Knowledge, Attitude and Behavior of Undergraduate Dental Students towards Cardiopulmonary Resuscitation: A Descriptive Study

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sAbstract

Context: Medical Emergencies can be encountered by any individual, and its occurrence is usually high in a Dental setting due to the procedures involved. Hence it is important that Dentists be equipped with the knowledge of Cardiopulmonary resuscitation (CPR).

Aims: The Study aims to assess the Knowledge, Attitude and Behavior of Dental Undergraduate students towards CPR training.

Methods and Materials: The present study was a Cross Sectional study conducted among 163 Final Year Undergraduate students and Interns of a Dental Institution in Mangalore. A validated Self Structured Questionnaire was distributed to the students.

Statistical Analysis: Descriptive and Inferential statistics like Student's Unpaired T Test determined the difference in Knowledge, Attitude and Behavior among the participants.

Results: The overall Knowledge of Students regarding CPR was Poor, with Interns possessing a Significantly higher Knowledge than Final Year BDS Students. Amidst the poor Knowledge, 75.5% students were trained in CPR and 65.6% students were ready to perform CPR in an emergency situation thus displaying a Positive Attitude.

Conclusion: The present study showed that despite a dearth in CPR Knowledge among the Students, they exhibited a Positive Attitude and Behavior towards Training and Practice of CPR. Thus the study highlights the need to strengthen CPR training among Dental Students, by Inculcating and Standardizing it in the Undergraduate and Postgraduate curriculum.

Keywords: *Undergraduates, Cardiopulmonary Resuscitation, Knowledge, Attitude, Behavior*

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Introduction

India, a developing nation has witnessed a paradigm shift in the burden of Non-Communicable diseases which can be attributed to the changing Lifestyle among the Population. Cardiovascular diseases are one among the major Non Communicable diseases which has been responsible for the rising Mortality rate. In 2016 Cardiovascular diseases accounted for 28.1% of the total deaths in India [1]. Cardiac arrests are the most

common emergencies with grave consequences and thus has paralleled the need for all Population sectors to be competent in handling medical emergencies to increase the Golden Period for an ailing patient till medical care is available[2].

Medical Emergencies are multi-factorial in nature. They can occur at any time, at any place and to any person. Dental Treatments being invasive in nature can predispose any individual to the risk of medical emergencies. A study by Haas D has quoted that approximately 19-44% dentists had encountered a medical emergency in a year especially during and after the application of Local Anaesthesia for Extraction and during Endodontic Procedures. Syncope and Hyperventilation were the most commonly reported medical emergencies[3].

The enormity of these situations substantiates the need for Dental Professionals to be equipped with the skill sets of performing Cardio-Pulmonary Resuscitation (CPR). To bestow Dental Professionals with the knowledge to handle such emergencies, the underpinning established at the undergraduate juncture is crucial. CPR training although has been inculcated in the Undergraduate Curriculum, it is often overlooked by majority of the Dental Colleges as they impart only theoretical knowledge to the students rather than the Practical Aspects of the same [4]. Thus the competency of the students in handling Medical Emergencies are compromised to a large extent.

Studies in India and Globally have assessed the Knowledge, Attitude and Behaviour of Medical Students [5,6], Nurses [7,8] and Private Dental Practitioners [4,9–11] towards CPR training. In India studies assessing Dental Students' awareness on CPR are meagre [12,13]. Hence this present study aims to close the current gap by assessing the Knowledge, Attitude and Behaviour of Final Year Dental Undergraduates and Interns towards CPR training.

Materials and Method

The present study followed a Cross Sectional study design. It was conducted among the Final Year Undergraduate students and Interns of a Dental Institution in Mangalore during January to August 2019 after obtaining Ethical Clearance from the Institutional Review Board. All the Final Year Undergraduates and Interns in the Institution were approached to participate in the study following a Total Enumeration Method. Students who provided Consent and present on the day of the study were included.

A Self structured and validated questionnaire in English language was developed which consisted of 19 closed ended questions. 10 questions addressed the Knowledge Domain, 6 questions addressed the Attitude domain and 3 Questions addressed the Behaviour domain of the participants. After obtaining Written Informed Consent from the participants, the Questionnaire was distributed to them in their classrooms. Care was taken to ensure that no verbal or non-verbal communication could occur among the participants and no names were recorded to ensure anonymity in order to obtain immaculate data. The obtained data was entered into Microsoft Excel and analysed using SPSS version 23 for Descriptive Statistics and Inferential Statistics. The Year wise and Gender Wise differences in the Knowledge, Attitude and Behaviour of the students was analysed using Student's Unpaired T Test with a significance level of $p<0.05$.

