



Research Article

AWARENESS OF DENTAL OFFICE MEDICAL EMERGENCIES AMONG INTERNS AND LAST YEAR DENTAL STUDENTS IN RIYADH COLLEGES

Alaa Fenais¹, Lamia Alayyar¹, Asma AlDhwhaihy¹, Atheer Alsarawi¹ and Deema Alshammery*²

¹Dental Student, Riyadh Colleges of Dentistry and Pharmacy, Saudi Arabia

²Department of Preventive Dentistry; Riyadh Colleges of Dentistry and Pharmacy, Saudi Arabia

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ABSTRACT

As A health care provider you can face any medical emergencies that can be life-threatening. The aim of this study was to evaluate the awareness of dental student and intern toward the medical emergencies in dental office. An online survey was distributed, the result found a lack of knowledge about the management of medical emergencies among the undergraduate student and Intern

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INTRODUCTION

As A health care provider you can face any medical emergencies that can be life-threatening. Laurent 2009

It is well known that the key to prevent any complication by taking detailed medical history, examining the patient and formulating a comprehensive treatment plan depending on his/her medical condition. Mohan M 2015

According to the literature, the most common medical emergencies in the dental chair are syncope, angina pectoris, cardiac arrest, postural hypotension, swallowed foreign bodies, bronchospasm, anaphylaxis, hypoglycemia and seizures.³ It's evident that emotional stress can lead to medical emergencies while dental treatment is being held.⁴ Insufficiency of managing medical emergency can lead to legal action and serious consequences⁵. A well prepared dental practitioner can attend medical emergencies and be able to initiate primary management to minimize the risk of mortality and morbidity.⁶

Its intractable to find a dental practitioner who feels qualified and confident in managing with a medical emergency that may occur in the dental chair because of the superficially discussion in the undergraduate course.⁷

Aim

The purpose of this study is to assess and determine the level of knowledge, attitude, perceived confidence of the dental interns and last year dental students in Riyadh Colleges to manage medical emergencies while treating patients in the dental clinic.

MATERIALS AND METHODS

- It is a Cross sectional study
- An online survey questionnaire was developed using

Survey monkey, consisting of (17) questions about

1. Medical emergencies in dental offices.
 2. Basic life support (BLS), Cardiopulmonary resuscitation (CPR).
- The survey was distributed to all interns and last year undergraduate students in Riyadh colleges of dentistry and pharmacy through their official college email and using the social media Twitter to maximize the distribution.

Statistical Analysis

- The answers and data was tabulated and analyzed statistically using SPSS version 18 software.
- A man witney test was used for the analysis.
- A 95% confidence level was used a P value of less than or equal to 0.05 was considered statistically significant.

RESULTS

Of the total 251 respondents, 72% (n=180) were female and 28% (n=71) male (Figure 1). Figure 2 shows the distribution of respondents according to level.

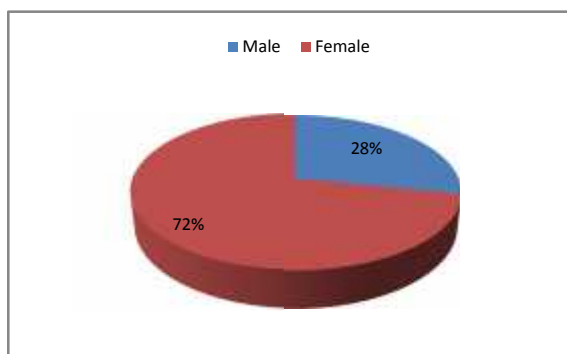


Figure 1 Distribution of gender (n=251)

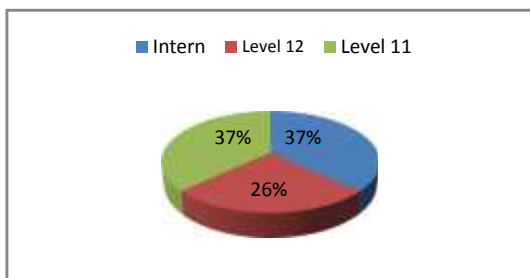


Figure 2 Distribution of student according to level (n=248)

Figure 3 displays where did the participants take CPR course with majority from hospital/college (89%, n=222). The majority of the respondents cannot give intramuscular (55.6%, n=139) and intravenous injections (71.2%, n=178), and have not performed CPR on a patient (88%, n=220) (Table 1).

