

Preparedness of Dental Students in Handling Medical Emergencies: A Survey Study

Abhijeet Gupta¹, Ritvik Patel², Rashmi Sahasrabudhe¹, Shivani Pandey³, Pooja Katira⁴, Gabriela Fernandes⁵

¹Bharati Vidyapeeth dental college, Navi Mumbai, Maharashtra

²Krishna institute of medical sciences, Karad, Maharashtra, India

³Vishwanath Katti Institute Of Dental Sciences, KLE Academy Of Higher Education and Research, Belgaum, Karnataka.

⁴Department of Pedodontics, Pacific dental college, Udaipur, Rajasthan, India

⁵Department of Oral Biology, School of dental medicine, SUNY Buffalo, Buffalo, New York, USA

⁶Private practice, Mumbai, Maharashtra, India

Correspondence: Dr. Gabriela Fernandes, Department of Oral Biology, School of dental medicine, SUNY Buffalo, Buffalo, New York, USA.

Abstract:-

Aim: The aim of this survey was to assess the level of preparedness of dental students in handling medical emergencies that may arise in dental practice.

Method: A survey was conducted with 186 dental students, their responses were analyzed, and conclusions drawn from it.

Result: The results showed that the vast majority of dental students are ill prepared in matters concerning the management of potentially life threatening emergency scenarios that may arise in clinical practice. Majority of the respondents knew how to diagnose a medical emergency in a dental practice (70.4%), and even knew the protocols to follow (66.7%). However, results took a negative turn when it came to executing the procedures. Only a small portion of 30.1% had an emergency kit ready at their place of practice and just 15.1% felt that they have been adequately trained. 62.9%, 79% and 73.1% did not know how to perform procedures such as Basic Life Support (BLS), intramuscular/ intravenous drug administration, and the Heimlich manoeuvre respectively. Almost everyone, i.e. 97.3% were willing to undergo further training and 95.3% felt the need to include BLS and ALS as separate programs in the dental curriculum.

Conclusion: Improved training and reforms in dental curriculum are essential in ensuring that dentists can successfully handle medical emergencies, should they arise.

Keywords: Dentists, students, preparedness, medical emergency

Date of Submission: 10-06-2020

Date of Acceptance: 27-06-2020

I. Background:

A medical emergency is a serious and unexpected situation, involving illness or injury, and requiring immediate reaction [1-4]. Although fortunately an uncommon occurrence in dental practice, it can be challenging to even the best of clinicians. An ideal management strategy would involve having the following: i) adequate training and knowledge, ii) emergency drugs and equipment, iii) assistance, when required, and iv) quick thinking and a calm mind.

II. Material and Methods:

This survey was conducted by means of a questionnaire prepared using Google Forms, and distributed by social media to potential participants. A total of 186 responses were collected from dental students of 6 colleges. Inclusion criteria: only final year dental students and interns were considered as valid participants. 19 questions were asked (discussed below), answers collected, and results obtained.

III. Results:

From the 186 respondents, 29.6% did not know how to diagnose medical emergencies and 33.3% were unaware of common protocols for managing an emergency case. When asked about access to commonly used emergency drugs and equipment, only a small portion of 30.1% said that they did have ready access. 80.1% of the respondents had not encountered any medical emergency, till the time of this survey. When questioned about

assistance, 79% said that they would ask for assistance, or have asked for assistance, in handling a medical emergency. Majority of the participants, 62.4% said that the training they received was purely theoretical, a small 5.3% said that they received practical training as well, 22.6% reported both theoretical as well as practical training, while 9.7% said that they had received no training whatsoever. In view of this, a discouraging 84.9% participants felt that they were inadequately trained in handling medical emergency, and the most common reasons cited were the lack of resources and the lack of time. A promising 97.3% showed willingness to undergo proper training in handling emergencies, and a resounding 99.5% agreed that dentists as well, should know how to handle medical emergencies. 95.7% think that a separate BLS and ALS program should be incorporated in the dental curriculum and 95.2% agree that all emergency drugs and equipment should be kept available at every treatment facility. 89.2% felt that vitals should be monitored at every appointment, and not just at the initial one. Surprisingly, 20.4% of the students did not know how to measure vitals, 62.9% did not know how to perform BLS, 37.1% did not know how to perform proper CPR, and a staggering 79% did not know how to perform different injection techniques for emergency drugs. Speaking of specifics, 73.1% did not know how to perform the Heimlich manoeuvre, and 26.9% did not know how to correctly check for carotid pulse.