Results

The study obtained a response rate of 95.3%. Among the participants 78 (47.9%) were Final Year BDS students and 85 (52.1%) were Interns. 67.5% of the participants were Females.

Knowledge of students regarding CPR

The Knowledge Domain consisted of 10 Questions amongst which 7 questions received greater percentage of incorrect responses by the Participants indicating a Poor Knowledge among them. About 69.3% and 51.5% students were unaware of the abbreviations of CPR and Automated External Defibrillator respectively. 63.8% students were unaware of the recommended sequence of CPR (Table 1). Interns exhibited a higher Knowledge score (6.09 ± 2.43) as compared to the Final Year BDS students (3.26 ± 1.39) and this difference was statistically significant ($p=0.000$) (Table 2). While no significant Gender wise difference was found, Females had a significantly higher Knowledge score than Males [$p<0.05$] (Table 3).

Attitude of students towards CPR training

75.5% of the students had undergone training in CPR and 65.6% of them were ready to perform CPR in an emergency situation, displaying a Positive Attitude. 73.6% of the students were of the opinion that dentists

need to be competent in performing CPR and hence wanted CPR training to be a part of the BDS Curriculum (Table 4). No Year wise or Gender wise difference was observed in the responses of the participants [p>0.05] (Table 2 and 3).

Behaviour of students towards CPR training

The behaviour of the students towards performing a Life Support mechanism during an emergency event was observed to be positive.60.1% students said that on witnessing an unresponsive patient they would initiate hep by checking for breathing (Table 5).

A Statistically Significant difference was observed in the Behaviour of Final BDS Students and Interns (p=0.009) (Table2). However, no significant Gender wise difference was found [p=0.065] (Table 3).

Table 1: Knowledge of students regarding CPR

Sl. No	Question	Responses – n(%)	
		Correct	Incorrect
1.	Abbreviation of CPR	50 (30.7)	113 (69.3)
2.	Abbreviation of AED	79 (48.5)	84 (51.5)
3.	Target Depth for Adult Compressions	101 (62)	62 (38)
4.	Recommended sequence of CPR	59 (36.2)	104 (63.8)
5.	Recommended Compressions per minute	53 (32.5)	110 (67.5)
6.	Manoeuvre performed to create a patent airway	117 (71.8)	46 (28.2)
7.	Pulse is checked before initiating CPR	43 (26.4)	120 (73.6)
8.	Conditions that are an absolute indications for CPR	59 (36.2)	104 (63.8)
9.	What should be the pulse in an unconscious patient	75 (46.0)	88 (54.0)
10.	Universal recognised distress signal for choking	116 (71.2)	47 (28.8)

Table 2: Year Wise difference in Knowledge, Attitude and behaviour of students regarding CPR

	Year of study	N	Mean	Std. Deviation	Std. Error Mean	Mean Difference	95% Confidence Interval		P value
							Upper	Lower	
Knowledge	Final BDS	85	3.26	1.399	0.152	-2.831	-3.439	-2.223	0.000*
	Interns	78	6.09	2.435	0.276				
Attitude	Final BDS	85	9.75	2.390	0.259	-0.298	-0.979	0.382	0.388
	Interns	78	10.05	1.967	0.223				
Behaviour	Final BDS	85	6.33	1.499	0.163	-0.594	-1.037	-0.150	0.009*
	Interns	78	6.92	1.356	0.154				

Table 3: Gender Wise difference in Knowledge, Attitude and behaviour of students regarding CPR

	Year of study	N	Mean	Std. Deviation	Std. Error Mean	Mean Difference	95% Confidence Interval		P value
							Upper	Lower	
Knowledge	Male	53	4.38	2.420	0.332	-0.350	-1.149	0.449	0.388
	Female	110	4.73	2.419	0.231				
Attitude	Male	53	10.34	2.731	0.375	0.658	-0.062	1.378	0.073
	Female	110	9.68	1.862	0.178				
Behaviour	Male	53	6.94	1.499	0.206	0.489	0.012	0.966	0.065
	Female	110	6.45	1.418	0.135				

Table 4: Attitude of students towards CPR training

Sl	Questions	Responses	n(%)
1.	Are you trained in performing CPR	Yes	123 (75.5)
		No	40 (24.5)
2	If an emergency situation arises, will u perform CPR ?	Yes	107 (65.6)
		No	56 (34.4)
3	Do you think CPR training is necessary for dentists	Yes	120 (73.6)
		No	21 (12.9)
		May be	18 (11.0)
		Don't know	4 (2.5)
4	Should CPR training be part of the BDS curriculum	Yes	105 (64.4)
		No	23 (14.1)
		May be	30 (18.4)
		Don't know	5 (3.1)
5	If resusciation is made mandatory in the BDS curriculum,how often should it be reinforced	Every 6 months	138 (84.7)
		Every Year	25 (15.3)
6	Do u want to undergo further training in CPR and enhance your competency	No	26 (16.0)
		Yes, 6 months	95 (58.3)
		Yes, every year	39 (23.9)
		Don't know	3 (1.8)

