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Preventive Behavior of Dentists about COVID 19 in MosulCity Running Title: Dentists Preventive Behavior in Mosul City toward COVID 19

*Maha Ahmed Hussein, **Raya Jasim AL-Naimi
*B.D.S. (Master student) Ministry of Health –Nineveh Health Directorate
** B.D.S., M.Sc., Ph.D. Professor, Department of Pedodontic, Orthodontic and Preventive Dentistry, College of Dentistry, University of Mosul

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ABSTRACT

Introduction: The COVID 19 virus can survive on infected saliva-contaminated hands, objects, or surfaces. These microparticles are microbially contaminated and appear to be an inevitable phenomenon because they are generated primarily inside the patient's mouth.

Aims: To assess the preventive behavior of dentists in Mosul city during the COVID‑19 pandemic

Materials and Methods: The dentists were the subjects of a cross-sectional descriptive research based on a questionnaire. The survey relied on giving the questionnaire to dentists at their place of business,the survey was divided into two sections: the first section provided demographic information about the dentists and the second section focused on preventative behavior (toward COVID-19 and infection control in dental clinics).

Descriptive statistics, Kruskal Wallis test, and Mann-Whitney U test were used to analyze the data in IBM Statistical Package for the Social Sciences (SPSS) Statistics for Windows.

Results: This study included 295 dentists with age ranging between 23-64 years and with various qualification, work experience and work setting Younger dentists more than older dentists, also females made up more than half of the sample. No significant difference was found in preventive behavior between male dentists and female dentistsand in preventive behavior regarding (age, qualification, work experience and work setting), the preventive behavior used by dentists was acceptable, but it needed to be developed to cope with the spread of diseases.

Conclusion: Mosul dentists still need to improve their preventative procedures in order to minimize the number of infected dentists and prevent transmission of virus between their patients.

Key Words: Behavior, Dentists, COVID 19, Mosul

I. INTRODUCTION

This new virus strain has been publicized to be much more efficient at traveling more significant distances and becoming aerosolized. Dentists who treat patients by means of aerosolization are at a very dangerous risk of inoculation of themselves, their dental assistants, other office staff members. Most risk occurs from droplet and splatter transmission to the midface of the dentist and assistant, as well as the nasal area of the patient. [1, 2, 3].

Dentists have been suggested to take several personal protections measures and avoid or minimize operations that can produce aerosols or droplets; moreover, the use of saliva ejectors with a low volume or high volume can reduce the production of aerosols and droplets. In dental offices, any surface can be contaminated with viruses through contact with infectious body fluids or through the precipitation of airborne viral particles [4, 5, 6]. COVID-19 can also spread when dental patients touch a surface contaminated with infected droplets and then touch their mouth, nose, or eyes [7, 8].

The aim of the current study was to determine the preventive behavior of a group of Iraqi dentists from Mosul city in regards to the (SARS-CoV-2) virus.

II. METHODOLOGY

The study took place in Mosul city center during the outbreak of the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). The research was a questionnaire-based cross-sectional descriptive study for dentists. The sample size was calculated with the help of the online Raosoftcalculator. [9, 10]. With a margin of error of 5% and a confidence interval of 95%, the needed sample size was determined to be 291 dentists.

The questionnaire was designed in English. The survey included demographics variables. As displayed in table (1) of the

answered necessary to wear N-95 mask while treating the patient.

Large number of dentists (70.8%) reported there is necessary to use high-Volume Suction, or High-volume saliva ejectors and rubber dams in practice for the patients. Ratio Convergence between agree (50.5%) and disagree (47.5%) with wash the hands enough without disinfectant. Most of the dentists (80.3%) prevent transmission the virus by booking appointments. More than half (63.7%) reported there is high risk to Immunocompromised patients and High-risk patients if treated at late hours of a dental office opening. (94.6%) with the staff staying at home if they are sick. (58%) not allowed accompanying individuals to enter the dental clinic also (80%) asked hand wash or rubbing hands with sanitizer solutions before entrance to the dental office. (64.1%) they had big waiting room with adequate ventilation. (64.4%)their answers were wrong aboutappropriate zoning and separation measures.

Most dentists (75.3%) removed magazines, reading materials, toys, and other objects that may be touched by others and which are not easily disinfected also more than half (54.2%) placed signage in the dental office for instructing patients and (65.4%) they were asking anyone before entering the dental clinic to wear a face mask. The majority (69.2%) were against putting the material in a refrigerator is enough and don't need sterilization.

