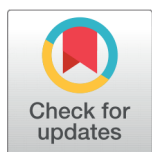


## RESEARCH ARTICLE



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## Knowledge of basic life support among Medical and Dental students: A comparative study

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### Abstract

Basic life support (BLS) is the medical procedures and skills which are used to save the victim from life-threatening emergencies until medical care is provided at the hospital. BLS procedures include cardiopulmonary resuscitation (CPR), bleeding control, artificial ventilation and basic airway management. Fatal medical emergencies may occur at any time. However, there are no set standards introduced in India to date. These life-saving maneuvers can be given through the structured resuscitation programs, which are lacking in the academic curriculum. The present study assessed the level of awareness toward basic life support (BLS) among medical and dental students. A cross-sectional study was carried out among dental and medical students in 2019. The study participants were people of the age group between 18-25 years. A convenient sample size of 250 was studied. A total of 250 subjects of age groups 18-25 years were analyzed in the study. The majority of students were not aware of BLS, with medical students fairing slightly better than dental students. The present study demonstrates poor knowledge among medical and dental students regarding BLS and showed the urgent need for continuous refreshing courses for this critical topic.

**Keywords:** Knowledge; basic life support; medical students; dental students

### Introduction

Life-threatening emergencies can occur anytime and anywhere. The lack of coaching and incompetence to handle these emergencies can have tragic consequences. Basic resuscitation skills, includ-

ing prompt and effective CPR (CPR), increases the survival rate following cardiac arrest. Theoretical knowledge with practical demonstrations and regular practice with up-to-date recommendations is vital in maintaining the potential

of basic life support (BLS) and advanced life support (ALS) providers.<sup>(1)</sup> Saving people's lives involves a sequence of steps that constitute the chain of survival. This includes four stages<sup>(2)</sup>:

- Early approach to a cohesive medical emergency
- Early initiation of BLS
- Early defibrillation
- ALS

Sudden cardiac arrest is the most common cause of death worldwide with a large variation in survival rates between different communities.<sup>(3,4)</sup> Early detection of cardiac arrest and initiation of CPR has been shown to decrease mortality and morbidity.<sup>(4-6)</sup>

In recent years several publications have highlighted the deficiencies in CPR quality, both out-of-hospital and in-hospital, which have partly been addressed in the newest BLS guidelines.<sup>(7,8)</sup> Individuals in the community at least the health professionals should know how to perform BLS as they encounter such situations very often. This study was aimed to explore the level of knowledge towards BLS among medical, dental students in BMCH, Chitradurga.

## Materials & Methods

### Study type

Cross-sectional study

### Sample size

All undergraduate students studying in the dental and medical college of BMCH, Chitradurga.

### Study duration

3 months (April to September 2019)

### Sampling method

Convenient sampling method of all medical and dental students of BMCH, Chitradurga.

### Study population

Undergraduate students studying in medical and dental college BMCH, Chitradurga.

### Study tool

The self-administered, semi-structured, pretested questionnaires were used. A Questionnaire was prepared to encompass 2 main domains:

1. Demography and professional qualification of the participant

2. Theoretical and practical knowledge of the participants related to BLS (20 MCQ's)

### Inclusion criteria

Undergraduate students studying in the medical and dental college of BMCH, Chitradurga.

### Exclusion criteria

- Students not available or absent
- Students who do not give consent

**Data collection.** The students were approached in their lecture halls and recruited for the study. A total of 150 medical undergraduate students and 100 dental undergraduate students were sampled. The purpose of the study was explained to the respondents and their verbal and written consents to participate in the study were sought and obtained before the questionnaires were administered. The confidentiality of the participants was guaranteed, and they were informed that the data will be analysed at a group level in order to de-identify the participants.

**Data analysis.** The collected data were calculated with MS Excel and then statistical analysis was made by statistical package for social science (SPSS) 20 version. Qualitative data were presented in frequencies and percentages. Quantitative data were presented in means and standard deviation. Chi-square test was applied as a test of significance for qualitative data and t-test/ANOVA test was a test of significance for quantitative data. The level of significance was set at p value <0.05.

**Table 1.** Knowledge about First response in an emergency

Knowledge about First response in an emergency	MBBS	BDS	P value
First response if the person is found unresponsive	Open airway	21 (14%)	30 (30%)
	Start chest compression	18 (12%)	28 (28%)
	Look for safety	107 (71.3%)	34 (34%)
	Give two breathing	4 (2.7%)	8 (8%)
Immediate action if found unresponsive	Start CPR	79 (52.7%)	60 (60%)
	Activate EMS	47 (31.5%)	17 (17%)
	Recovery position	19 (12.7%)	15 (15%)
	Observe	5 (3.3%)	8 (8%)

## Results

In our study, among 250 subjects mean age was 19.79 years with S.D.1.4 and the majority were females (63.6%)

Overall, the respondents showed a poor level of knowledge with respect to first response in an emergency; the proportion of correct answers varied greatly, with significant differences between MBBS and BDS and data shown in Table 1.

Table 2 Shows the knowledge of study participants about CPR in adults and neonates/infants/children. It is clear that, both MBBS and BDS students have very poor knowledge about CPR.

