

# Awareness of basic life support among dental students

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## ABSTRACT

**Introduction:** Basic life support (BLS) includes recognition of signs of sudden cardiac arrest, heart attack, cardiopulmonary resuscitation, and defibrillation with an automated external defibrillator. It is very important that every person in the community knows about BLS to save lives and improve the quality of community health. **Aim:** The aim of our study is to assess the awareness and knowledge about BLS among dental students. **Materials and Methods:** This study was conducted by assessing responses to 20 selected questions pertaining to BLS among dental students through survey planet among 102 dental students. A questionnaire is regarding the knowledge and attitude toward BLS. The results were analyzed using an answer key prepared from the advanced cardiac life support manual. **Results:** About 31% of the students have an average knowledge about BLS and 17% has a good knowledge and 15% has an excellent knowledge on BLS and 37% of them have very poor knowledge on BLS. **Conclusion:** The awareness and knowledge regarding BLS is inadequate among dental students. Spreading awareness and teaching the basics of advanced life support to the medical and paramedical team as well as teaching BLS and first aid to the community will be the prime responsibility of this new emergency specialty, and also, by introducing BLS regularly in the academic curriculum and by routine hands-on workshops, all the health-care providers should be well versed with the BLS skills for effectively managing the life-threatening emergencies.

**KEY WORDS:** Automated external defibrillator, Basic life support, Cardiopulmonary resuscitation

## INTRODUCTION

Basic life support (BLS) is the foundation for saving lives after cardiac arrest.<sup>[1]</sup> Fundamental aspects of BLS include recognition of sudden cardiac arrest and activation of the emergency response system, early cardiopulmonary resuscitation (CPR),<sup>[2]</sup> and rapid defibrillation with an automated external defibrillator (AED).<sup>[3]</sup> Initial recognition and response to heart attack and stroke are also considered as a part of BLS. BLS also includes supporting breathing, circulation, and maintaining an airway without using any equipment other than a simple airway device or protective shield.<sup>[4]</sup>

The main purpose of BLS is to maintain adequate ventilation and circulation till resources can be obtained to reverse the underlying cause of cardiac arrest.<sup>[5]</sup> Knowledge of BLS and expertise in CPR

techniques ensures the survival of the patient long enough till experienced medical help arrives and in most of the cases is itself sufficient for survival.<sup>[6]</sup> Different factors may affect the quality of CPR, such as feedback, education, and monitoring, and it has been emphasized that these should be developed together to improve quality.<sup>[7]</sup> The American Heart Association developed the first CPR guidelines.<sup>[8]</sup>

CPR is the combination of chest compression and rescue breathing and forms the basis of modern BLS. The chances of survival after cardiac arrest are increased when the event is witnessed and when a bystander institutes CPR prior to the arrival of the emergency services.<sup>[9]</sup> Effective CPR reduces this decline by about 50%. A good CPR can increase the chances of survival, decrease prolonged hospital stay, and reduce overall medical cost.<sup>[10]</sup> Chest compressions are started as soon as cardiac arrest is diagnosed. Chest compressions should be given with minimal interruptions at the recommended rate and depth and are accompanied by artificial ventilation according to the current guidelines.<sup>[11]</sup>

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It is very important that every person in the community knows about BLS.<sup>[12]</sup> Doctors, nursing, and paramedical staff are expected to know about it, as they are frequently facing life-threatening situations, and the knowledge of BLS will be definitely useful.<sup>[13,14]</sup> Recognition, prevention, and effective management of life-threatening emergencies are the major responsibilities of health-care professionals. These situations can be successfully managed by proper knowledge and training of the BLS skills. However, there has been little research regarding the knowledge and attitude of BLS in the dental profession. Hence, the present study was conducted with the aim of assessing the awareness and knowledge on BLS among dental students.

## MATERIALS AND METHODS

### Participants and Study Design

It is a questionnaire-based survey study that was conducted employing self-administered questionnaire at the Saveetha Dental College and Hospital. The participants were undergraduate male and female students in Saveetha Dental College and Hospital. The participants were informed in advance about the objective of the study. The participation of the subjects was entirely voluntary, and their identities were kept anonymous.

### Data Collection Methods

This study was conducted by assessing responses to 20 selected questions pertaining to BLS among dental students through survey planet among 102 dental students. A questionnaire is regarding the knowledge and attitude toward BLS. The aspects on which they were asked about the abbreviation of BLS, AED, and Emergency Medical Service (EMS), sequential steps in BLS, assessment and resuscitation techniques with regard to airway, breathing, circulation in unresponsive victims of different age groups, techniques regarding removal of foreign-body obstruction, and location for chest compression. After excluding the incomplete responses, the results were analyzed using an answer key prepared from the advanced cardiac life support manual.