Most dentists reported adopting the right prevention measures with the patients, by treating in well-ventilated and an isolated room (94.6%), disinfect their hands before and after all patient contact, contact with potentially infectious material, and before putting on and after removing PPE (84.7%), immediatelycleaning and disinfecting procedures after the completion of clinical care (94.2%), (71.9%) preferred wearing Clean PPE or disposable PPE. Meanwhile, (66.1%) They didn't know the right proportion of alcohol, (46.4%) used antimicrobial mouth rinse, less than half of the respondents, (43.7%) reported restricted using aerosol-generating procedures, (49.8%) their opinions treatment should be completed in one visit, (81.4%) reported they can't work if they get Corona virus infection. Summarized in table (3).

Demographic variables (Age, Gender, Qualification, Work Experience and Work Setting) Differences for Dentists in Relation to Preventive Behavior About COVID 19.

a. Age

After performing Kruskal Wallis Test showed that there were no statistically significant participating dentists and the preventive behavior. As displayed in table(2). The preventive behavior and Infection control practice guidelines in case of COVID 19 evaluated in the dental setting included 25 questions with an answer of yes, no and Don't Know.

III. STATISTICAL ANALYSIS

The data were analyzed using IBM Statistical Package for the Social Sciences (SPSS) Statistics for Windows, used Descriptive statistics including frequency and a Kruskal Wallis test. The Mann-Whitney U test was used to see whether there were any significant associations.

IV. RESULTS

After eliminating dentists with incomplete data, 295 dentists were included in the final analysis out of 302 who answered to the survey.

Sample Descriptive Distribution in Relation to Demographic Information and General Information of The Participation.

The descriptive data of age is shown in figure (1) illustrates that most age participants were in age group (33-42 year) were 111 dentists and (23-32 year) were 84 dentists, while older dentists were less.

Gender distribution for participants dentists is displayed in figure (2) show that female participation was more than male participation in the study in ratio more than half of female 57.3% and less than half of male 42.7%.

The numbers of general dental practitioner were higher than the other categories while the number of specialist college member with anon dental specialty was the percentage 2.4% shown in Figure (3).

The descriptive data displayed in figure (4)shows that work experience for years (11-15) was more than other work experience and the work experience for years (6-10) was the least.

Dentists working only in the government sector composed the majority of the sample 40.7%, followed by government and private workers 39.3% then academic 18.6%, the least of whom are only private workers 1.4%. As displayed inFigure (5).

Descriptive Distribution in Relation to Preventive Behavior of Participating Dentists in The Study.

Most dentists (60.7%) did not agree with that a face mask is enough to prevent disease but they (61.7%) preferred routinely worn N-95 mask in dental practice also half of them (56.9%)

general dental practitioner when compared all of them about require the use of face masks or cloth face coverings by everyone enter the dental office. As showed in table (9).

d. Work Experience

There were no statistically significant differences at p ≤0.05when applied Kruskal Wallis Test on Work experience Variable for all work experience groups of dentists this mean there was no difference between all years of work experience from 0 to more than 16 year. As displayed in table (10).

e. Work Setting

There were no statistically significant differences at p ≤0.05when applied Kruskal Wallis Test on Work Setting Variable for all groups of dentists. This mean there was no difference between (private work setting, governmental work setting, both private and governmental work setting and academic work setting). As displayed in table (11).

V. DISCUSSION

COIVD-19 has been linked to the infection and death of health-care workers, according to many investigations. In a clinical trial in Wuhan, 29 % of the 138 hospitalized patients with SARS-CoV-2 infected pneumonia were health care professionals [11, 12] A number of factors might contribute to the increase of COVID-19 infections among health care workers, including their awareness and practice regarding SARS-COV 2 infections, as well as health care system conditions such as accessibility and availability of personal protective equipment (PPE). Furthermore, dentists are confronted with a new reality, which includes new patient screening guidelines, updated PPE, modified diagnostic and treatment protocols, limited practice to urgent oral health care, and teleconsultations. [13].

The majority of dentists thought that surgical mask is not enough to prevent cross-infection of COVID 19 and female more than male in this opinion SARS-CoV-2 is unlikely to be filtered by surgical masks [14, 15]. 61.7% of dentists thought that the importance N-95 mask should be routinely worn in dental practice and they should wear a N-95 mask while treating a patient in their dental practice like a study in India undertakenby Bansal et al (2020) [16] showed that majority of dentists had worn N95 or higher-level respirators in situations of suspected or confirmed SARS-CoV-2 infection patients [17, 18].

The high-volume evacuator, facing the aerosol-generating procedure side, combined with rubber dam isolation, significantly reduces the

differences at P ≤ 0.05 except at Chi-Square =10.126 and degree of freedom=3 there is statistically significant where P =0.018.0.05< for the question (Is your waiting room large with adequate ventilation?). As displayed in table (4).