Do you know how to diagnose medical emergencies?

186 responses

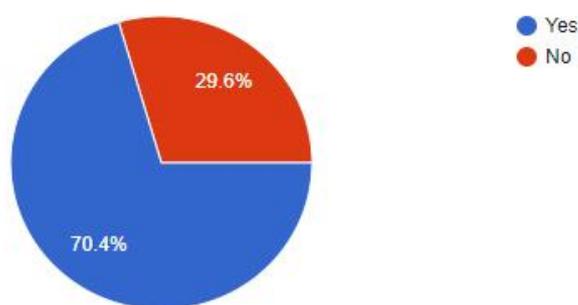


FIG. 1

Do you know about common protocols for managing medical emergencies?

186 responses

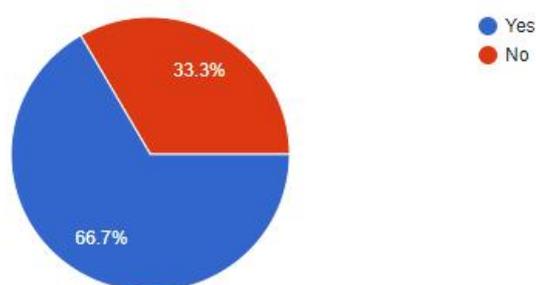


FIG. 2

Do you have ready access to commonly used drugs and equipment used for managing medical emergencies?

186 responses

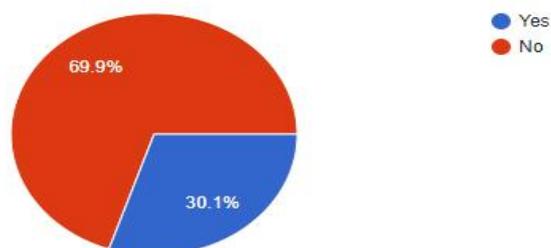


FIG. 3

Have you personally encountered any medical emergency during your practice?

186 responses

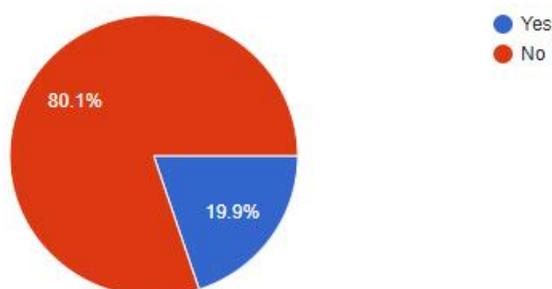


FIG. 4

...if "Yes", did you ask for assistance? ...if "No", will you ask for assistance if faced with a medical emergency?

186 responses

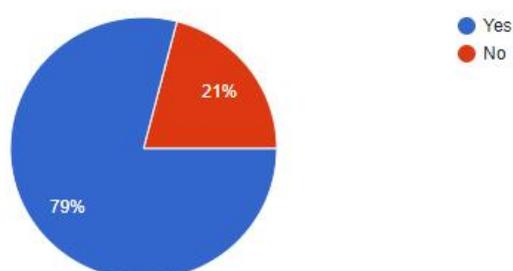


FIG. 5

What kind of training have you received in managing medical emergencies?

186 responses

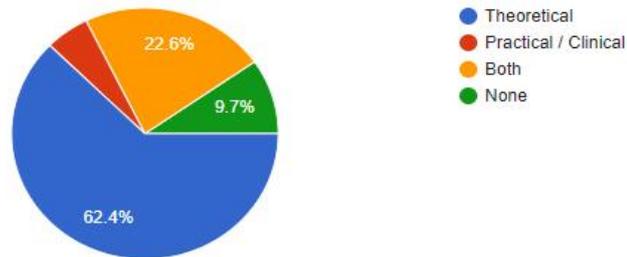


FIG. 6

Do you feel you are adequately trained to handle medical emergencies?

