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COVID-19 protocols in dental office and its awareness among parents; a survey-based study among the parents attending Riyadh Elm University clinics

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ABSTRACT

Introduction: COVID-19 has changed the overall perception of public towards infection control and people are mainly concerned about their family's safety when planning a visit to the dental office. *Materials and methods:* This is a cross sectional study conducted among the parents of pediatric patients using an online survey. 519 parents were contacted in the two campuses of REU. *Results:* 45.3% participants felt that a visit to dental clinic is more dangerous than public places, 11% were not worried about contracting virus from dental clinic, fathers were more positive since the beginning of COVID-19 pandemic (24.9%). *Conclusion:* The overall level of knowledge and awareness regarding dental clinics infection protocol among the study participants is satisfactory.

Keywords: Parental knowledge, dental treatment, COVID-19, infection control.

1. INTRODUCTION

The advancement of COVID-19 caused us to realize that regardless of the fact that we have been operating in the field of dentistry, we were never prepared for a pandemic with an exceptionally high impact on community health. The uses of universal precautionary procedures were revealed to be adequate for contamination control. Guarding health care professionals and patients is of highest significance, and we need to emphasize on avoiding future outbreaks (Panday et al., 2021; Halepas & Ferneini, 2020).

Patients in dental facilities are exposed to COVID-19 contamination if dental authorities do not fulfill the biosafety protection procedures instigated by the COVID-19 guidelines, which comprise of the number of patients attended, facial barriers, decontamination of environments, and social distancing. It is essential to point out that safety protocol procedures should not only include the employees who deliver dental care, but also the patients

to decrease cross-infection (Garcia et al., 2020; Tasayco et al., 2020; Kale et al., 2021).

The COVID-19 disease had a great impact on the consumption of emergency dental services in majority of the countries. Not many patients visited the dental emergency at the beginning of the pandemic than in the past (Hanafy & Al Gawad, 2021). A study done among the parents of patients visiting a teaching school in Karachi, Pakistan reported that the attitude of visitors as evaluated in this study show satisfactory understanding concerning the infection potential of the coronavirus and the importance of practicing cross-infection control procedures in dental practices (Ahmed et al., 2020).

A Jeddah, KSA based study revealed that most mothers depend on reliable sources of information on COVID-19, but not all of them talked to their children about it. Mothers were anxious about the virus and conceivably need to be persuaded to open up to their children to rectify any misinformation. This attitude would not only be mentally helpful for mothers, but for children, too. A significant proportion of mothers had little faith in dental infection control procedures and saw the dental clinic as an unsafe place to become infected with the virus; they were therefore doubtful to take their children to the dentist in the course of the pandemic with the exception of emergencies (Farsi & Farsi, 2021).

Patients visiting a dental facility expect the dentists to adhere to standard, contact, and airborne safety measures involving the proper use of personal protective gear and hand hygiene habits. Health care workers have the obligation to protect the public and keep high standards of care and infection control (Ather et al., 2020; Meng et al., 2020).

Study hypotheses

Knowledge and awareness of parents regarding COVID-19 protocol is high.

Aims of the study

To determine the knowledge and awareness of parents regarding COVID-19 protocol in dental clinics

To compare the responses across gender, educational levels and age

2. MATERIALS AND METHODS

Study Design

This is a survey-based research carried out among the parents of pediatric patients utilizing an online questionnaire.

Study Sample

519 parents were communicated in the two campuses of REU.

Study Instrument

Online questionnaire was constructed consisting of questions related to personal, demographic data and history of dental visits followed by questions including knowledge and awareness regarding infection control protocol related to COVID-19.

Instrument Validity and Reliability

A pilot study was conducted by sending the survey to 20 participants and the data was inserted in SPSS version 22 to determine the reliability by using Chronbach's coefficient alpha (value: 0.769).

Statistical Analysis

Statistical package for social sciences was used to carry out statistical analysis. Comparisons between groups were made with the value of significance kept under 0.05 by Chi-square test.

3. RESULTS

A total of 519 parents took part in the research, which included 40.6% males and 59.4% females, 16.7% had school education, and 10.2% had diploma and 73.1% with university education. Based on income, 33.3% had income less than 5000 riyals and 40.2% had more than 10000 riyals. 34.1% belonged to 20-35 years age group and 21.9% were 50 years or more (Table 1 and figure 1). 45.3% participants felt that a visit to dental clinic is more dangerous than public places, 11% were not worried about contracting virus from dental clinic, fathers were more positive since the beginning of COVID-19 pandemic (24.9%), majority of the patients' visit to dentist was due to emergency (37.8%), social distancing in waiting rooms was considered to be extremely important by 88.8% participants, using disposable dental instruments were also considered to be extremely important by 88.2% participants (Table 2).

