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Original Research

Knowledge, Attitude and Practice of Basic Life Support among Postgraduate Dental residents and Dental Faculties at a Tertiary Hospital in Eastern Nepal

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ABSTRACT:
Introduction: The dentists' expertise and skills in basic life support (BLS) can reduce the morbidity or mortality associated with medical emergencies during dental treatment. Lack of training and inability to manage medical emergencies can lead to serious consequences and sometimes legal action. The dentists may have poor knowledge and practical skills on BLS. This study was conducted to assess the knowledge, attitude and practices (KAP) of BLS among postgraduate dental residents and dental faculties. **Methods:** A cross-sectional study was conducted among 59 postgraduate dental residents and dental faculties at B.P. Koirala Institute of Health Sciences, Dharan, Nepal. A semi-structured questionnaire was used to collect the relevant data. The descriptive statistics were calculated. The knowledge score was categorized into three categories: average, good and excellent. ANOVA and Chi-square test were used to analyze the data at P-value of 0.05. **Results:** The mean age of the participants was 31.81±4.808. Mean knowledge score of the participants was 17.68±4.20 and it was higher among the faculties than the residents; however it was statically not significant. Thirty seven (62.7%) participants' knowledge score was good. Only 3 (5.1%) participants scored more than 75%. The attitude of the participants was negative toward BLS. The Practice of BLS among participants was also poor. **Conclusion:** The knowledge of BLS was average among the participants and they had a negative attitude toward BLS and their practice on BLS was generally poor. Various training programs and refresher courses on BLS should be made mandatory during the postgraduate residency to acquire competency. Frequent training should be conducted to increase the confidence of dental faculties on BLS.
Key words: Attitude; Basic life support; Knowledge.

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INTRODUCTION

Medical emergencies are sudden and unexpected medical situations which pose an immediate risk to a person's life or long-term health if immediate actions won't be taken.[1] Increased ageing population, advances in medical science, survival of a greater number of patients with systemic problems and prolonged appointments increase the occurrence of medical emergencies during dental treatment.[2] Various studies had reported that 1.1 to 4.1 % medical emergencies occurred in dental clinics.[3] It is of utmost importance to save lives of patients from any medical emergencies that might occur during dental treatment. If dentists lack adequate knowledge and don't know how to manage such situations, the patient's life will be threatened. The early and effective management of a medical emergency significantly improves the outcomes and reduces the adverse effects.[1]

Basic life support (BLS) refers to maintaining an airway and supporting breathing and circulation in case of an emergency to save the lives until provision of full medical care. It includes the recognition of signs of sudden cardiac arrest, heart attack, foreign-body airway obstruction, cardiopulmonary resuscitation (CPR) and defibrillation using an automated external defibrillator (AED).[4] It is a part of emergency medical care. Its timely provision saves lives of the patients. The dentists' expertise and skills in BLS can reduce the morbidity or mortality associated with medical emergencies during dental treatment. Dentists need to have appropriate and adequate knowledge, skills, training and equipment and medicines available to deal with the medical emergencies.[5] Nearly half of the dentists around the world aren't able to perform CPR correctly.[6] Various studies had shown that dental students and faculties have poor skills on BLS and they weren't fully prepared to handle medical emergencies and had insufficient training in managing medical emergencies.[7-11] Lack of training and inability to manage such emergencies can lead to serious consequences and sometimes legal action.[12] The dentists may have poor theoretical knowledge and practical skills on BLS. Their confidence may be low.

Therefore, dentists must have appropriate knowledge of medical emergencies and the ability to diagnose and manage them at dental clinics. Majority of such studies has been carried out to assess knowledge of BLS among medical students only and in the developed countries only. Such studies have been rarely conducted among postgraduate dental residents and dental faculties in Nepal. Therefore this study was conducted to assess the knowledge, attitude and practices (KAP) of BLS among postgraduate dental residents and dental faculties.

MATERIALS AND METHODS

A prospective cross-sectional study was conducted among postgraduate dental residents and dental faculties between November and December 2018 at College of Dental Surgery (CODS), B.P. Koirala Institute of Health Sciences (BPKIHS), Dharan, Nepal. A semi-structured questionnaire was prepared based on other researches and current guidelines on BLS.[4,13-15] It consisted of basic characteristics of the participants, questions on knowledge, attitude and practices regarding BLS. Most of the questions had options like yes and no. Score one was given for correct answer and zero for incorrect or unfilled answer. Total knowledge score varied from 0 to 32. The validity and reliability of the questionnaire were measured by pretesting in 10% of the study population and by consulting with the subject experts. The pretested study sample was not used for the final data collection.

After obtaining the ethical clearance, the participants were approached at the respective dental department. The purpose of the study was explained to the participants. After taking the written consent, the semi-structured questionnaire was distributed to them to fill it and collected on the same day and checked for its completeness. No incentive was given to the study participants. Confidentiality was maintained. All data were checked for its correctness and entered into Microsoft-Excel 2007. The descriptive statistics mean, Standard deviation (SD), percentage and frequency were calculated. The knowledge score was categorized into three categories: average (score less than 50 percent), good (score belonging to 50-75 percent) and excellent (score more than 75 percent). The mean knowledge score was analyzed for statistical significance with baseline variables using one way ANOVA test. Chi-square test was used to correlate the association among categorical variables. P-value of 0.05 was considered statistically significant. All statistical analysis were performed using SPSS version 11.5.