186 responses

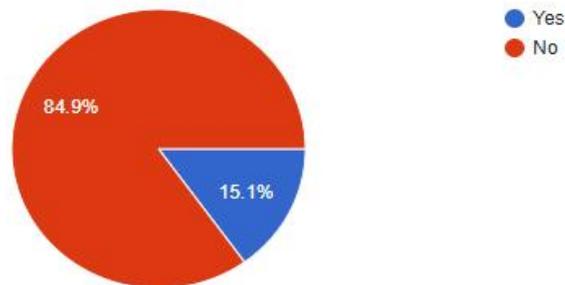


FIG. 7

...if "No", what is the reason for it?

186 responses

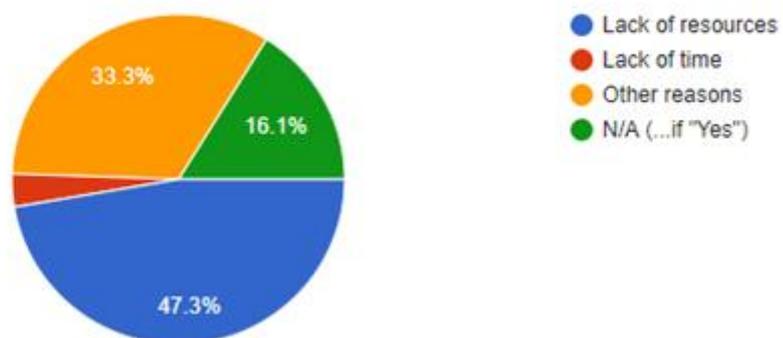


FIG. 8

Will you be willing to undergo proper training in handling medical emergencies?

186 responses



FIG. 9

Do you feel that dentists should be knowing how to handle medical emergencies?

186 responses



FIG. 10

Do you agree that a separate BLS and ALS program should be incorporated into the dental curriculum?

186 responses

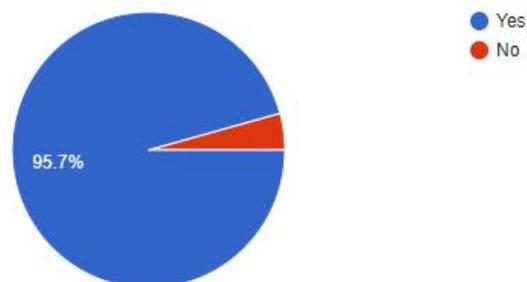


FIG. 11

Do you agree that all medical drugs and equipment should be available at every dental treatment facility?

186 responses

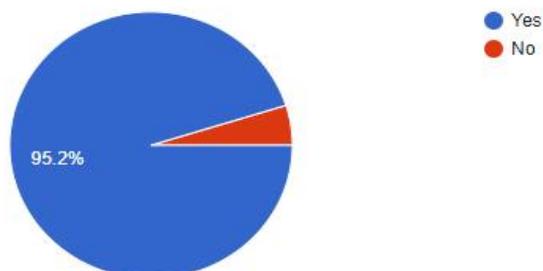


FIG. 12

Do you feel that monitoring vitals at every appointment and during every treatment is necessary?

186 responses

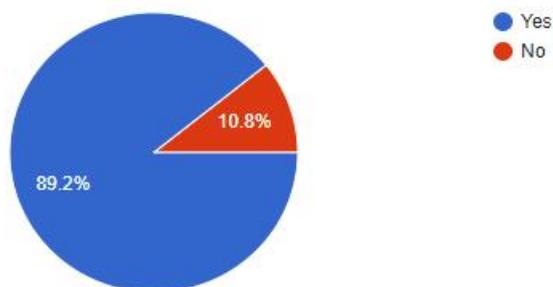


FIG. 13

Do you know how to measure vitals?

186 responses

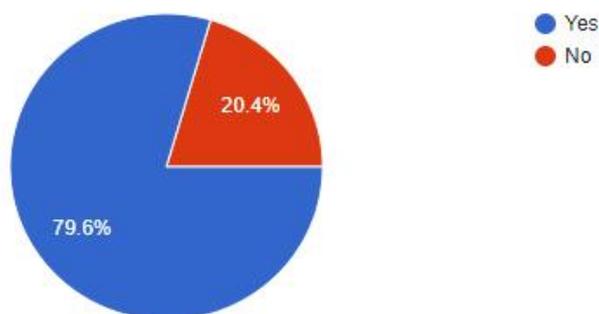


FIG. 14

Do you know how to perform BLS?