The relationship between the awareness and the Gender

Males are more likely to handle any emergency condition in their dental office, aware of emergency kits available at their dental college, can give intramuscular and intravenous

Table 1 Variables

		n (%)
Do you enquire about medical history? (n=250)	Yes	232 (92.8)
	No	18 (7.2)
Do you think you can handle any emergency condition at your dental office? (n=250)	Yes	75 (30.0)
	No	62 (24.8)
	Don't know	113 (45.2)
Are the emergency kits available at your dental college? (n=248)	Yes	132 (53.2)
	No	31 (12.5)
	Don't know	85 (34.3)
Can you give an intramuscular injection? (n=250)	Yes	81 (32.4)
	No	139 (55.6)
	Don't know	30 (12.0)
Can you give an intravenous injection? (n=250)	Yes	34 (13.6)
	No	178 (71.2)
	Don't know	38 (15.2)
Have you ever attended a CPR course/training? (n=250)	Yes	239 (95.6)
	No	11 (4.4)
Have you ever performed a CPR on a patient? (n=250)	Yes	30 (12.0)
	No	220 (88.0)
Have you heard about BLS? (n=249)	Yes	206 (82.7)
	No	43 (17.3)
Do you think BLS training should be part of your Dental curriculum? (n=249)	Yes	207 (83.1)
	No	15 (6.0)
	Don't know	27 (10.8)
Do you think BLS should be done only in hospital settings? (n=250)	Yes	48 (19.2)
	No	156 (62.4)
	Don't know	46 (18.4)
Please indicate the reason for lack of knowledge about BLS? (n=245)	Busy curriculum	61 (24.9)
	Lack of interest	39 (15.9)
	No professional training available	70 (28.6)
	Unaware	75 (30.6)
	Poor	105 (42.0)
Please rate yourself on BLS knowledge? (n=250)	Good	122 (48.8)
	Excellent	23 (9.2)
	Code red	37 (14.8)
	Code yellow	7 (2.8)
Please indicate the code for help in case of medical emergency in your setup? (n=250)	Code blue	201 (80.4)
	Code black	5 (2.0)
	911	34 (13.6)
	997	168 (67.2)
	998	32 (12.8)
Please indicate the dialing number for help in case of medical emergency in your country? (n=250)	999	16 (6.4)

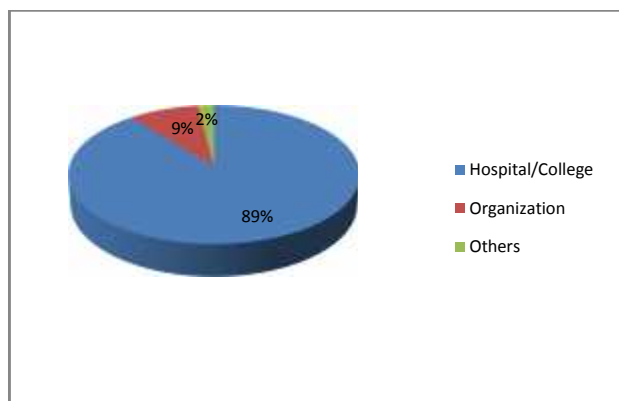


Figure 3 CPR course location (n=249)

injection, have performed CPR on a patient, think BLS should be done only in hospital settings, indicate no professional training available as the reason for lack of knowledge about BLS, rate themselves poor on BLS knowledge, and indicate code red in case of medical emergency and dial 997 p <0.05. On the other hand, females are more likely to enquire about medical history, have attended a CPR course/training, have heard about BLS and think BLS training should be part of your dental curriculum, indicate busy curriculum as the reason for lack of knowledge about BLS, rate themselves good on BLS knowledge, and indicate code blue for help in case of medical emergency and dial 999p<0.05.