RESULTS

Out of 70, a total of 59 faculties and postgraduate residents participated in the study with a response rate of 84.3%. The mean age of the participants was 31.81±4.808 years and their age ranged from 23-49 years. Sixty one percent of them were married. Most of the participants (36, 61.0%) belonged to age group of 31-40 year. Male-female ratio was 1.1. Thirty five participants (59.3%) were postgraduate residents. Most of the dental faculties (13, 54.2%) were assistant professor. Most of the residents (13, 22%) were from prosthodontics department (**Table 1**).

Variables	Number (%)
1. Gender:	
i. Male	32 (54.2)
ii. Female	27 (45.8)
2. Age (years):	
i. 21-30	19 (32.2)
ii. 31-40	36 (61.0)
iii. 41 and above	4 (6.8)
3. Marital status:	
i. Married	36 (61)
ii. Single	23 (39)
4. Educational level:	
i. Postgraduate dental residents:	35 (59.3)
(a) First year	13 (37.1)
(b) Second year	13 (37.1)
(c) Third year	9 (25.7)
ii. Faculties:	24 (40.7)
(a) Assistant Professor	13 (54.2)
(b) Associate Professor	9 (37.5)
(c) Professor	2 (8.3)
5. Departments:	
i. Oral Medicine and Radiology	7 (11.9)
ii. Oral and Maxillofacial Surgery	6 (10.2)
iii. Prosthodontics	13 (22.0)
iv. Pedodontics	11 (18.6)
v. Orthodontics	6 (10.2)
vi. Periodontics	8 (13.6)
vii. Conservative dentistry	6 (10.2)
viii. Oral Pathology	2 (3.4)

Table 1: Sociodemographic characteristics of the participants (n=59)

The knowledge score ranged from 10-28. Mean knowledge score of the participant was 17.68±4.208 and it was higher among the faculties than the residents; however it was statically not significant (P value>0.05) (**Table 2**).

Participants	Mean knowledge score ± SD	P-value
Residents (n=35)	17.17±4.091	0.268
Faculties (n=24)	18.42±4.353	

Table 2: Mean knowledge score of the participants

Thirty seven (62.7%) participants' knowledge score was good. Only 3 (5.1%) participants scored more than 75% (**Table 3**).

Score	Residents (n=35)		Faculties (n=24)		Total (n=59)	
	Frequency	%	Frequency	%	Frequency	%
Average	12	34.3	7	29.2	19	32.2
Good	21	60.0	16	66.7	37	62.7
Excellent	2	5.7	1	4.2	3	5.1

Table 3: Knowledge score of the participants

Fifty five participants (93.2%) responded that management of medical emergencies was a part of their BDS curriculum. Attitude and practices of the participants regarding BLS is summarized in the **table 4 and 5** respectively.

Variables	Response	Residents	Faculties	Total (%)	P-value
How important is BLS in dental practice?	Very important	32	16	48 (81.4)	**0.039**
	Important	3	6	9 (15.3)	
	Not important	0	2	2 (3.4)	
How prepared are you to perform BLS?	Well prepared	16	16	32(54.2)	0.183
	Not Well prepared	19	8	27 (45.8)	
You can handle any medical emergency in dental clinics.	Yes	12	9	21 (35.6)	0.507
	No	23	15	38 (64.4)	
You are able to perform CPR.	Agree	9	9	18 (30.5)	0.156
	Neutral	16	13	29 (49.2)	
	Disagree	10	2	12 (20.3)	
Would you perform mouth to mouth ventilation in person of same gender?	Yes	22	18	40 (67.8)	0.615
	No	4	2	6 (10.2)	
	Hesitant	9	4	13 (22.0)	
Would you perform mouth to mouth ventilation in person of opposite gender?	Yes	17	15	32 (54.2)	0.553
	No	7	4	11 (18.6)	
	Hesitant	11	5	16 (27.1)	
Competent enough to perform maneuvers for relieving foreign body airway obstruction	Well	14	14	28 (47.4)	0.193
	Not well	21	10	31 (52.5)	
Competent enough to provide supplemental oxygen	Well	15	12	27 (45.8)	0.607
	Not well	20	12	32 (54.2)	
Competent enough to give intravenous injection	Well	13	7	20 (33.9)	0.585
	Not well	22	17	39 (66.1)	
Competent enough to give intramuscular injection	Well	23	13	36 (61.0)	0.423
	Not well	12	11	23 (39.0)	
Competent enough to give subcutaneous injection	Well	14	11	25 (42.4)	0.790
	Not well	21	13	34 (57.6)	
Competent enough to provide inhaled bronchodilators	Well	21	14	35 (59.3)	0.346
	Not well	14	10	24 (40.7)	