While a more specific in which age group the difference present Mann-Whitney U tests as displayed in table (5). Showed that the age of dentists statistically significant differences at P≤0.05 between (23-32 yr and 53-64 yr) where P = (0.024) that mean older dentists have large waiting room compared with young dentists also there were statistically significant differences between (33–42 yr) and (43–52 yr) whereP = (0.025) where age group (33-42 yr) have large waiting room compared with age group (43-52 yr) and there were statistically significant differences between (43-52 yr) and (53-64 yr) P = (0.010) where age group (53-64 yr) have large waiting room with adequate ventilation compared with age group (43-52 yr) of question (11) {Is your waiting room large with adequate ventilation}.

b. Gender

After performing Kruskal Wallis Test showed that there are no statistically significant differences at P ≤ 0.05 except at Chi-Square =4.979 there is statistically significant where P = (0.026and 0.008) respectivelyP> 0.05 to (Q1 and Q24)As displayed in table (6).

And undergo Mann-Whitney U tests in order to certify the differences as displayed in table (7). Showed that gender of dentists statistically significant between male and female whereP = (0.026) and P = 0.008 to Q1 and Q24 respectively where the females thought that surgical mask is enough to prevent cross infection of COVID 19 also the females with Clean PPE with soap and water or use disposable PPE, clean and disinfect reusable facial protective equipment in comparison with males.

c. Qualification

Table (8) illustrate the difference of preventive behavior According to Qualification of dentists, there was no statistically significance of all questions of knowledge exceptat Chi- Square =8.359 where P =0.015 < 0.05 to Q15.

For more specify used Mann-Whitney U test founded statistically significant differences between consultant /specialist with general dental practitioner also between Consultant /Specialist with Specialist College member with a non -dental specialty where P = (0.009 and 0.050) respectively < 0.05. Where specialist college member with a non -dental specialty more than consultant/ Specialist and consultant/ Specialist more than

entering the dental office to prevent transmission of the virus especially for consultants and specialists that are more than general dentists they requested this from any one enter their clinic. Older dentists had large and ventilate waiting in comparison to younger dentists and high percentage of participants with that Patients should be treated in well-ventilated and an isolated room.By eliminating or diluting airborne droplet nuclei, ventilation can lower the concentration of airborne infections. A higher ventilation rate can result in a greater diluting capability, thereby lowering the danger of airborne diseases.

75.3% of dentists removed magazines, reading materials, toys, and other objects that may be touched by others and which are not easily disinfected to prevent virus transmission by hand. More than half placed signage in the dental office for instructing patients on standard recommendations for respiratory hygiene/cough etiquette and social distancing and this represent source of information to the patients about COVID 19.

The majority of dentists knew that persistence of coronaviruses at low temperatures so that refrigerator not eliminate COVID 19 virus therefore dentists sterilized materials that stored in a refrigerator before and after each treatment.

Desired dentists disinfect their hands before and after all patient contact. 66.1% thought that alcohol-based hand rub with 90 % alcohol effective to kill virus but this concentration not affected on virus the effective concentration is 80%-70% [22, 23]

Since SARS-CoV-2 is vulnerable to oxidation, usage 1.5% hydrogen peroxide or 0.2% povidone as a preprocedural mouth rinse. Recent data shows that using a mouth rinse povidone iodine can reduce SARS-CoV-2 virus infectivity to below detectable levels. povidone iodine can even prevent SARS-CoV-2 from attaching to oral and nasopharyngeal tissues, resulting in a reduction in virus particles in saliva and respiratory droplets. As a result, the use of Povidone iodine and hydrogen peroxide (H_2O_2) preoperative mouth rinse as a preventive strategy to decrease disease transmission also to minimize the quantity of germs in aerosols and drops during oral operations, therefore 46.4% of participation used antimicrobial mouth rinse preoperatively.

High-speed handpieces, air-water syringes, and powered scalers produce the most biological aerosol (secretions, saliva, and blood), and hence offer the greatest risk of transmission corona virus the study showed there was converge rate between those who were with use of aerosol-volume fraction of ultra-fine particles produced by restorative dental procedures such as tooth grinding, which produce particulate matter (PM) with a high proportion of particles with an aerodynamic diameter smaller than 10 µm. Furthermore, the total amount of aerosol particles generated [19]. Therefore, showed that two third of dentists with the necessary to use high-volume suction, orhigh-volume saliva ejectors and rubber dams when working, dental aerosols include submicron-sized particulate, as results are Consistent with the study conducted in India by Bansal et al (2020) [16]showed that dentists had a good understanding of aerosol-generating procedures and aerosol-free procedures.