The relationship between the awareness and the Level

Interns are more likely to think you can handle any emergency condition at their dental office, are aware of the emergency kits available at their dental college, have attended a CPR course/training, have heard about BLS, think BLS training should be part of their dental curriculum and should be done only in hospital settings, indicate unawareness as the reason for lack of knowledge about BLS, rate themselves good on BLS knowledge, and indicate code blue and dial 997 for help in case of medical emergency.

quite common and increasing⁸. It can also occur anytime in dental practice. Lack of knowledge about medical emergencies may lead to feelings of insecurity, dissatisfaction or limited appreciation of responsibility of dentists. Basic life support is the responsibility of the dentist if any medical emergency occurs in the dental office. However, not all dentists around the world are capable of performing proper CPR. The BLS course trains participants in management of various emergencies. The inability to perform proper BLS in the dental office will be the ultimate concern⁹¹⁰.

Table 2 Relationship with gender

		Male n (%)	Female n (%)	p value
Do you enquire about medical history? (n=250)	Yes	60 (90.0)	169 (93.9)	0.286
	No	7 (10.0)	11 (6.1)	
Do you think you can handle any emergency condition at your dental office? (n=250)	Yes	31 (44.0)	44 (24.4)	0.000*
	No	32 (31.4)	40 (22.2)	
	Don't know	17 (24.3)	96 (53.3)	
Are the emergency kits available at your dental college? (n=248)	Yes	39 (55.7)	93 (52.2)	0.198
	No	12 (17.1)	19 (10.7)	
	Don't know	19 (27.1)	66 (37.1)	
Can you give an intramuscular injection? (n=250)	Yes	28 (40.0)	53 (29.4)	0.269
	No	34 (48.6)	105 (58.3)	
	Don't know	8 (11.4)	22 (12.2)	
Can you give an intravenous injection? (n=250)	Yes	18 (25.7)	16 (8.9)	0.002*
	No	41 (58.6)	137 (76.1)	
	Don't know	11 (15.7)	27 (15.0)	
Have you ever attended a CPR course/training? (n=250)	Yes	66 (94.3)	173 (96.1)	0.507
	No	4 (5.7)	7 (3.9)	
Have you ever performed a CPR on a patient? (n=250)	Yes	14 (20.0)	16 (8.9)	0.028*
	No	56 (80.0)	164 (91.1)	
Have you heard about BLS? (n=249)	Yes	50 (71.4)	156 (87.2)	0.005*
	No	20 (28.6)	23 (12.8)	
Do you think BLS training should be part of your Dental curriculum? (n=249)	Yes	51 (72.9)	156 (87.2)	0.018*
	No	8 (11.4)	7 (3.9)	
	Don't know	11 (15.7)	16 (8.9)	
Do you think BLS should be done only in hospital settings? (n=250)	Yes	16 (22.9)	32 (17.8)	0.395
	No	33 (55.7)	117 (65.0)	
	Don't know	15 (21.4)	31 (17.2)	
Please indicate the reason for lack of knowledge about BLS? (n=245)	Busy curriculum	14 (20.0)	47 (26.9)	0.096
	Lack of interest	10 (14.3)	29 (16.6)	
	No professional training available	28 (40.0)	42 (24.0)	
	Unaware	18 (25.7)	57 (32.6)	
	Poor	34 (48.6)	71 (39.4)	
Please rate yourself on BLS knowledge? (n=250)	Good	32 (45.7)	90 (50.0)	0.290
	Excellent	4 (5.7)	19 (10.6)	
	Code red	26 (37.1)	11 (6.1)	
Please indicate the code for help in case of medical emergency in your setup? (n=250)	Code yellow	4 (5.7)	3 (1.7)	0.000*
	Code blue	36 (51.4)	165 (91.7)	
	Code black	4 (5.7)	1 (0.6)	
	911	9 (12.9)	25 (13.9)	
Please indicate the dialing number for help in case of medical emergency in your country? (n=250)	997	49 (70.0)	119 (66.1)	0.028*
	998	11 (15.7)	21 (11.3)	
	999	1 (1.4)	15 (8.3)	

