



## ARE WE THE PRACTICING DENTISTS IN KARACHI COMPETENT ENOUGH TO HANDLE MEDICAL EMERGENCIES IN OUR DENTAL PRACTICES?

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### ARTICLE INFO

#### Article History:

Received 15<sup>th</sup> November, 2019

Received in revised form 7<sup>th</sup>

December, 2019

Accepted 13<sup>th</sup> January, 2020

Published online 28<sup>th</sup> February, 2020

#### Key words:

medical emergencies, dental education, management, dental graduates, dental practices, knowledge, attitude, perception, emergency kit, basic life support, dental curriculum.

### ABSTRACT

**Objective:** This study aims to assess the knowledge, attitude, and perception of the general dentist to handle medical emergencies in their practice.

**Introduction:** Health-related crises happening in dental practice can be disturbing. The keys to limiting caution are taking a careful history with the goal that potential crises can be, somewhat, foreseen, and having a piece of decent working information on the most proficient method to oversee crises, should they emerge

**Material and Methods:** In this cross-sectional study, a questionnaire was distributed to a sample of 384 dentists working in private and government dental hospitals in Karachi Pakistan. The data collected was analyzed for frequency and percentages by using SPSS version 22.

**Results:** Over 75.5% of dentists have the required skills and knowledge to manage medical emergencies, 87.2% were trained in (BLS) but only 52.1% dentists are confident to perform (BLS). Most of the dentists (74.5%) responded they had an emergency kit in their dental hospitals. More than 85% of the dentists notified that they can identify and diagnose the patient at risk of developing a medical emergency but only 56.8% were confident enough to manage and treat medical emergencies.

**Conclusion:** This study revealed that a considerable number of dentists had knowledge and skills to manage medical emergencies, but only a few are confident enough to manage and treat medical emergencies. Accentuation ought to be made on the requirement for progressive health-related crisis preparation and to build the information and trust in the administration of health-related crises.

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### INTRODUCTION

An emergency may be defined as a situation occurring mostly due to disease, anxiety or complications during treatment, all of which may put the patient's life at risk. [1] In this way, the health-related crisis requests prompt treatment and effective administration.[2] These are all fatal scenarios any dentist can encounter during their course of treatment. For the most part, a health-related crisis can be forestalled by taking an intensive clinical history, physical examination, and patient monitoring. The most common medical emergencies dentists may face in the dental hospital include syncope, postural hypotension, swallowed foreign bodies, bronchospasm, anaphylaxis, hypoglycemia and seizures, angina pectoris, and cardiac arrest. [3] Medical emergencies are most likely to occur during and after local anesthesia, primarily during tooth extraction and endodontic treatment. The most important aspect of any medical emergency in the dental clinics or hospitals is to prevent and correct insufficient oxygenation of blood to the brain and heart [4].

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The brilliant standard in dealing with any health-related crisis is to perform essential life support (BLS) measures and cardiopulmonary revival (CPR). This is finished by following the essential standards: (P) Position, (A) Airway, (B) Breathing, (C) Circulation and (D) Definitive treatment [5]. A comprehensive medical and drug history is mandatory and should be undertaken by the dentist in person. Identification of patients at risk will help you to modify the treatment planning [6]. Compelling and prompt administration of a crisis condition is, at last, the dental specialist's obligation. The absence of preparing and powerlessness to deal with health-related crises can prompt perilous conditions and some of the time lawful activity. That's why all the wellbeing experts, including the dental specialist, must know and decidedly ready to take care of and work towards health-related crises. [7] Providing fundamental life support (BLS), and the accessibility of basic medications and gear is the dental specialists' most significant commitment until decisive treatment for a health-related crisis can be given. [3,7]. The ability to handle emergency also include staff preparation, and telephoning for help can mean the difference between successful management and failure [8]. Training in basic

