

# Medical Emergencies Occurrence in Dental Settings and Dentists' Self-Perceived Need for Practical Training

## Original Article

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## Abstract

**Introduction:** Medical emergencies can frequently happen in dental settings and inability to cope with them can lead to tragic outcomes. The aim of this study was to evaluate the occurrence of medical emergencies in dental settings in Babol, Iran and dentists' self-perceived need for practical training in this field.

**Materials and Methods:** A descriptive-analytical study was performed by using a questionnaire containing questions about the frequency of medical emergencies during the previous year and dentists' self-perceived need for training to manage these cases. Data were analyzed by SPSS 18.0. Chi-square and t-test were used to evaluate the correlation between the variables.  $P < 0.05$  was considered statistically significant.

**Results:** One hundred and twelve (84%) dentists answered the questionnaire. Collectively, 19 emergency cases were experienced by 17 dentists during the last year. The most prevalent emergency was vasovagal syncope (47%) and the least was anaphylactic shock (10%). One hundred and two dentists felt the need for practical training in medical emergencies. The need was perceived more by women, general dentists and those with more than 10 years occupation. But the correlation between sex, degree of education and duration of occupation and self-perceived need for training was not significant ( $p > 0.05$ ).

**Conclusion:** Vasovagal syncope was the most prevalent emergency in dental settings. Most of the respondents were in favor of continuous education regarding the practical training in management of medical emergency.

**Key words:** • Emergency Medical Services  
• Dentists • Education

## Introduction

Medical emergencies can frequently happen in dental settings and inability to cope with them can lead to tragic outcomes.<sup>(1)</sup>

There are some factors that can increase the risk of medical emergencies in dental settings. One is the increased longevity of population leading to medical conditions which predispose them to medical emergencies. Another is the increased propensity to prescribe medication in dentistry and scientific improvements in dentistry for treating medically compromised patients.

On the other hand, some factors can decrease the risk of medical emergencies such as thorough evaluation of patient's medical history, physical examination and preparedness for possible changes in treatment plan in case of emergency.<sup>(2,3,4)</sup> Every dental setup should be prepared to handle all expected medical emergencies effectively. Such preparedness would include knowledge and science of the clinician, training of clinical staff and availability of emergency drugs and equipment in the dental clinics.<sup>(5)</sup>

Therefore, studies about the types and prevalence of medical emergencies occurring in dental offices, as well as about the preparedness and experience of dentists in dealing with emergencies, have been conducted in various countries.<sup>(6-10)</sup>

According to a study performed by Chapman in Australia, the most prevalent emergencies were reaction to anaesthetic agents, Angina pectoralis and epilepsy.<sup>(7)</sup>

In the study of Girdler et al. in Great Britain, the most recorded emergencies by dentists were vasovagal syncope, hypoglycemia, angina pectoralis, epilepsy, airway obstruction, Asthma, anaphylaxis, myocardial infarction and cardiac arrest.<sup>(11)</sup>

The aim of this study was to evaluate the occurrence of medical emergencies in dental settings in Babol, Iran and dentists' self-perceived need for practical training in this field.

## Materials and Methods

A questionnaire approach was chosen for this descriptive-analytical study. Based on an inquiry from Babol Medical Council, a list of active general and specialist dental settings was prepared. After explanation about the aim of the study, the dentists filled the anonymous questionnaire (figure 1).

The demographic information of each dentist such as age, sex, year of graduation, duration of occupation and education degree were recorded. Also, the questionnaire contained closed ended questions about the occurrence of emergency events in the previous year and dentists' self-perceived need for practical training to manage these cases. Data were subjected to descriptive analysis using SPSS 18.0 to identify the most frequent emergency events.

Chi-square and t-test were used to evaluate the correlation between the variables.  $P < 0.05$  was considered statistically significant.

## Results

One hundred and twelve (84%) out of 132 dentists filled in the questionnaire of which 79 (70.5%) were males and 33 (29.5%) females; and 92 (82%) were general dentists and 20 (18%) specialists. The age range of respondents was 26 to 81 (mean  $41.04 \pm 8.45$  years) with the mean age of 28.96 for females and 36.43 for males. The duration of occupation ranged from 2 to 36 years (mean  $13.85 \pm 8.19$  years).