Half of dentists washed hands with soap and water only without the use of sanitizer before and after treatment of every patient. In situations where hands are not obviously dirty and soap and water are not readily available, an alcohol-based hand sanitizer with at least 70% alcohol can be used. The study conducted in Turkey was outperformed by the participants who regularly washed hands(93%)and usedantiseptics (84.9 %) [20].

80.3% of dentists stated that in order to prevent crowding in appointment setting by booking appointments was used although 64.4% didn't know the appropriate zone of social distancing while more than half of dentists knew the appropriate zone of social distancing in India and Nepal [16, 21] respectively. One of the most highlighted preventive methods to adopt by individuals to avoid getting the disease is social distancing, which involves keeping distance or space between oneself and other people outside the house. Close contact according to the US CDC, is defined as being within 6 feet (2 meters) of a COVID-19 case for an extended length of time or having direct touch with infectious secretions of a COVID-19 patient seating in waiting rooms should be arranged such that patients are at least 6 feet apart.

63.7% refused treating immunocompromised patients at late hours of a dental office opening, dentists and dental hygienists are responsible for the health and safety of their patients therefore immunocompromised patients and high-risk patients like diabetic are treated at early hours of a dental office opening.

To prevent transmission of infection dentists asked their staff who are sick to stay home, also asked hand washing or hydroalcoholic solutions (with 60–75% alcohol) for the hand disinfection and 65.2% required the use of facemasks or cloth face coverings by everyone

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generating procedures, handpieces/ultrasonic instruments, and the air-water syringe and those who refused using them a lot.

Nearly half of dentists stated that treatment should be completed in one visitif that possible to restrict from crowding and reducing intermingling with people to prevent corona virus transmission. All instruments and equipment must be cleaned before reprocessing to achieve disinfection or sterility. Organic debris may obstruct the disinfectant or sterilant from reaching the instrument/equipment, as well as bind and inactivate the chemical if not thoroughly cleansed. Vast majority of dentists perform cleaning and disinfection procedures immediately after the completion of clinical care to limited virus transmission.

Dentists must constantly take normal cautious precautions in their daily practice, treating each patient as though he or she is infected or capable of transmitting illness. However, due to SARS-highly COV-2 infectious nature and in some cases, asymptomatic incidence, standard preventive measures may not be effective, necessitating extremely stringent cross infection protocols therefore large number of participations cleaned PPE with soap and water or use disposable PPE, clean and disinfect reusable facial protective equipment the study showed female more than male to follow medical professionals' instructions for preventing the spread of COVID-19. High percentage refused being a cause of disease transmission therefore refused work in clinic when he / she infected with COVID 19.

VI. CONCLUSION

There were no significant differences in work setting variable preventive behavior across the groups of dentists. This meant that there was no distinction between (private work setting, governmental work setting, both private and governmental work setting and academic work setting). The preventive behavior used by dentists was acceptable, but it needed to be developed to cope with the spread of diseases.

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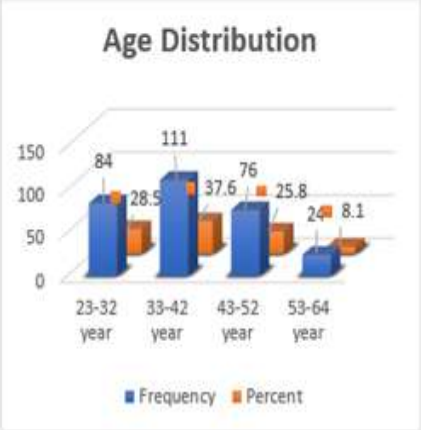

Figure (1): Age Distribution of Participants

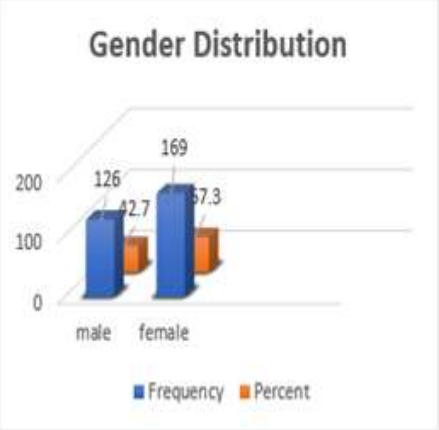

Figure (2): Gender Distribution of the Sample

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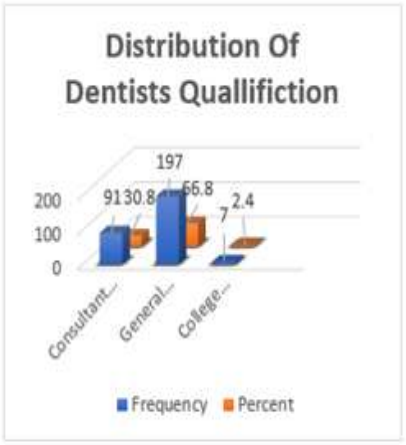