## RESULTS

Awareness of participants related to BLS was estimated by assessing the first set of questions; only 54 participants know the abbreviations for BLS and the rest half of the participants were not aware of it [Figure 1]. The second question is based on the chest compression and the ventilation ratio; 35.8% answered correctly that is 3:1 ratio, the rest 21.1% answered for 30:10 ratio, and the remaining percentage of the

students answered for 2:5 ratio, but 7 responders did not answer the question [Figure 2]. The third question is based on the attitude toward BLS; 43.4% answered for chest compression and 28.3% replied for give two breathings and the rest of the students answered as look for safety the remaining three of them did not answer this question [Figure 3]. About 40.6% answered to activate emergency medical services and 21.9% answered as to make him sleep and the rest answered for to offer him some drinks and the rest 6 of them did not answer this question [Figure 4]. Finally, by asking this question, we assessed the knowledge of the students; 31% of the students have an average knowledge about BLS and 17% has a good knowledge and 15% has an excellent knowledge on BLS and the remaining percentage have very poor knowledge on BLS [Figure 5].

The second set of questions based on knowledge toward basic life support?

The third set of questions is based on attitude toward basic life support:

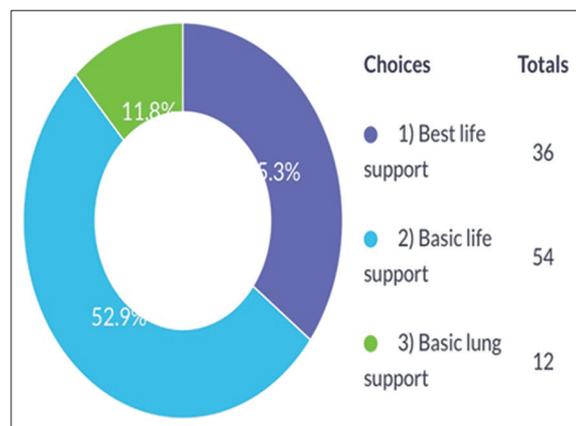


Figure 1: Abbreviation for basic life support?

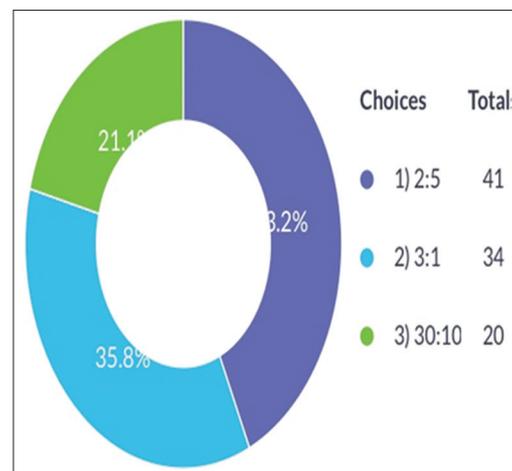
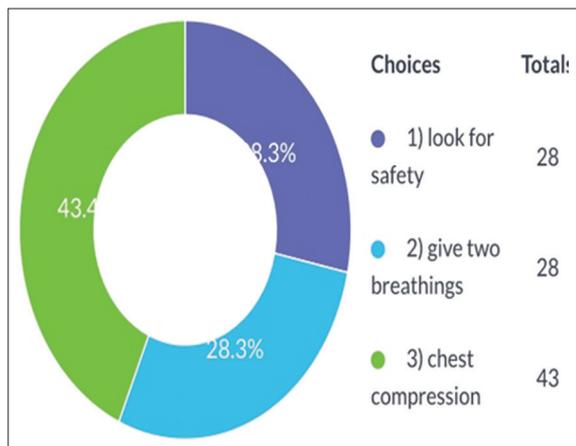
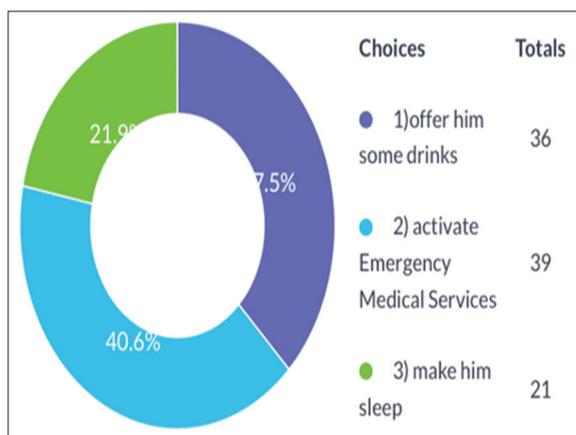