*p 0.05 is statistically significant

Level 12 are more likely to enquire about medical history, can give an intramuscular and intravascular injection, indicate unawareness as the reason for lack of knowledge about BLS, rate themselves good on BLS knowledge, and indicate code blue and dial 999 for help in case of medical emergency.

Level 11 are more likely to have performed a CPR on a patient, indicate *no professional training available* as the reason for lack of knowledge about BLS, rate themselves poor on BLS knowledge, and indicate code red and dial 998 for help in case of medical emergency.

DISCUSSION

The frequency of medical emergencies in the dental office is

Only one study has been reported on the BLS knowledge among dental professionals in the Kingdom of Saudi Arabia. The current survey evaluated the level of knowledge, attitude, perceived confidence, and preparedness of the dental interns and final year undergraduate dental students to manage medical emergencies while treating patients in the dental clinic. Our study of 251 dental interns and final year dental students found that 95.6% reported having attended CPR course/training but only 12% had performed CPR on a patient. On the contrary, previous studies reported that the majority of the dental students and interns did not receive any training¹¹⁵¹².

Table 3 Relationship with level

		Intern n (%)	Level 12 n (%)	Level 11 n (%)	p value
Do you enquire about medical history? (n=250)	Yes	84 (92.3)	62 (96.9)	84 (91.3)	0.373
	No	7 (7.7)	2 (3.1)	8 (8.7)	
Do you think you can handle any emergency condition at your dental office? (n=250)	Yes	31 (34.1)	18 (28.1)	24 (26.1)	0.400
	No	23 (25.3)	12 (18.8)	27 (29.3)	
	Don't know	37 (40.7)	34 (53.1)	41 (44.6)	
Are the emergency kits available at your dental college? (n=248)	Yes	51 (57.3)	32 (50.0)	46 (50.0)	0.779
	No	11 (12.4)	7 (10.9)	13 (14.1)	
	Don't know	27 (30.3)	25 (39.1)	33 (35.9)	
Can you give an intramuscular injection? (n=250)	Yes	30 (33.0)	24 (37.5)	25 (27.2)	0.259
	No	51 (56.0)	29 (45.3)	58 (63.0)	
	Don't know	10 (11.0)	11 (17.2)	9 (9.8)	
Can you give an intravenous injection? (n=250)	Yes	11 (12.1)	13 (20.3)	8 (8.7)	0.160
	No	69 (75.8)	39 (60.9)	69 (75.0)	
	Don't know	11 (12.1)	12 (18.8)	15 (16.3)	
Have you ever attended a CPR course/training? (n=250)	Yes	90 (98.9)	61 (95.3)	85 (92.4)	0.102
	No	1 (1.1)	3 (4.7)	7 (7.6)	
Have you ever performed a CPR on a patient? (n=250)	Yes	9 (9.9)	6 (9.4)	13 (14.1)	0.563
	No	82 (90.1)	58 (90.6)	79 (85.9)	
Have you heard about BLS? (n=249)	Yes	83 (91.2)	53 (82.8)	68 (74.7)	0.013*
	No	8 (8.8)	11 (17.2)	23 (25.3)	
Do you think BLS training should be part of your Dental curriculum? (n=249)	Yes	79 (87.8)	55 (85.9)	70 (76.1)	0.155
	No	3 (3.5)	5 (7.8)	7 (7.6)	
	Don't know	8 (8.9)	4 (6.3)	15 (16.3)	
Do you think BLS should be done only in hospital settings? (n=250)	Yes	20 (22.0)	10 (15.6)	17 (18.5)	0.732
	No	57 (62.6)	42 (65.6)	55 (59.8)	
	Don't know	14 (15.4)	12 (18.8)	20 (21.7)	
Please indicate the reason for lack of knowledge about BLS? (n=245)	Busy curriculum	22 (25.0)	16 (25.0)	22 (24.4)	0.794
	Lack of interest	11 (12.5)	11 (17.2)	16 (17.8)	
	No professional training available	24 (27.3)	16 (25.0)	29 (32.2)	
	Unaware	31 (35.2)	21 (32.8)	23 (25.6)	
Please rate yourself on BLS knowledge? (n=250)	Poor	27 (29.7)	28 (43.8)	49 (53.3)	0.005
	Good	53 (58.2)	27 (42.2)	40 (43.5)	
	Excellent	11 (12.1)	9 (14.1)	3 (3.3)	
Please indicate the code for help in case of medical emergency in your setup? (n=250)	Code red	11 (12.1)	6 (9.4)	19 (20.7)	0.129
	Code yellow	2 (2.2)	2 (3.1)	3 (3.3)	
	Code blue	78 (85.7)	55 (85.9)	66 (71.7)	
	Code black	0 (0.0)	1 (1.6)	4 (4.3)	
Please indicate the dialing number for help in case of medical emergency in your country? (n=250)	911	14 (15.4)	9 (14.1)	10 (10.9)	0.813
	997	63 (69.2)	41 (64.1)	62 (67.4)	
	998	10 (11.0)	8 (12.5)	14 (15.2)	
	999	4 (4.4)	6 (9.4)	6 (6.5)	