Figure (3): Qualification of Participants

Figure (4): Distribution of Work Experience

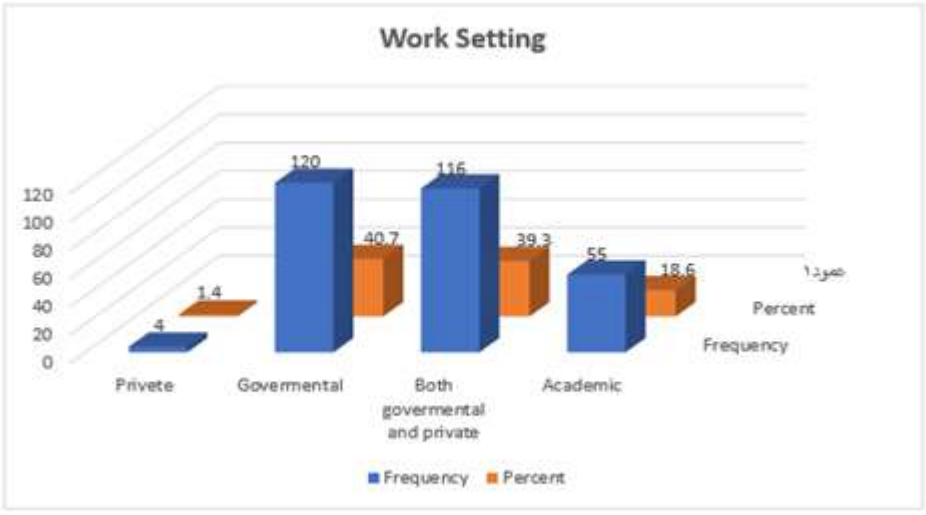

Figure (5): Work Setting of Participants.

Table (1): The demographic information andgeneral information of the participant:

Age	23–32yr
	33–42 yr
	43–52 yr
	53–64 yr
Gender	Male
	Female
Qualification	Consultant/Specialist
	General dental practitioner
	College member with a non-dental specialty
Work experience	0–5 yr
	6–10 yr
	11–15 yr
	> 16 yr
Work setting	Private
	Governmental
	Both (private & governmental)
	Academic

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Table (2): Preventive BehaviorQuestions.

#	Questions	Choice
1	Do you think a surgical mask is enough to prevent cross-infection of COVID 19?	YES
		NO
		Do not know
2	Do you think N-95 mask should be routinely worn in dental practice due to the current outbreak?	YES
		NO
		Do not know
3	Have you ever worn an N-95 mask while treating a patient in your dental practice?	YES
		NO
		Do not know
4	It is not necessary to use any of the following in your practice for the patients: high-volume suction, high-volume saliva ejectors, or rubber dams.	YES
		NO
		Do not know
5	Do you wash your hands with soap and water only, without using a sanitizer before and after treatment of every patient?	YES
		NO
		Do not know
6	Are you preventing appointment overcrowding by booking appointments?	YES
		NO
		Do not know
7	Immunocompromised patients and high-risk patients like diabetics are treated at the late hours of a dental office's opening.	YES
		NO
		Do not know
8	If the staff are sick, ask them to stay home.	YES
		NO
		Do not know

9	It is not a problem to accompany individuals who are permitted to enter the dental clinic.	YES NO Do not know
10	Ask for hand wash or hydroalcoholic solutions (with 60–75% alcohol) for hand disinfection upon entrance to the dental office.	YES NO Do not know
11	Is your waiting room large enough with adequate ventilation?	YES NO Do not know
12	Appropriate zoning and separation measures should be undertaken. Waiting rooms and reception areas should allow for a 0.5-m separation. It should ideally be marked on chairs and flooring.	YES NO Do not know
13	Have you removed magazines, reading materials, toys, and other objects that may be touched by others and that are not easily disinfected?	YES NO Do not know
14	Have you placed signage in the dental office for instructing patients on standard recommendations for respiratory hygiene and cough etiquette and social distancing?	YES NO Do not know
15	Require the use of facemasks or cloth face coverings by everyone entering the dental office	YES NO Do not know
16	It is not necessary to sterilize materials that are stored in a refrigerator before and after each treatment.	YES NO Do not know