techniques of resuscitation, such as mouth-to-mouth respiration combined with cardiac massage, other procedures can be useful to manage an emergency [9]. Barely any examinations have surveyed how equipped dental specialists see themselves as in overseeing health-related crises, and not many investigations as far as anyone is concerned to have revealed contemplate including new dental alumni. A considerable number of dentists in advanced countries are not competent to effectively deal with the commonly occurring medical emergencies [10]. In a study conducted by Syed Hammad and his colleagues, a greater part almost 73.8% of the dental experts accepted that they were suitably prepared either in their undergrad or postgraduate practice in acknowledgment of health-related crises. Be that as it may, a large portion of these clinicians felt that they were not sufficiently prepared in the administration of these crises and just 29.4% of the dental specialists had taken Basic Life Support courses. A decent number of dental centers had practically zero gear or medicaments for the administration of basic health-related crises. Just 49.6% of the dental professionals guaranteed that they were happy with their readiness in regards to the administration of health-related crises (11) Medical emergency management is instructed in the undergrad educational programs for 10-15 hours in many institutions, and this delivery of the content is devoted to lectures generally, rather than being taught through workshops or other standardized methodologies. The motivation to lead this study was to accumulate data on practicing dental physician's information, observation, and belief in taking care of Medical Emergencies. The need to prepare the dental community should be rethought in such a way, that all graduates can accomplish the results wanted for this preparation. An adequate measure of time with the decision of instructing approach like a workshop will work in a greatly improved manner to accomplish these goals. In this way based on these discoveries of the examination, these proposals needs to be incorporated because of the dire need for training required for dental graduates. Therefore, this study aims to provide vision to the knowledge and management of commonly occurring medical emergencies and complications in the dental practice [3,7].

**MATERIAL AND METHODS**

This cross-sectional study was conducted throughout 8 months. from July,18 to February,19. A questionnaire was distributed to a sample of 384 dentists working in private and government dental hospitals in Karachi, Pakistan which includes Hamdard Medical College, Baqai Dental College, Bahria University Medical and Dental College, Karachi Medical and Dental college, Fatima Jinnah Dental College, Altamash Institute of Dental Medicine and Ziauddin College of Dentistry. The inclusion criteria was to have fresh graduates, general dental practitioners and postgraduates who ever have medical emergency training like BLS or CPR, have used or maintained medical emergency kit (adrenaline, salbutamol, glyceryl, aspirin, glucagon, transamine oxygen cylinder) in their setup and had encountered medical emergencies like hypoglycemia, allergic reaction, choking and aspiration, syncope, epilepsy or laryngospasm. For a finite population, the sample size was estimated with the help of open epi version 3.03a by using the formula  $N = Z^2 P(1-P) / D$ . Here the 95% was taken as confidence level, with the prevalence rate of 50% and 5% margin of error. The final

sample size for the study was 384 dental practitioners by using this formula. For developing a research sample, a simple random sampling technique (probability method) was used. The selected sample included qualified general dentists, postgraduate and specialist, however, the undergraduate students were excluded. The data collection procedure was done by distributing and collecting filled questionnaire on the same day in various private and government dental hospitals. The data collected were analyzed for frequencies and percentages by using SPSS version 22.

**RESULTS**

About 384 dental experts employed in government & private dental hospitals participated in this study. In this study over 87.2% of the dentist has had training in BLS and 88% of participants know how to perform CPR but only 52.1% are confident to perform CPR. About 95.8% claimed they take a complete past medical history of all their patients. 64.8% of the practitioners have resuscitation training to the minimum prescribed level and 45.3% revalidate their resuscitation training. (Table:1)

**Table 1** The response of information, perspective, and reliance on taking care of health-related crises among dental experts.