Table 4: Attitude of the participants regarding BLS (n=59)

Variables	Response	Residents	Faculties	Total (%)	P-value
I have attended workshop on BLS.	Yes	11	10	21 (35.6)	0.581
	No	24	14	38 (64.4)	
I record and regularly update medical history of patient.	Always	33	22	55 (93.2)	0.540
	Not always	2	2	4 (6.8)	
I obtain vital signs before commencing dental treatment.	Always	20	15	35 (59.3)	0.445
	Not always	15	9	24 (40.7)	
I have experienced emergency situation in my patients.	Yes	27	21	48 (81.4)	0.257
	No	8	3	11 (18.6)	
Have you ever performed any BLS yourself?	Yes	6	2	8 (13.6)	0.453
	No	29	22	51 (86.4)	
Have you ever performed mouth to mouth ventilation?	Yes	0	1	1 (1.7)	0.407
	No	35	24	58 (98.3)	
Have you ever observed demonstration of CPR?	Yes	30	22	52 (88.1)	0.397
	No	5	2	7 (11.9)	
Do you demand frequent training on BLS?	Yes	33	23	56 (94.9)	0.641
	No	2	1	3 (5.1)	

Table 5: Practices of the participants regarding BLS (n=59)

The most common emergency occurred in dental clinics was syncope (66.1%) (**Table 6**).

Emergencies	Frequency	Percentage
Syncope	39	66.1
Hypoglycemic attack	25	42.4
Seizure attack	9	15.3
Asthma attack	7	11.9
Allergic reactions	6	10.2
Airway obstruction and choking	1	1.7
Total	87	100

Table 6: List of emergency experienced in dental clinics by the participants (n=48)

DISCUSSION

The study has highlighted the existing knowledge, attitude and practices on BLS among postgraduate dental residents and dental faculties. In the study, the mean age of the participants was 31.81 years. Roshana et al had reported a lower mean age in their study[16] Male-female ratio was 1.1. Similar findings were also reported by Roshana et al in which 56% participants were male.[16] More than half of the participants were postgraduate residents. In contrast to this finding, most of the participants were dental practitioners in a study conducted in New Delhi, India.[17]

Mean knowledge score of the dental faculties was higher than the postgraduate residents; however, it was statically not significant. This may be due to fact that more faculties had attended training on BLS and they had also more experience compared to the residents who are still in the learning phase. Approximately one third (32.2%) participants had average knowledge score. In contrast to these findings, more than two-third dentists (83%) had score less than 50% in a study by Chandrashekharan et al in India.[10] This was probably as a result of the high percentage (64.4%) of the study participants in their study that had not been exposed to any BLS training. Other studies had also reported deficient knowledge of BLS in a high percentage of participants.[18] It was found that only one-third of the participants had attended at least one workshop on BLS. In contrast, none of the dental practitioners had received any formal training on BLS in a study by Baduni et al.[17] Life-threatening medical emergencies can occur anytime during dental treatment. The dentists must have formal training on BLS to save the life of patients in such circumstances. To ensure better and safer health-care delivery in dental practice, it is essential for the dentists to be well trained on BLS.

The attitude of the participants was negative toward BLS. Only one-tenth of the participants thought that they were well prepared to perform BLS and only one-third of them thought that they can handle any medical emergency in dental clinics. Similarly only one- third participant agreed that they could perform CPR. More than nine tenths of the participants felt that they were not competent to perform maneuvers for relieving the foreign body airway obstruction and to give the intravenous injection to the patients. This negative attitude may be due to poor training on BLS. All dentists must know how to manage an airway competently, recognize and deal with airway obstruction and choking, know how to administer supplemental oxygen, recognize when airway adjuncts may be necessary and be able to provide adequate and effective ventilation if necessary.[19] The Practice of BLS among participants was also poor. Half of the participants did not use to obtain vital signs before commencing dental treatment and this practice is more likely to have medical emergency during dental treatment as prior knowledge of vitals help to take appropriate precautionary measures. Most of the participants did not practice the BLS as they are not well trained. Most of the participants demanded frequent training on BLS. Soar et al. also recommended repeated refresher training, especially for individuals who are not practicing resuscitation regularly.[20] Repeated training helps staff retain knowledge in CPR.[21] Most of the participants had experienced emergency in their patients. The most common emergencies experienced in dental clinics by the participants were syncope followed by hypoglycemic, seizure and asthma attacks. Allergic reactions are observed by one tenth of the participants. The dentists must know the management of allergic reactions in dental clinics. Lifesaving measures should be implemented during acute anaphylactic reactions in the dental office to save the life of the patients.[22]

CONCLUSION

The knowledge of BLS was average among the participants and they had a negative attitude toward BLS and their practice on BLS was generally poor. BLS needs to be taught early in the dental profession to improve their knowledge and skills. Various training programs and refresher courses on BLS should be made mandatory during the postgraduate residency to acquire

competency. Frequent training should be conducted to increase the confidence of dental faculties on BLS.

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