*p 0.05 is statistically significant

A total of 48 (19.2%) felt that BLS should be done only in hospital setting. The reasons attributed for lack of awareness about BLS in this study included being unaware (75, 30.6%), lack of available professional training (70, 28.6%), busy curriculum (61, 24.9%), and lack of interest (39, 15.9%). The results of the present study were consistent with the study conducted by Aroor *et al.* A large number of study participants (83.1%) were of the opinion that training of BLS should be a part of the undergraduate curriculum. This finding was similar to studies by Sharma and Attar¹⁴ and Alotaibi *et al.*

This revealed their desire to obtain the knowledge, indicating a need for a revision in the dental graduate curriculum.

This study showed that only 30% could handle any emergency condition at dental office. Gender and student level might have an effect on the knowledge of the respondents. The knowledge was significantly higher among females and interns when compared to males and final year students. This finding was similar to that reported by Alotaibi *et al* and Reddy *et al.* With regards to the competency in the areas of drug administration by intramuscular and intravenous injections, the majority reported poor knowledge.

This finding was similar to a study by Jodalli and Ankola. Forty two percent rated their knowledge on BLS as poor. However, the majority were aware of the code for help and dialing number in case of medical emergency.

One of the limitations of this study is that it was conducted in one private dental school in the Kingdom, thus it may not be representative of the national picture. Although the study included final year dental students and dental interns, the practical and cognitive skills of BLS is not assessed in this study. This limitation is because of the fact that it is a questionnaire-based study. Finally, inadequate sample size could be a limitation and thus may not provide support to generalise the findings to the population under study.

CONCLUSION

In this study, we found a lack of knowledge about the management of medical emergencies among the final year dental students and dental interns. However, they had a positive attitude towards BLS. The findings points to the need for the training of dentists in the management of medical emergencies at the undergraduate, postgraduate, and continuing education levels.

Recommendation

We recommend that future research address the assessment of practical and cognitive skills required for BLS. Attending continuing dental education programs consisting of workshops and hands-on courses in this field should be made mandatory. Dental students must be familiar with the treatment protocol if a medical emergency occurs in the dental office. Educational institutions should be involved in the training of students and professionals for CPR and other emergencies that can occur in the dental office. CPR should be considered as part of dental curriculum. Moreover, we recommend evaluating the BLS knowledge among other dental institutes and hospitals in the Kingdom.

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