

Assessing the Knowledge of Dentists in Ilam City with Medical Emergencies in the Dental Office: A Survey-Based Research

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Background and objectives: Medical emergencies habitually take place in dental workplaces. The significant and beginning step in overseeing these emergencies is to manage basic life support, which needs sufficient knowledge, experience, and equipment. The point of this study was to examine the attitude of dental practitioners to manage therapeutic emergencies in dental office.

Materials and methods: This analytic cross-sectional research was done in Ilam among 58 general dentists, in 2020. A questionnaire was prepared and after validity and reliability confirmation, was completed by dentists. The recorded data was analyzed using descriptive statistics, Chi-square test, T-test, and Pearson correlation test.

Results: In this study of 58 participants, 26 (44.8%) were females and 32 (55.2%) were males. Among dentists enrolled in the study, 39 (67.2%) persons had less than 10 years of experience and 19 (32.8%) had more than 10 years of work experience. 41 (70.7%) of the responders had a good knowledge score, 11 (19%) of them had a low score, 6 (10.3%) had an average score and none of them had a perfect score. dentists who had worked more than 10 years, had better scores.

Conclusion: Knowledge of dentists in the field of medical emergencies was positive, it is suggested to raise as much knowledge on how to deal with medical emergencies in the office, regular training courses were held.

Keywords: Dental offices, Emergencies, Knowledge.

1. Introduction

Dentists offer many dental services. Some dental procedures can lead to a medical emergency in some people (1). Medical emergencies in the dental offices are not insignificant. Local anesthesia can be the most common cause (2). In general, the incidence is approximately 0.08 % with syncope having the highest possibility with a percentage of 0.07 (3). It has been stated that three-quarters of these emergencies occur due to the dentist's inability to reduce the patient's fear (4). Many individuals are using systemic medications that can impact their dental treatment, also these emergencies are more common in patients suffering from medical conditions (5). Shorter appointments in the morning can be useful (6,7). Taking a comprehensive medical history preceded by a physical examination and checking the patient's vital signs can help reveal the risk if probable during dental procedures (8). All tre-

-atment staff members should be well instructed and dental clinics must be equipped with emergency drug kits and means to properly manage such situations (5).

Medical emergencies during dental procedures include local anesthesia, syncope, seizures, hyperventilation syndrome, hypoglycemia, postural hypotension, allergic reactions, angina, and asthma attacks (3). Risk factors for medical emergencies during dental procedures include aging, advanced and complex treatments, increased length of treatment, patient stress, increased medication prescriptions, and lack of knowledge and low attention of some dentists (9-13). Prevention of emergencies and preparation of instruments that are needed (14).

Confidence in handling medical emergencies and improving knowledge by passing Annual basic life support and emergency courses are needed (15). This study aims to determine the knowledge of dentists in the city of Ilam facing medical emergencies.

2. Materials and methods

This is a cross-sectional study of dentists working in Ilam in 2020. A survey is used (16). Validity is approved by the faculty of Guilan University Medical Sciences and this paper is derived from a thesis with the number 1530. The survey has 2 parts. The first is about demographic information like age, sex, duration of work, and location of work (Table 1). The second part is made up of 13 questions to measure knowledge (Table 2). Validity was approved by professors and changes were applied. The Content Validity Reliability (CVR) of each question was obtained and a Coefficient under 0.6 was deleted. The Content Validity Index (CVI) of questions is 0.93. Reliability is approved by (test-retest). Internal stability obtained 0.81 based on Cronbach's alpha. The correct answer gets a score of 1 and the wrong one gets a score of 0. For participants, it was not necessary to mention their names and the information was confidential.

The questionnaires were completed with consent and in compliance with ethical principles. Data from the questionnaire was calculated using SPSS version 22 and charting of the data was applied using descriptive statistics.

The participants included dentists from Ilam dental private offices and private and public clinics who agreed to incorporate and those who were not willing were excluded.

The survey was prepared, and details were done by dental offices and were used in SPSS v22 to analyze data. Work experience came from the following formula:

Work experience = 2020 - Year of graduation

Each correct answer scored 1 and each wrong answer scored 0. The way of scoring knowledge questions was done according to the article about assessing dentists' awareness in dealing with medical emergencies (Table 1).

58 dentists were included in the study. 36 (44.8 %) were women and 32 participants (55.2%) were men. 41 participants (70.7%) worked in private dental offices and others (29.3%) worked in clinics. 39 participants (67.2%) had work experience under 10 years and others (32.8%) had more experience.