17	Patients should be treated in well-ventilated and an isolated room	YES
		NO
		Do not know
18	Do you disinfect your hands before and after all patient contact, contact with potentially infectious material, and before putting on and removing PPE?	YES
		NO
		Do not know
19	Use an alcohol-based hand rub with 90 % alcohol. Use soap and water for at least 20 s, if your hands are visibly soiled, before returning to ABHR (alcohol-based hand rub).	YES
		NO
		Do not know
20	If used preoperatively, antimicrobial mouth rinse like peroxide could reduce the number of microbes in the oral cavity. As a precaution, since SARS-CoV-2 may be vulnerable to oxidation, use 1.5% hydrogen peroxide or 0.2% povidone as a preprocedural mouth rinse.	YES
		NO
		Do not know
21	I can use aerosol-generating procedures, handpieces/ultrasonic instruments, and the air-water syringe as much as possible.	YES
		NO
		Do not know
22	wherever possible treatment should be completed in more than one visit	YES
		NO
		Do not know
23	Cleaning and disinfection procedures should be followed immediately after the completion of clinical care.	YES
		NO
		Do not know
24	Clean PPE with soap and water or use disposable PPE. Clean and disinfect reusable facial protective equipment.	YES
		NO

		Do not know
25	Can you work in a dental clinic if you get a coronavirus infection without symptoms or if the symptoms are mild?	YES
		NO
		Do not know

Table (3): Preventive behavior adopted by the participating dentists in the dental clinic to prevent the Coronavirus disease transmission.

#	Questions	Choice	N (%)
1	Do you think a surgical mask is enough to prevent cross-infection of COVID 19?	YES	61 (20.7)
		NO	179(60.7)
		Do not know	55(18.6)
2	Do you think N-95 mask should be routinely worn in dental practice due to the current outbreak?	YES	182(61.7)
		NO	82(27.8)
		Do not know	31(10.5)
3	Have you ever worn an N-95 mask while treating a patient in your dental practice?	YES	168(56.9)
		NO	110(37.3)
		Do not know	17(5.8)
4	It is not necessary to use any of the following in your practice for the patients: high-volume suction, high-volume saliva ejectors, or rubber dams.	YES	59(20.0)
		NO	209(70.8)
		Do not know	27(9.2)
5	Do you wash your hands with soap and water only, without using a sanitizer before and after treatment of every patient?	YES	149(50.5)
		NO	140(47.5)
		Do not know	6(2)
6	Are you preventing appointment overcrowding by booking appointments?	YES	237(80.3)
		NO	46(15.6)
		Do not know	12(4.1)
7	Immunocompromised patients and high-risk	YES	86(29.2)

	patients like diabetics are treated at the late hours of a dental office's opening.	NO	188(63.7)
		Do not know	21(7.1)
8	If the staff are sick, ask them to stay home.	YES	279(94.6)
		NO	8(2.7)
		Do not know	8(2.7)
9	It is not a problem to accompany individuals who are permitted to enter the dental clinic.	YES	78(26.4)
		NO	171(58)
		Do not know	46(15.6)
10	Ask for hand wash or hydroalcoholic solutions (with 60–75% alcohol) for hand disinfection upon entrance to the dental office.	YES	236(80)
		NO	51(17.3)
		Do not know	8(2.7)
11	Is your waiting room large enough with adequate ventilation?	YES	189(64.1)
		NO	92(31.2)
		Do not know	14(4.7)
12	Appropriate zoning and separation measures should be undertaken. Waiting rooms and reception areas should allow for a 0.5-m separation. It should ideally be marked on chairs and flooring.	YES	190(64.4)
		NO	65(22.0)
		Do not know	40(13.6)
13	Have you removed magazines, reading materials, toys, and other objects that may be touched by others and that are not easily disinfected?	YES	222(75.3)
		NO	39(13.2)
		Do not know	34(11.5)
14	Have you placed signage in the dental office for instructing patients on standard recommendations for respiratory hygiene and cough etiquette and social distancing?	YES	160(54.2)
		NO	104(35.3)
		Do not know	31(10.5)
15	Require the use of facemasks or cloth face	YES	193(65.4)

	coverings by everyone entering the dental office	NO	78(26.4)
		Do not know	24(8.2)
16	It is not necessary to sterilize materials that are stored in a refrigerator before and after each treatment.	YES	56(19)
		NO	204(69.2)
		Do not know	35(11.8)
17	Patients should be treated in well-ventilated and an isolated room	YES	279(94.6)
		NO	3(1)
		Do not know	13(4.4)
18	Do you disinfect your hands before and after all patient contact, contact with potentially infectious material, and before putting on and removing PPE?	YES	250(84.7)
		NO	32(10.8)
		Do not know	13(4.5)
19	Use an alcohol-based hand rub with 90 % alcohol. Use soap and water for at least 20 s, if your hands are visibly soiled, before returning to ABHR (alcohol-based hand rub).	YES	195(66.1)
		NO	72(24.4)
		Do not know	28(9.5)
20	If used preoperatively, antimicrobial mouth rinse like peroxide could reduce the number of microbes in the oral cavity. As a precaution, since SARS-CoV-2 may be vulnerable to oxidation, use 1.5% hydrogen peroxide or 0.2% povidone as a preprocedural mouth rinse.	YES	137(46.4)
		NO	82(27.8)
		Do not know	76(25.8)
21	I can use aerosol-generating procedures, handpieces/ultrasonic instruments, and the air-water syringe as much as possible.	YES	118(40)
		NO	129(43.7)
		Do not know	48(16.3)
22	wherever possible treatment should be completed in more than one visit	YES	127(43.1)
		NO	147(49.8)
		Do not know	21(7.1)