Questions	Positive response (%)	Negative response (%)
Did you ever attend a BLS workshop?	87.2	12.8
Do you take past medical history?	95.8	4.2
Have you experienced any medical emergency in practice?	75.8	24.2
Do you have the required skills & knowledge to manage emergencies?	75.5	24.5
Do you know how to perform CPR?	88.0	12.0
Are you confident to perform CPR?	52.1	47.9
Do you have resuscitation training to the minimum prescribed level?	64.8	35.2
Do you frequently revalidate your resuscitation training?	45.3	54.7
Can you identify the patient at risk of developing a medical emergency?	88.3	11.7
Can you diagnose any medical emergency?	86.5	13.5
Were you confident enough to manage and treat a medical emergency?	56.8	43.2

Almost 74.5% of the practitioners have an emergency kit in their practice. In which 72.4% adrenaline, only 36.5% of the salbutamol, 43% glyceryl trinitrate, 61.2% Aspirin, 46.1% oxygen cylinder, 42.7% glucagon and 63.5% trasamine was available in their kit. (Table:2)

**Table 2** The extent of emergency drugs available in the hospital.

Questions	Positive response (%)	Negative response (%)
Do you have an emergency kit in your practice?	74.5	25.5
Do you have Adrenaline available in your emergency kit?	72.4	27.6
Do you have Salbutamol available in your emergency kit?	36.5	56.5
Do you have a Glyceryl trinitrate available in your emergency kit?	43.0	57.0
Do you have Aspirin available in your emergency kit?	61.2	38.8
Do you have an Oxygen cylinder available in your emergency kit?	46.1	53.9
Do you have Glucagon available in your emergency kit?	42.7	57.3
Do you have Transamine available in your emergency kit?	63.5	33.5

Most of the dentist (75.8%) have experience medical emergency in their practice. Hypoglycemia was experienced by 66.4% of the dentists, making it the most common emergency. Vasovagal syncope was experienced by 52.6% of the dentists, the second most common medical emergency. Only 29.2% of epilepsy, 22.9% allergic reactions, 16.4% choking and aspiration, 15.1% cardiac conditions, and 8.3% laryngospasm are the least common experienced emergencies. (Table:3)

**Table 3** The extent of medical emergency experienced by the practitioners

Questions	Positive response (%)	Negative response (%)
Have you experienced Hypoglycemia?	66.4	33.6
Have you experienced allergic reactions?	22.9	77.1
Have you experienced Choking & Aspiration?	16.4	83.6
Have you experienced Cardiovascular conditions?	15.1	84.9
Have you experienced Syncope?	52.6	47.4
Have you experienced Epilepsy?	29.2	70.8
Have you experienced Laryngospasm?	8.3	91.7

Over 75.5% of dentists have the skills and knowledge to manage medical emergencies but only 56.8% were confident enough to manage and treat a medical emergency.

**DISCUSSION**

Health-related crises can and do happen in dental work on the setting. The dental specialist must remember them and start essential crisis board techniques to diminish dreariness and mortality when such antagonistic occasions emerge. Preparation of emergencies involve personal and staff preparation, wherein individual and staff arrangement incorporate knowledge of sign, symptoms, and management of medical emergencies, BLS (basic life support) measures, and CPR (cardiopulmonary resuscitation). Clinic preparation involves maintaining emergency equipment, emergency drugs, and backup medical assistance. The consequences of this investigation affirmed that dental specialists are not prepared to manage a health-related crisis and noticed a requirement for progressively escalated instruction in health-related crises. The most commonly reported emergencies in our study are hypoglycemia and syncope. A small proportion of dentists experienced life-threatening medical conditions such as foreign body aspiration, adverse reactions, and cardiac conditions. As wellbeing experts, dental specialists must know that they are managing human life and should thus expect the dangers and obligations inborn to their occupation. Most of the practitioners (88%) in the study know to perform CPR, but few (52.1%) were skilled in performing on the patient. The result of our study established that 43.2% of the dentists were unable to manage medical emergencies. Most of the dentist (74.5%) have an emergency kit in their clinics. The present study found that 72.4% of the dentists kept adrenaline, 36.5% of the salbutamol, 43% glyceryl trinitrate, 61.2% Aspirin, 46.1% oxygen cylinder, 42.7% glucagon, and 63.5% trasamine in their dental clinics. Most of the dentists (75.8%) have experienced a medical emergency in their practice. Over 75.5% of dentists have the skills and knowledge to manage medical emergencies but only 56.8% were confident to manage and treat a medical emergency. It is additionally

