10.	Site for checking pulse in infant?	67	206	24.54%	-	-
11.	How long pulse should be checked?	139	134	50.92%	-	-
12.	Critical Characteristics of High-Quality CPR?	189	84	69.23%	-	-
13.	Location For Chest Compression?	194	79	71.06%	74%	26%
14.	Rate of Compressions Per Minute As 2015 AHA Guidelines?	74	199	27.11%	35%	65%
15.	Depth of Compression For An Adult Patient?	94	179	34.43%	67%	33%
16.	Chest Compression:Ventilation Ratio For 1 Rescuer CPR in adults?	182	91	66.67%	35%	65%
17.	Chest Compression: Ventilation Ratio For 2 Rescuer CPR in Child?	130	143	47.62%	35%	65%
18.	Abbreviation of AED?	122	151	44.69%	66%	44%
19.	Proper Steps in AED?	139	134	50.92%	44%	56%
20.	Which victim of a severe airway obstruction should receive abdominal thrusts?	111	162	40.66%		

compression in an adult is 2 to 2.4 inches. Fifty-five percent of the responders had correctly answered that the compression ventilation ratio in an adult single rescuer cardiopulmonary resuscitation is 30:2.

In a study conducted by Akshatha Rao Aroor *et al.*¹⁰, the mean score with regard to awareness of BLS and other general aspects of emergency medical services was 2.94 ± 0.90 with a score range of 0–6. The mean score of the knowledge about the skills of BLS in the study group was 1.22 ± 0.91 with a score range of 0–4. The overall mean score regarding the awareness was 4.16 ± 1.40 (score range 0–10). Among 520 study subjects, 496 (95.4%) had heard about BLS in the past. Also, 513 (98.7%) felt that it is useful to know about BLS/ACLS. Only 76 (14.6%) had heard about EMS, and 59 (11.3%) could expand AED. Only 89 (17.1%) answered that BLS is not mandatory to be done in the hospital setting. A total of 178 (34.2%) responded correctly regarding the number of chest compression in one minute, whereas 212 (40.8%) could answer the ratio of chest compressions to breaths in an adult. And 182 (35%) answered correctly about the location of chest compression and only 56 (10.8%) could arrange (a).

Airway, (b). Breathing, and (c). Chest compression in orderly sequence.

Abbas A *et al.*¹¹ showed that knowledge of trained student was found to be better than that of untrained student. The permanent training program in BLS and ALS resulted in important increment in the level of knowledge of nursing professionals. Another study from Malaysia which studied the knowledge, attitude, and confidence of adult cardiopulmonary resuscitation among junior doctors in which about two-third (68.8%) participants had undergone BLS training showed that junior doctors lacked the much needed confidence when it comes to an actual resuscitation case.¹²

Conclusion

The study highlights that the awareness and knowledge of Basic Life Support among the intern doctors, medical students and nursing staff are average. Though it was somewhat better than other previous study but it's still needed improvement. It recommended that the regular refreshing the

course should be necessary.

Conflict of Interest: None to declare

Sources of Funding: None

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