23	Cleaning and disinfection procedures should be followed immediately after the completion of clinical care.	YES	278(94.2)
		NO	2(0.7)
		Do not know	15(5.1)
24	Clean PPE with soap and water or use disposable PPE. Clean and disinfect reusable facial protective equipment.	YES	212(71.9)
		NO	61(20.7)
		Do not know	22(7.4)
25	Can you work in a dental clinic if you get a coronavirus infection without symptoms or if the symptoms are mild?	YES	40(13.5)
		NO	240(81.4)
		Do not know	15(5.1)

Table (4): Age-variable effect about Answered of Preventive Behavior Questions.

Question	Chi-Square	P
Q1	1.991	0.574(N.S)
Q2	1.493	0.684(N.S)
Q3	5.783	0.123(N.S)
Q4	2.713	0.438(N.S)
Q5	2.706	0.439(N.S)
Q6	4.703	0.195(N.S)
Q7	4.021	0.259(N.S)
Q8	3.697	0.296(N.S)
Q9	1.129	0.770(N.S)
Q10	1.133	0.769(N.S)
Q11	10.126	0.018*
Q12	2.343	0.504(N.S)
Q13	0.531	0.912(N.S)
Q14	1.513	0.679(N.S)
Q15	1.313	0.726(N.S)
Q16	2.907	0.406(N.S)
Q17	2.259	0.520(N.S)
Q18	2.372	0.499(N.S)
Q19	2.107	0.551(N.S)
Q20	4.413	0.220(N.S)
Q21	1.053	0.788(N.S)
Q22	3.902	0.272(N.S)
Q23	2.115	0.549(N.S)
Q24	0.836	0.841(N.S)
Q25	2.977	0.395(N.S)

a. Kruskal Wallis Test
b. Grouping Variable: Age
N.S: N0 significant
*P≤0.05; statistically significant difference.

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Table (5): Preventive Behavior Differences Between Age of Dentists.

Comparison Between	(23-32 yr and 33-42 yr)	(23-32 yr and 43-52 yr)	(23-32yr and 53-64 yr)	(33-42 yr and 43-52 yr)	(33-42 yr and 53-64 yr)	(43-52 yr and 53-64 yr)
Mann-Whitney U	4.117E3	3.027E3	750.500	3.533E3	1.152E3	643.000
Wilcoxon W	7.687E3	5.953E3	4.320E3	6.459E3	7.368E3	3.569E3
Z	-1.671-	-.646-	-2.254-	-2.248-	-1.335-	-2.561-
p	.095	.518	.024*	.025*	.182	.010*

*P≤0.05; statistically significant difference.

Table (6): Gender-Variable Effect about Answers of Preventive Behavior Questions

Question	Chi-Square	P
Q1	4.979	0.026*
Q2	2.100	0.147(N.S)
Q3	0.071	0.790(N.S)
Q4	0.634	0.426(N.S)
Q5	0.373	0.541(N.S)
Q6	0.006	0.939(N.S)
Q7	1.081	0.299(N.S)
Q8	0.187	0.665(N.S)
Q9	2.174	1.40(N.S)
Q10	0.257	0.612(N.S)
Q11	0.326	0.568(N.S)
Q12	0.610	0.435(N.S)
Q13	0.125	0.724(N.S)
Q14	0.123	0.726(N.S)
Q15	0.555	0.456(N.S)
Q16	0.098	0.754(N.S)
Q17	1.219	0.270(N.S)
Q18	0.003	0.959(N.S)
Q19	0.158	0.691(N.S)
Q20	0.074	0.785(N.S)
Q21	0.026	0.872(N.S)
Q22	0.185	0.667(N.S)
Q23	1.973	0.160(N.S)
Q24	7.122	0.008*
Q25	1.048	0.306(N.S)
a. Kruskal Wallis Test b. Grouping Variable: Gender N.S: N0 significant *P≤0.05; statistically significant difference		

Table (7): Preventive Behavior Differences Between Gender of Dentists.