186 responses

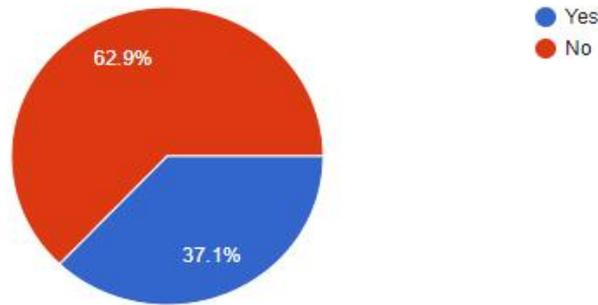


FIG. 15

Do you know how to perform CPR

186 responses

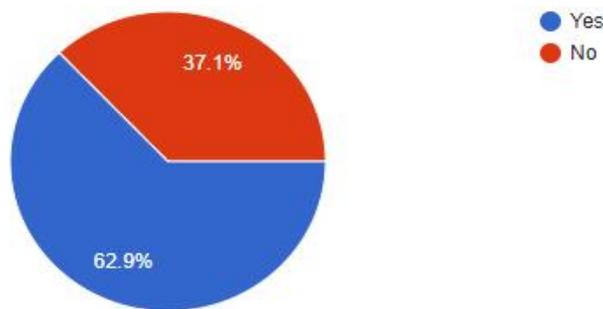


FIG. 16

Do you know how to perform different injection techniques?

186 responses

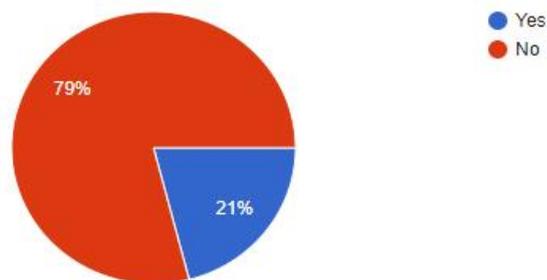


FIG. 17

Do you know how to perform Heimlich Manoeuvre?

186 responses

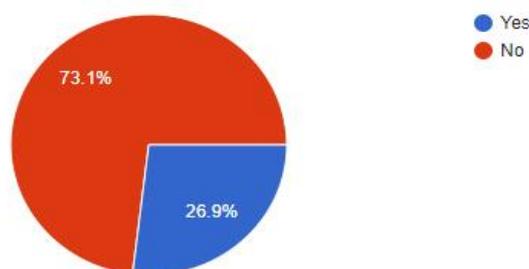


FIG. 18

Do you know how to check Carotid Pulse?

186 responses

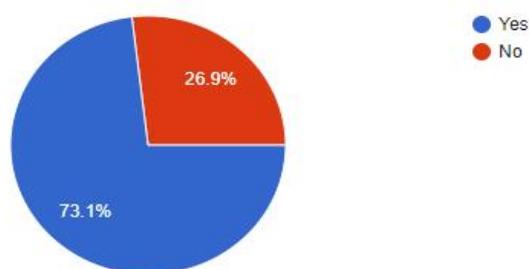


FIG. 19

IV. Discussion:

The overall results showed that the majority of dental students had substandard preparedness, in matters concerning the handling of medical emergencies. Just 30.1% of the participants said that they had access to a kit with emergency drugs and equipment. This seems extremely low compared to other practices. Broadbent JM, Thomson WM[5] reported that in New Zealand, 80% of dentists have an emergency kit in their place of practice. These results seem to have a huge difference, as, in another study, Gbotolorun *et al.*[6] stated that 91.1% respondents in his study had no emergency kit in their dental clinics in Lagos. Gupta *et al.*[7] stated in their study that less than half (42.1%) of the dentists reported having received practical training in management of medical emergencies during their undergraduate and postgraduate education, but this survey showed that only a small portion of 5.3% had received practical training. Al-Sebaei *et al.*[8] reported the distribution of emergencies in private dental offices as vasovagal syncope (63%), angina (12%), hypoglycemia (8%), epileptic seizures (8%), choking (5%), asthma (3%), and anaphylaxis (1%) 47.4% of dentists have encountered an emergency during their practice at some point of time. Hospitals and academic settings were the most common place of occurrence. More than 50% of dentists said that they are dissatisfied with the emergency handling training they have received.