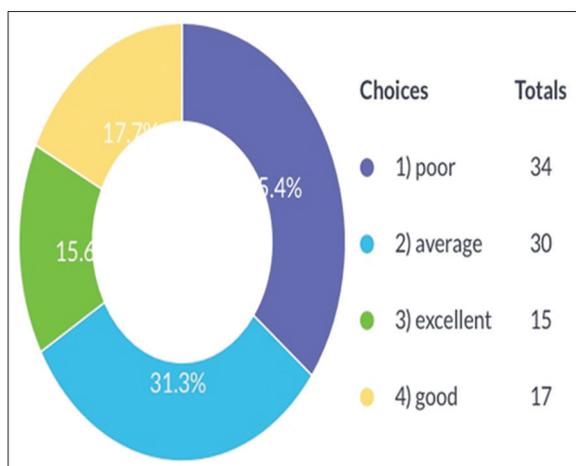
Figure 2: In a newborn the chest compression and the ventilation ratio will be?



**Figure 3:** When you are alone you find someone unresponsive what will be your first response?



**Figure 4:** If you notice your friend has suddenly developed slurring of speech and weakness of the right upper limb which one of the following can be done?



**Figure 5:** Self-grading of basic life support knowledge level

## DISCUSSION

Life-threatening emergencies can occur anytime and anywhere. The most urgent of all is cardiopulmonary arrest. There have been reports of CPA and deaths in dental clinics.<sup>[15,16]</sup> Although many dentists claim that

they have never witnessed CPA, the lack of training and incompetence to deal with these emergencies can have tragic and legal consequences.<sup>[17]</sup> There are only few studies on the competence of dental practitioners to resuscitate patients from CPA.<sup>[18]</sup> However, the common factor in all is an inadequate awareness and knowledge among dentists regarding BLS and CPR.

A survey conducted by Singh *et al.*, among 241 dentists regarding CPR observed that 75.9% of dentists had received information about CPR, 56.0% had the correct concept of performing it, and only 12% had received practical training in BLS.<sup>[19]</sup> In our study, none of the responders could answer all questions correctly and none had received any formal training. The current study can be compared to the study conducted by Roshana *et al.*,<sup>[20]</sup> in the selection of participants – UGs, interns, JRs, BDS, and nursing faculties from both medical and dental colleges – unlike the studies done by Srinivas *et al.*,<sup>[6]</sup> which included only the students. The result of the study is in agreement with other previous studies such as Reddy *et al.*,<sup>[21]</sup> and Owujuyigbe *et al.*,<sup>[22]</sup> who concluded that dental students’ knowledge of BLS was very poor before the BLS training. The knowledge of CPR among dentists in Iran, it was noted that only 37% had a correct concept of BLS and CPR. None of them had received any practical training, though 4% admitted that they had witnessed CPA in their clinics.<sup>[23]</sup>

Girdler *et al.*, found that the total prevalence of all emergency events was 0.7 cases per dentist per year. Only 20.8% of dentists felt competent to diagnose the cause of a collapse in the dental surgery. However, the majority believed that they would be able to undertake initial treatment of most common emergencies. Despite this, more than 50% felt they were unable to manage a patient of myocardial infarction or anaphylaxis and 49.7% did not know how to insert an oral airway or undertake an intravenous injection.<sup>[24]</sup> Chapman and Hussain *et al.*, reported that none of the dental practitioners they evaluated had the practical skills to perform quality CPR.<sup>[25,26]</sup> Arsati *et al.*, in 2010 found that though the occurrence of life-threatening medical emergencies such as anaphylaxis, myocardial infarction, cardiac arrest, and cerebrovascular accident is rare in Brazilian dental clinics, dentists are not fully prepared to manage medical emergencies and have insufficient experience training in CPR.<sup>[27]</sup>

The study results showed that the dental students in this study group were severely lacking on awareness of BLS. This study emphasized the cognitive approach to the general perception and skills of BLS, early recognition of stroke, and acute coronary syndrome. In the real sense, many dental students did not come forward to respond to the questionnaire. It

is now essential to standardize training in advanced life support and make it a mandatory component of all dental students' undergraduate curricula. It is also equally important that teachers, schoolchildren, public, and all laypersons from the community should be taught the facts of BLS as a first aid.<sup>[28]</sup>

## CONCLUSION

Spreading awareness and teaching the basics of advanced life support to the medical and paramedical team as well as teaching BLS and first aid to the community will be the prime responsibility of this new emergency specialty, and also, by introducing BLS regularly in the academic curriculum and by routine hands-on workshops, all the health-care providers should be well versed with the BLS skills for effectively managing the life-threatening emergencies.

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