The questionnaire used in the study consists of the following questions (Table 2). Also, abundance and correct answers are mentioned.

Table 1. The knowledge level of dentists according to the score they got patients' sex.

Score	Knowledge assessment
12-13	Great
9-11	Good
6-9	Mild
Under 6	Weak

3. Results

This study was performed using a researcher-made questionnaire. In our study 70.7% had good knowledge, 10.3% had average knowledge, 19% had low knowledge and none had great knowledge (Figure 1) (Table 3).

In conclusion, the correct answer to each question differs from 93.1% (angina pectoris) to 22.4% (thyrotoxicosis) which indicates that dentists' knowledge in some cases is good and in some cases is not favorable. In the present study, the average knowledge of male dentists was lower than female dentists, but this difference was not statistically significant.

Dentists with more work experience got better scores. Mean knowledge in women was insignificantly better than men. In this study, knowledge was different based on the work experience of the participants, and the level of knowledge was lower in people with 0-10 years of experience than dentists who had more than 10 years of experience.

According to the table 6, it was shown that there was no significant relationship between dentists' gender and their knowledge (P value=0.497). Dentists' knowledge scores with up to 10 years of experience are lower than those with more than 10 years of experience (Table 4) (Figure 2). Statistical analysis of T-test showed that dentists with working experience of more than ten years have significantly better knowledge (P value < 0.05) (Table 5). Women also obtained better results than men, but this difference was not significant (P value > 0.05) (Table 6).

4. Discussion

This study is a cross-sectional study and is performed by a survey. 41 (70.7%) of the participants had good knowledge, 11 (19%) of participants had low knowledge score, 6 (10.3%) of participants had an average knowledge score and none of them had perfect knowledge score (Figure 1). Dentists with work experience more than 10 years, had better score than those who worked less. Inconsistent with our study, in Babae's study, 19 dentists (91.9%) completed the questionnaire. The participants had an average age of 38.6 ($\pm$ 7.5) years and included 84 men (70.6%) and 35 women (29.4%). The average knowledge score was 9.31 ($\pm$ 2.31) out of 17, showing a negative correlation with the year of graduation ($r=-0.43$) (17). In Čuković-Bagić' study, to evaluate the knowledge of general dentists in coping with medical emergencies, a questionnaire was used. Most general dentists had a lack of knowledge to cope with medical emergencies in pediatric patients. It was recommended that all general dentists receive sufficient training and education (18). The average knowledge of women in total was more than men but was not statistically significant. Similarly, in a descriptive-analytic study by Zamanzade et al., which was performed among 89 dentists and 25 senior residents, they reported that 1% of the

Table 2. The questionnaire used in the study

Questions	Abundance with correct answers	
	Number	Percentage
1.Which one of the medications below causes postural hypotension during dental practices?	43	74.1%
2.Which drug should be taken first in patients with angina pectoris who suffer from chest pain during dental practice?	54	93.1%
3.What is the first step in a convulsive seizure when the patient is unconscious?	24	41.4%
4.What is the first step for diabetic people affected by weakness, nausea, and hunger during dental practices?	45	77.6%
5. A foreign body results in airway obstruction, the patient is conscious and has vital signs. What is the first step?	40	69%
6.What is the most common cause of loss of consciousness in dental procedures?	36	62.1%
7.What is the key drug in medical emergencies?	27	46.6%
8.Sudden chest pain occurs during RCT in a 50-year-old man. The patient expresses the burning pain under the clavicle which diffuses into the neck and mandible. What could be the most probable diagnosis?	49	84.5%
9.What is the therapeutic measure needed when the patient suffers from tachypnea, confusion, and numbness in hands, feet, and mouth immediately after an anesthesia injection and complains of not receiving enough air?	19	32.8%
10. The asthmatic patient complains of severe pursiness during anesthesia injection, what is the first action?	39	67.2%
11.Which action is best to be taken for reducing respiratory disorders in wisdom tooth surgery of patients with Chronic obstructive pulmonary disease (COPD)?	36	62.1%
12.During dental procedures, the patient suddenly shows symptoms below warmth, paleness, sweating, and nausea. After some minutes, the patient feels cold in their hands and feet and eventually loses consciousness. No certain disorder is mentioned in medical history. Which medical emergency does it refer to, and what is the first step?	42	72.4%
13.Hyperthyroidism patient with a sharp rise in body temperature, tachycardia, vomiting, delusion and finally loss of conscious, what action should be taken before medical help arriving in dental office?	13	22.4%

participants had great knowledge, 13.2% had good knowledge, 16.7% had low knowledge and 69.3% had average knowledge. Therefore, the mean knowledge of dentists and dental students was considered at an average level. It was suggested that holding scientific institutes and brochures could be useful (19). In Jafri et al. study which was performed using a questionnaire within 100 general dentists, 32.6% was measured as great knowledge, 5.3% as low knowledge, and 62.1% as average knowledge. Consistent with our study knowledge level was higher in women which was not a significant difference.