Comparison Between	Male and female (Q1)	Male and Female (Q24)
Mann-Whitney U	9.236E3	9.124E3
Wilcoxon W	1.724E4	1.713E4
Z	-2.231-	-2.669-
P	.026*	.008*

*P≤0.05; statistically significant difference.

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Table (8): Qualification-Variable Effect about Answers of Preventive Behavior Questions.

Question	Chi-Square	P
Q1	1.543	0.462(N.S)
Q2	3.641	0.162(N.S)
Q3	0.187	0.911(N.S)
Q4	1.196	0.550(N.S)
Q5	0.399	0.819(N.S)
Q6	2.832	0.243(N.S)
Q7	0.440	0.802(N.S)
Q8	0.412	0.814(N.S)
Q9	4.022	0.134(N.S)
Q10	2.990	0.224(N.S)
Q11	5.125	0.077(N.S)
Q12	0.322	0.851(N.S)
Q13	0.773	0.680(N.S)
Q14	0.320	0.852(N.S)
Q15	8.359	0.015*
Q16	3.543	0.170(N.S)
Q17	1.767	0.413(N.S)
Q18	1.769	0.413(N.S)
Q19	0.273	0.872(N.S)
Q20	0.403	0.818(N.S)
Q21	2.419	0.298(N.S)
Q22	0.418	0.811(N.S)
Q23	1.173	0.556(N.S)
Q24	0.569	0.753(N.S)
Q25	3.657	0.161(N.S)

a. Kruskal Wallis Test
b. Grouping Variable: Qualification
N.S: N0 significant
*P≤0.05; statistically significant difference

Table (9): Preventive Behavior Differences Between Qualification of Dentists.

Comparison Between	Consultant /Specialist with General dental practitioner	Consultant /Specialist with Specialist College member with a non -dental specialty	General dental practitionerwith Specialist College member with a non -dental specialty
Mann-Whitney U	7.525E3	210.500	567.500
Wilcoxon W	2.703E4	238.500	595.500
Z	-2.627-	-1.958-	-.917-
P	.009*	.050*	.359

*P≤0.05; statistically significant difference.

Table (10): Work Experience -variable effect about Answered of Preventive Behavior Questions.

Question	Chi-Square	P
Q1	0.934	0.817(N.S)
Q2	1.316	0.725(N.S)
Q3	2.626	0.453(N.S)
Q4	2.928	0.403(N.S)
Q5	2.443	0.486(N.S)
Q6	4.034	0.258(N.S)
Q7	0.757	0.860(N.S)
Q8	1.441	0.696(N.S)

Q9	0.944	0.815(N.S)
Q10	1.960	0.581(N.S)
Q11	2.797	0.424(N.S)
Q12	2.157	0.540(N.S)
Q13	2.538	0.469(N.S)
Q14	0.832	0.842(N.S)
Q15	4.102	0.251(N.S)
Q16	2.462	0.482(N.S)
Q17	1.396	0.707(N.S)
Q18	6.284	0.099(N.S)
Q19	3.451	0.327(N.S)
Q20	2.590	0.459(N.S)
Q21	0.765	0.623(N.S)
Q22	6.464	0.091(N.S)
Q23	5.248	0.155(N.S)
Q24	2.055	0.561(N.S)
Q25	5.815	0.119(N.S)
a. Kruskal Wallis Test b. Grouping Variable: Work Experience N.S: N0 significant p>0.05		

Table (11): Work Setting -variable effect about Answered of Preventive Behavior Questions

Question	Chi-Square	P
Q1	3.919	0.270(N.S)
Q2	2.501	0.475(N.S)
Q3	0.240	0.971(N.S)
Q4	2.212	0.530(N.S)
Q5	1.596	0.660(N.S)
Q6	5.789	0.122(N.S)
Q7	0.575	0.902(N.S)
Q8	3.837	0.280(N.S)
Q9	4.736	0.192(N.S)
Q10	3.916	0.271(N.S)
Q11	7.171	0.067(N.S)
Q12	3.068	0.381(N.S)
Q13	0.650	0.885(N.S)
Q14	1.774	0.621(N.S)
Q15	4.164	0.244(N.S)
Q16	2.914	0.405(N.S)
Q17	1.948	0.583(N.S)
Q18	1.889	0.596(N.S)
Q19	1.642	0.650(N.S)
Q20	3.003	0.391(N.S)
Q21	5.557	0.135(N.S)
Q22	5.134	0.162(N.S)
Q23	1.281	0.734(N.S)
Q24	4.194	0.241(N.S)
Q25	7.521	0.057(N.S)
a. Kruskal Wallis Test b. Grouping Variable: Work setting N.S: N0 significant p>0.05		