84.9% felt dissatisfied with the training they have received. In comparison, Broadbent *et al.*[5] carried out a study and found that more than half of the respondents were dissatisfied with the training they had received for medical emergencies as undergraduate students. 21% were confident in administering drugs by different routes such as intramuscular or intravenous. According to another survey of the Indian dentist population by Shweta Kumarswami and others[9], 34% were confident about giving intramuscular injection and only 6.6% were sure about giving intravenous injections. 37.1% and 62.9% reported that they felt competent in performing BLS and CPR respectively. In comparison, an individual survey by Chapman PJ[10] reported that just over a half (55 per cent) felt they were competent in CPR on graduation and a similar figure (57 per cent) felt they could perform effective single person CPR for five minutes. In another study by Ghassan M. *et al.*[11] 38% were confident to perform CPR, in the general dentist population of Saudi Arabia. These

alarming findings clearly demonstrate a lack of skill and competence in dental students, when it comes to handling medical emergencies.

Conclusion:

Dental institutions should emphasize the relevance and importance of adequate training in handling medical emergencies. Reforms in the way knowledge is imparted, both theoretical and practical is imperative in ensuring a dentist of the future, who knows what is to be in an emergency case, should the need arise. It is crucial, that all students be educated in procedures such as BLS, ALS, routes of drug administration, etc. and that emergency drugs and equipment be available readily at the place of practice. After all, the best way to handle an emergency is to be prepared, even before the need arises.

References:

- [1]. Zhou, J.Y., D.F. Amanatullah, and S.L. Frick, *EMTALA (Emergency Medical Treatment and Active Labor Act) Obligations: A Case Report and Review of the Literature*. J Bone Joint Surg Am, 2019. **101**(12): p. e55.
- [2]. Mashoufi, M., H. Ayatollahi, and D. Khorasani-Zavareh, *A Review of Data Quality Assessment in Emergency Medical Services*. Open Med Inform J, 2018. **12**: p. 19-32.
- [3]. Zuabi, N., L.D. Weiss, and M.I. Langdorf, *Emergency Medical Treatment and Labor Act (EMTALA) 2002-15: Review of Office of Inspector General Patient Dumping Settlements*. West J Emerg Med, 2016. **17**(3): p. 245-51.
- [4]. Schneider, K.C., *Medical review and the newly revised emergency care obligations of Medicare hospitals*. Qual Assur Util Rev, 1990. **5**(3): p. 74-9.
- [5]. Broadbent, J.M. and W.M. Thomson, *The readiness of New Zealand general dental practitioners for medical emergencies*. N Z Dent J, 2001. **97**(429): p. 82-6.
- [6]. Gbotolorun, O.M., et al., *Preparedness of government owned dental clinics for the management of medical emergencies: a survey of government dental clinics in Lagos*. Nig Q J Hosp Med, 2012. **22**(4): p. 263-7.
- [7]. Gupta, T., M.R. Aradhya, and A. Nagaraj, *Preparedness for management of medical emergencies among dentists in Udupi and Mangalore, India*. J Contemp Dent Pract, 2008. **9**(5): p. 92-9.
- [8]. Al-Sebaei, M.O., et al., *The preparedness of private dental offices and polyclinics for medical emergencies. A survey in Western Saudi Arabia*. Saudi Med J, 2015. **36**(3): p. 335-40.
- [9]. Kumarswami, S., et al., *Evaluation of preparedness for medical emergencies at dental offices: A survey*. J Int Soc Prev Community Dent, 2015. **5**(1): p. 47-51.
- [10]. Chapman, P.J., *Medical emergencies in dental practice and choice of emergency drugs and equipment: a survey of Australian dentists*. Aust Dent J, 1997. **42**(2): p. 103-8.
- [11]. Al-Iryani, G.M., et al., *Knowledge and Preparedness of Dental Practitioners on Management of Medical Emergencies in Jazan Province*. Open Access Maced J Med Sci, 2018. **6**(2): p. 402-405.

Dr. Gabriela Fernandes, et. al. "Preparedness of Dental Students in Handling Medical Emergencies: A Survey Study." *IOSR Journal of Pharmacy and Biological Sciences (IOSR-JPBS)*, 15(3), (2020): pp. 52-60.