Nineteen emergency cases were experienced by 17 dentists during the past year

including vasovagal syncope, hypotension, syncope (9 cases, 47%) and the least was epilepsy and anaphylactic shock. The most anaphylactic shock (2 cases, 10%). prevalent emergency event was vasovagal

**Figure 1.** A sample of the questionnaire

**In the name of God**  
**Questionnaire**

Medical emergencies in dental setting in Babol: Occurrence and dentists' self-perceived need for practical training

Age:

Sex:      Male       Female

Degree of Education:      General       Specialist

Year of Graduation:

Duration of Occupation:

Do you complete a written medical history of your patients?      Yes       No

Did you have any emergency event happened for your patients during the previous year?

Yes       No

If yes, what was the event?-----

Do you ever participate in CPR (Cardio pulmonary Resuscitation) or medical emergencies workshops?      Yes       No

Do you feel the need for retraining in the field of medical emergencies?

Yes       No

Thanks for your cooperation

Four cases were epileptic attacks that occurred for the first time in the dental clinic and the patients had no history of previous attacks. Totally, 102 dentists (91.1%) felt the need for training in the field of emergency events including 85 out

of 92 general dentists (92.4%) and 17 out of 20 specialists (85%). Although there were more general dentists feeling the need for training, the difference was not statistically significant ( $p=0.1$ ). Thirty one female (93.9%) and 71 male (89.9%) dentists felt

the need for training and the difference was not statistically different ( $p=0.08$ ). Thirty six (87.8%) and 62 (92.5%) dentists whose duration of occupation was less and more than 10 years respectively, felt the need for training. The difference was not statistically significant ( $p=0.07$ ).

**Table 1.** Self-perceived need for dentists' training in the field of medical emergencies.

Groups		Need for training(%)	p-value
sex	Male	89.9	0.08
	Female	93.9	
Degree of education	General	92.4	0.1
	Specialist	85	
Duration of occupation	<10 years	87.8	0.07
	>10 years	92.5	

## Discussion

Totally, 15% of the dentists had encountered at least one emergency event in the previous year. Previous studies have shown the high rates of emergency events in dental clinics. In a similar study performed by Bayat et al. in Karaj, Iran, it was 61.9 %.<sup>(12)</sup> Girdler and Smith have found the rate of 0.7 cases per dentist each year.<sup>(11)</sup> A probable reason for the lower percent of medical emergencies in Babol can be obtaining a thorough medical history from the patients. About 94% of the dentists in Babol completed the medical history of their patients. In the current study, the most prevalent emergency was vasovagal syncope, which might have been due to fear from situation in dental office. Therefore, it can be concluded that dentists may have to pay more attention to their patients before setting up the procedures. In a study performed by Chapman, the most prevalent emergencies were reaction to anaesthetic agents, epilepsy, angina

pectorialis and hypoglycemia.<sup>(7)</sup> according to Malamed, the most reported cases of medical emergencies were hyperventilation, epilepsy and hypoglycemia.<sup>(2)</sup> Possibly, the discordance is because of the difference in the study population, their probable systemic diseases and the difference in performed treatment modalities. However, in studies performed by Atherton et al. and Girdler et al., the most prevalent emergency event was vasovagal syncope.

Eighty four percent of the dentists felt the need for retraining in the field of emergencies. Probably, because the undergraduate students in dental schools are not directly responsible for the accidental events, they do not percept the importance of medical emergencies as they ought to. But after graduation, due to more confrontation to emergencies, they seek more training in this field. Despite the frequent workshops in the field of medical emergencies in dental offices, the self-perceived need for training is remained somehow unchanged. Possibly it is because of deficiencies in university and workshop programs.

As seen, time of task did not show significant relationship with the perceived need for training. Probably, the low rate of emergencies confronted by the dentists in the current study could not provoke them to seek for more training. The dentists should be reminded that the inability to cope with medical emergencies could lead to tragic outcomes.

## Conclusion

In this study, Vasovagal syncope was the most prevalent emergency in dental settings. There was clear need for practical training in management of medical emergencies.

Frequent workshops in the field of medical emergencies in dental offices and their management is suggested.

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