essential to guarantee that preparation in the utilization of the medications and gear dental specialists are required. (12) . In 1986, Shirlaw announced the aftereffects of a poll review of 1200 GDPs in the southwest of England which found that, in light of a 40% reaction, 38% of respondents had an aviation route, 31% adrenaline, 30% hydrocortisone, 14% glucose, 12% an antihistamine and 12% an AMBU pack, yet 20% were found to have no particular methods for giving oxygen in a crisis. (13)

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In our study, we have found out that over 75.5% of dentists have the skills and knowledge to manage medical emergencies but only 56.8% were confident enough to manage and treat a medical emergency. While a poll study among UK dental specialists announced that one of every five regarded themselves "not well overall" or "not in the least" readied to oversee health-related crises should they emerge in their medical procedures, and 96% communicated a requirement for additional training. (15) The requirement for kit preparation was likewise communicated by Australian dental specialists, where over half of them considered themselves capable in CPR. (16) In Ireland, there is insufficient accessibility of supplemental classes right now. The executives of health-related crisis circumstances ought to be a center subject in the proposed proceeded with proficient advancement program.

As consistently accepted, anticipation is the best medication. Thus, being set up for a crisis and accepting that a crisis is a genuine plausibility in a dental facility is of the most extreme significance. Whenever an emergency has been recognized, most important is to follow ABC (airway, breathing, circulation). The dental specialist should always remember that the administration of drugs is not necessary for the management of an emergency and primary management always involves BLS measures. Abilities educated ought to be revived every year and every single new alumnus must experience revival preparing. The administration of health-related crises should, along these lines, be a center subject in the proposed preceded with a proficient improvement program. Future postgraduate preparation in crisis care for dental specialists should be more precisely focused on the known predominance of crises and lacks in dental specialists' crisis aptitudes. (17) .

The weakness of our study was a small sample size and a limited range of research. The study could be undertaken for larger sample size and vast scope including other variables like period allocated to medical emergency lecture and training.

## CONCLUSION

The study findings demonstrate that health-related crises are now and again experienced in dental centers and that a significant extent of dental specialists had information and abilities to oversee medical emergencies, yet just a couple can deal with the crisis conditions. Most of the dentists have had training in BLS but only 52.1% of the respondents felt confident to perform CPR. The investigation has permitted discovering lacks in the manner the dental specialists were prepared in managing health-related crises and point out a requirement for development. Dentists must gain more adequate education and training to increase knowledge and confidence in the management of medical emergencies.

## Recommendations

With a moderately high prevalence of health-related crises happening in dental practice, it is significant that dental specialists are positive about the administration of a health-related crisis, especially in its underlying stages, have the suggested crisis gear and medications accessible in their practices, also, get proper practice at both undergraduate and postgraduate levels. Some dentists have suggested yearly CPR supplemental classes, and that further courses ought to be made accessible to dental specialists as required. We see no explanation behind this not to apply right now. Attention to the substance of the suggested negligible health-related first aid pack ought to be effectively advanced among dental specialists. Preparing in availability for health-related crises ought to be focused on for proceeding with dental instruction courses, and these ought to be forcefully advanced. Given the aftereffects of the present study, there is a hole in the information and trust in the treatment of therapeutic crises experienced during dental treatment strategies. It involves worry that needs to be considered. Dental foundations need to consolidate dealing with health-related crises in their educational plan. There are numerous approaches to improve and refresh the information and aptitudes of dealing with health-related crises, for example, inculcating medical emergency practice programs into dental curricula, a continuous training courses with hands-on training, eventually leading to an uplifting of functional abilities.

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