In our study, it was reported that knowledge level is different based on work experience and those with 0-10 years of experience have lower knowledge than those with more than 10 years of experience.

This can be explained by the fact that increasing the work exp-

-erience has increased the skills and confidence of these dentists. However, Jafri et al. reported no significant relevance between work experience and knowledge level (20). Nasirzade et al. who investigated 120 general dentists in a descriptive-analytic study based on a questionnaire, also reported no significant difference between men's and women's knowledge. Inconsistent with our study Nasirzade et al. reported no significant correlation between knowledge and age and education history. However, they indicated that knowledge level is noticeably related to the year of graduation. The more distance between graduation time and questionnaire filling, the greater score is obtained in knowledge (21). In Nayaran's study, a cross-sectional survey was distributed among dental interns and postgraduate students from May 2014 to June 2014 in Bangalore city. A questionnaire containing 17 questions about knowledge and attitudes towards

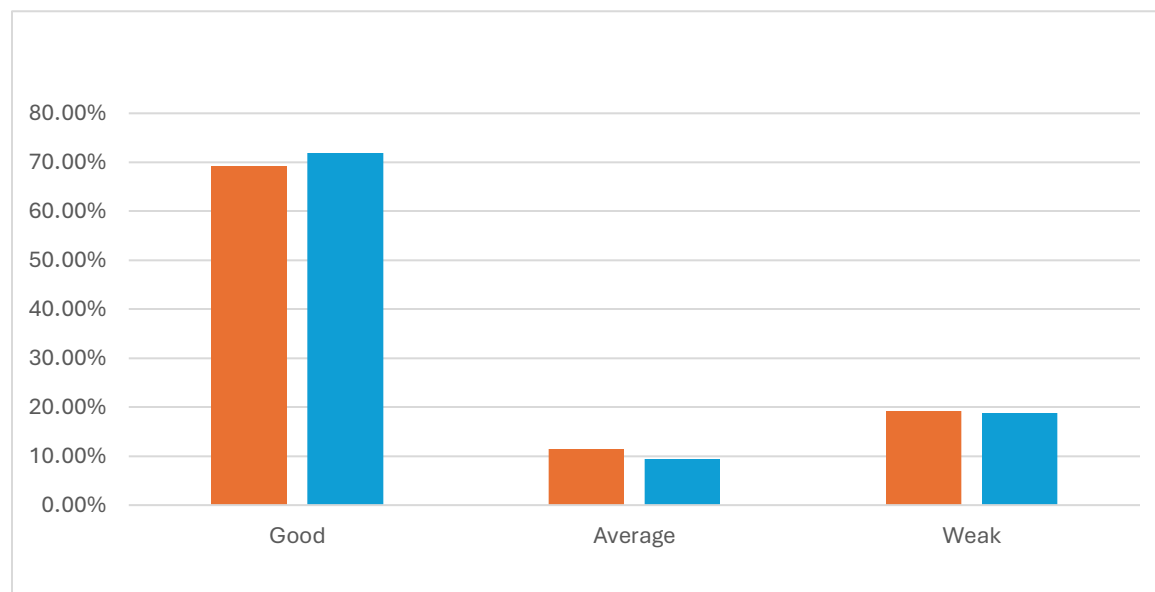


Figure 1. Frequency distribution of dentists' knowledge ratio according to gender. Blue: Men Orange: Women

Table 3. Frequency distribution of dentists' knowledge scores by gender

Sex \ Awareness scores	Good		Average		Weak		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Male	23	71.9%	3	9.4%	6	18.8%	32	100%
Female	18	69.2%	3	11.5%	5	19.2%	26	100%
Total	41	70.7%	6	10.3%	11	19%	58	100%