**Table 2.** Knowledge about CPR

Knowledge about CPR		MBBS	BDS	P value
Location for chest compression	Left side of chest	43 (28.7%)	45 (45%)	0.02
	Right side of chest	8(5.3%)	7 (7%)	
	Mid chest	65 (43.3%)	36 (36%)	
	Xiphisternum	34 (22.7%)	12 (12%)	
Mouth to mouth CPR	Mouth mask ventilation and chest compression	21 (14%)	9 (9%)	<0.001
	Chest compression only	26 (17.3%)	22 (22%)	
	Bag mask ventilation with chest compression	19 (12.7%)	46 (46%)	
	No CPR	84 (54%)	23 (23%)	
Depth of compression	1.5-2 inch	32 (54.7%)	30 (30%)	<0.001
	2.5-3 inch	43 (28.7%)	30 (30%)	
	1-1.5 inch	18 (12%)	26 (26%)	
	0.5-1 inch	7 (4.7%)	14 (17%)	
Rate of compression in adults and children during CPR	100/min	21(14%)	20(20%)	<0.001
	120/min	100(66.7%)	34(34%)	
	80/min	18(12%)	27(27%)	
	70/min	11(7.3%)	19(19%)	

**Table 3.** Knowledge about CPR in neonates/infants/children

Knowledge about CPR		MBBS	BDS	P value
Location for chest compression in infants	One finger breadth below nipple line	49 (32.7%)	30 (30%)	0.02
	One finger breadth above nipple line	27 (18%)	21 (21%)	
	Inter mammary line	44 (29.3%)	21 (21%)	
	Xiphisternum	30 (20%)	28 (28%)	
Infant rescue breathing	Mouth to mouth with nose pinched	90 (60%)	53 (53%)	0.07
	Mouth to mouth and nose	8 (5.3%)	11 (11%)	
	Mouth to nose	3 (2%)	7 (7%)	
	Mouth to mouth with-out nose pinched	49 (32.7%)	29 (29%)	
Depth of compression in children	1.5-2 inch	36 (24%)	28 (28%)	0.24
	2.5-3 inch	21 (14%)	14 (14%)	
	One half to one third depth of chest	55 (36.7%)	25 (25%)	
	0.5-1cm	38 (25.3%)	33 (33%)	
Depth of compression in neonates	1 and $\frac{1}{2}$ -2 inches	32(21.3%)	12(12%)	0.07
	2 and $\frac{1}{2}$ -3 inches	28(18.7)	13(13%)	
	$\frac{1}{2}$ -1 cm	49(32.7%)	50(50%)	
	1/2-1/3 depth	41(27.3%)	25(25%)	

**Table 4.** Knowledge about choking

Knowledge about choking			MBBS	BDS	P value
First response for choking in adults	Give abdominal thrusts		70(46.7%)	13(13%)	<0.001
	Give chest compressions		14(9.3%)	17(17%)	
	Confirm foreign body		18(12%)	24(24%)	
	Give back blows		48(32%)	46(46%)	
First response for choking in infants	Start CPR		6(4%)	6(6%)	0.718
	Try removing foreign body		49(32.7%)	32(32%)	
	Back blows & compressions		87(58%)	54(54%)	
	Give water		8(5.3%)	8(8%)	
First response to a submerged adult in freshwater	CPR for 2min		36(24%)	10(10%)	0.008
	CPR for 1min		10(6.7%)	15(15%)	
	Abdomen compression		97(64.7%)	67(67%)	
	Keep him in recovery position		7(4.7%)	8(8%)	

## Discussion

The present study was done to understand the awareness of BLS among medical and dental students. Among 250 subjects, 60% belong to MBBS and 40% from BDS. A study using a similar questionnaire by S Chandrasekaran et al.<sup>(9)</sup> was conducted among 1054 participants in Tamil Nadu. Table 5 shows a detailed comparison of the two studies.

The participants displayed poor knowledge in our study as well as in similar studies conducted by Chandrasekaran et al.<sup>(9)</sup>, Srinivas et al.<sup>(10)</sup>, Sudeep et al.<sup>(11)</sup>, Aroor et al.<sup>(12)</sup>, Zaheer et al.<sup>(13)</sup> and Alanazi et al.<sup>(14)</sup>.

## Conclusion

From our study, we conclude that lack of awareness regarding BLS among medical and dental students is a serious issue that needs to be addressed promptly. BLS and other resuscitation skills should be part of the undergraduate curriculum and students should master the skills during their studies. More research is warranted in our setup also involving other medical personnel and to determine an appropriate and efficient course design.

**Table 5.** Comparison between the present study and study by Chandrasekaran et al.

Sl .No	Questions	% of Right responses in our study	% of Right responses in Chandrasekaran et al. <sup>(9)</sup>
1	Abbreviation of BLS	90.4	68.6
2	First response if the person is found unresponsive	56.4	41.1
3	Immediate action	25.6	10.6
4	Location for chest compression	40.4	26.1
5	Location for chest compression in infants	31.6	27.1
6	Mouth to mouth CPR	42.8	16.6
7	Infant rescue breathing	07.6	14.2
8	Depth of compression	17.6	33.3
9	Depth of compression in children	32.0	17.0
10	Depth of compression in neonates	26.4	64.5
11	Rate of compression	16.4	35.1
12	Rate of CPR single rescuer in adults	52.4	14.9
13	Rate of chest compression to ventilation in newborn	16.0	25.5
14	AED abbreviation	35.6	33.5
15	EMS abbreviation	80.0	56.0
16	First response for choking in adults	16.8	16.4
17	First response for choking in infants	56.4	29.6
18	First response to as a submerged adult in freshwater	06.0	12.9
19	Response for slurred speech and weakness of right upper limb	44.8	43.7
20	Differential diagnosis for retrosternal pain, sweating, vomiting	57.6	54.2

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