Table 5: Behaviour of students towards CPR training

Sl	Questions	Responses	n(%)
1	Your first response on seeing your friend expressing the symptoms of choking	Call for help	45 (27.6)
		Mouth to mouth breathing	96 (58.9)
		Talk to patient	22 (13.5)
2	You find someone unresponsive in the middle of the road, what will be your first response (note: you are alone)	Walk away	18 (11.0)
		Ask for help	29 (17.8)
		Check breathing	98 (60.1)
		Call ambulance	18 (11.0)
3	How would you respond if you witness an adult unresponsive victim who was drowning and has spontaneous breathing?	Resuscitation	38(23.3)
		Check breathing	53 (32.5)
		Ambulance	48 (29.4)
		Keep patient in recovery position	24 (14.7)

Discussion and Conclusion

A stitch in time saves nine. Similarly, Cardio pulmonary Resuscitation is a procedure which can save an individual's life if carried out at the right time and appropriately. Dentists are bestowed with the reverence of doctors and thus are often looked upon by people as a life saver in any emergency situation. Hence, they need to be equipped with this life saving skill set owing to the non-invasive procedures they perform. This study thus seeks to explore the Knowledge, Attitude and Behaviour of Dental Students towards CPR training.

In the present study, it was found that the Knowledge of students was found to be Poor. Majority of the Students in our study were unaware of the Recommended sequence of CPR, the recommended Compressions per minute or the Absolute Indications of CPR. The Interns displayed a significantly higher Knowledge as compared to the Final BDS Students. The findings of our study is in par with various studies conducted worldwide. Studies by Shamiri et al and Alotaibi et al showed that the Dental students and Faculty had Poor Knowledge regarding CPR procedure[14,15]. This lack of Knowledge about emergency procedures among the dental students can be attributed to the lack of emphasis on CPR training in the present curriculum. CPR Training is often overlooked by many of the dental colleges, some providing merely theoretical Knowledge.

Although in the present study, a poor Knowledge was displayed by the students, it was noted that 75.5% students had undergone training in CPR. However, 65.6% students were ready to perform CPR in an emergency situation. 73.6% students felt that CPR training was necessary for Dentists and should be part of the BDS Curriculum, thus displaying a positive attitude. The results are in par with the results of a study by Goel et al where 78.5% of the participants were ready to perform CPR[16]. However, the study results are in contrast to a study by Alotaibi et al wherein 63.2% students were reluctant to perform CPR [15]. On portraying situations of Medical Emergencies, majority of the students were of the opinion that they would check for breathing and perform resuscitation procedures, thus displaying their Positive Behaviour. The findings are in par with the results of a study by Laurent et al wherein despite poor Knowledge exhibited by the students, the Attitude and Behaviour towards performing CPR was Positive[17].

The positive Attitude and Behaviour in students can be attributed to the fact that as doctors they realize the importance of emergency medicine not only in medical field but in general, which could save a person's life. However, the level of training provided to the students in dental colleges could hinder their confidence in independently handling CPR.

The present study was a Questionnaire study and hence the possibility of Social Desirability Bias cannot

be ruled out. The study was conducted in a single dental institution with non-assessment of practical skills of students. Thus, further research is necessary involving all Dental colleges and all BDS students and Faculty.

The results of the current study highlight the existing gap in the curriculum and the incompetency of students in the practical management of Medical Emergencies. Emphasis should lay on implementation of Standardized and Regular training of Students and Faculty in handling Medical Emergencies. Continuing dental education with hands on workshops usingMannequin followed by practical skill assessment can prove to be an effective method in this regard. Nevertheless, once graduated the students may become ignorant in enhancing their skill sets in this field. Thus post assessment, after graduating from the dental school should be made mandatory. Similar regulations have been executed worldwide. The Dental regulatory boards across USA require mandatory completion of board-approved course in Infection Control and certification in Basic Life Support courses for license renewal [18]. The present study uplifts the existing Knowledge among the future dentists which is an alarming situation. Thus stringent measures in enforcing regular training of Medical emergencies should be sought after and implemented at the earliest in Dental Schools, thus producing more competent doctors.

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