Table 4. Frequency distribution of dentists' knowledge scores by work experience

Sex \ Awareness scores	Good		Average		Weak		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0-10 years	27	69.2%	4	10.3%	8	25.5%	39	100%
More than 10 years	14	72.7%	2	10.5%	3	15.8%	19	100%
Total	41	70.7%	6	10.2%	11	19%	58	100%

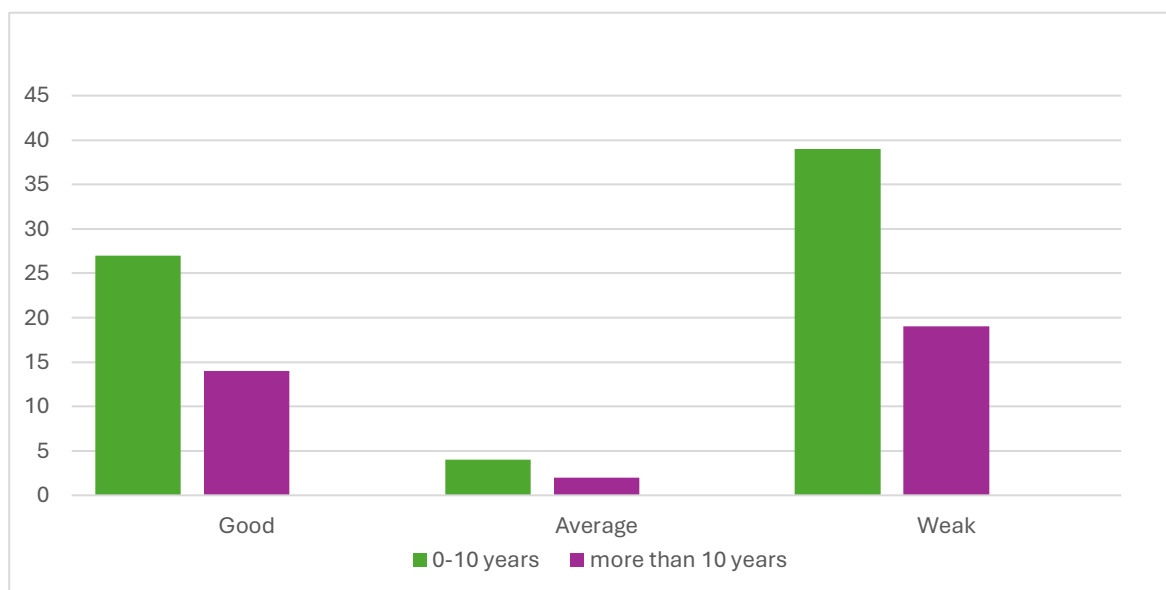


Figure 2. Frequency distribution of dentists' knowledge by work experience

Table 5. Dentists' knowledge scores according to gender

Sex	Average awareness scores
Man	7.875±1.947
Woman	8.269±4.42

Table 6. Average knowledge scores by work experience

Workplace experience	Average awareness scores
Up to 10 years	7.974±2.345
More than 10 years	8.211±8.813

Basic Life Support (BLS) was distributed to 202 participants. The results indicated that dental interns and postgraduate students had an average level of knowledge regarding BLS. Among the 201 respondents, 121 (59.9%) had a positive attitude towards BLS, while the remaining 40.1% had a negative attitude (22).

5. Limitations

In the study of Chaghmaq et al. In Mashhad, an inverse relationship was found between age and level of knowledge, which is in contrast with the results of our study. Perhaps this difference in results can be attributed to the smaller number of

our study population. Because in our study, the number of people with more than 10 years of experience was less than the number of people with less than 10 years of experience (23).

6. Conclusion

The results of our study show that the most knowledge in facing medical emergencies in the dental office is related to the condition of angina pectoris and the least knowledge is about the treatment of thyroid storm. The minimum awareness in women was higher than in men in general, this amount was not statistically significant. The level of knowledge was lower in people with 0-10 years of work experience and higher in dentists with more than 10 years of work experience. It is better to hold medical emergency training workshops for dentists in order to increase their knowledge and skills in this field, and the necessary information about medical emergencies (in the field of various diseases) in the form of posters, pamphlets, magazines, etc. should be presented to dental offices.

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Authors' contribution

Safa Motvaseli: Supervision, Validation, Conceptualization
 Parisa Rahimirad: Writing - Review & Editing, Writing - Original Draft, Formal analysis, Software, Methodology
 Ahmad Afrashte: Project administration, Visualization, Data Curation, Resources
 Zahra Shidian: Investigation, Writing - Original Draft

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Conflict of Interest

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