Table 1 Frequency distribution of demographic variables

Variables	Frequencies 'n' (%)
Gender	Males: 207 (40.6%) Females: 303 (59.4%)
Educational Levels	School: 85 (16.7%) Diploma: 52 (10.2%) University: 373 (73.1%)
Income	5000 or less: 170 (33.3%) 5000 to 10000: 135 (26.5%) 10000 or more: 205 (40.2%)
Age Groups	20-35 years: 173 (34.1%) 35-50 years: 223 (44%) 50+ years: 111 (21.9%)
Occupation	Non-health care employee: 469 (92%) Healthcare employee: 41 (8%)
Dental visits after pandemic	1-3: 406 (79.6%) 4-6: 73 (14.3%) 6+: 31 (6.1%)

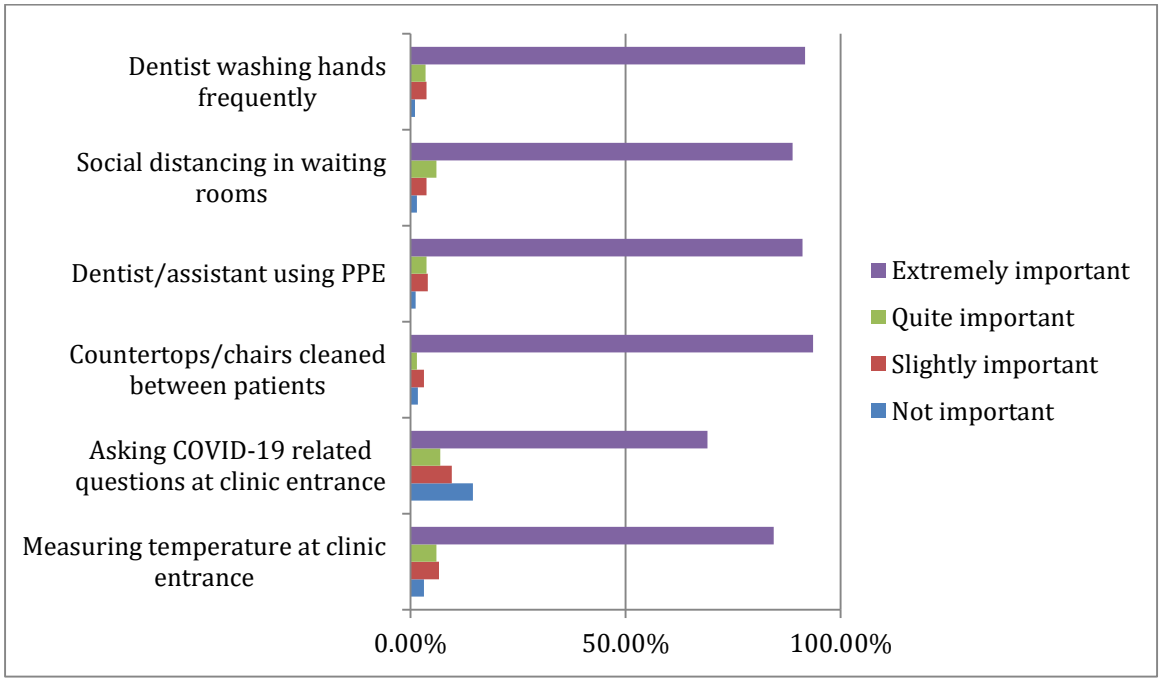

Figure 1 Response of parents when inquired about the infection control practice in clinics

Table 2 Frequencies of all questions asked from the study participants.

Survey Questions	Responses (%)
Perception of danger of dental clinic compared with public places	More dangerous: 45.3% Similar: 40.8% Less dangerous: 13.9%
Willingness of parent to go to the dentist during the pandemic	Yes: 14.3% No: 8.1% Only for emergency: 77.6%
Worry about contracting the virus from the dental clinic	Very worried: 26.8% Somewhat worried: 62.2%

	Not worried: 11%
Father's feeling since the beginning of COVID-19 pandemic	Generally anxious and depressed: 10% Sometimes anxious sometimes hopeful: 65.1% Generally positive: 24.9%
Mother's feeling since the beginning of COVID-19 pandemic	Generally anxious and depressed: 9.8% Sometimes anxious sometimes hopeful: 68.7% Generally positive: 21.4%
Which barrier you faced to take your child to dental clinic during the COVID-19 pandemic	Fear of contracting virus from someone: 20.6% Fear of contracting virus from surface: 25.2% Fear of clinic noncompliance with infection control measure: 33.7% Financial difficulties because of pandemic: 2.3% Inability to get appointment: 7.9% Other: 10.2%
Child taken to dentist since schools closed?	Yes: 47% No: 53%
Main reason for the visit	1st visit: 3.3% Cleaning: 13.7% Filling: 21.4% Emergency: 37.8% Other: 23.9%
Experience during the visit	Comfortable, would take child again: 77.8% Uncomfortable, rather not take the child again: 17.9% Uncomfortable, left the clinic without treatment: 4.3%
Measuring temperature at clinic entrance	Not important (1): 3.1% Slightly important (2): 6.6% Quite important (3): 6% Extremely important (4): 84.4%
Asking COVID-19 related questions at clinic entrance	Not important (1): 14.5% Slightly important (2): 9.6% Quite important (3): 6.9% Extremely important (4): 69%
Countertops/chairs cleaned between patients	Not important (1): 1.7% Slightly important (2): 3.1% Quite important (3): 1.5% Extremely important (4): 93.6%
Dentist/assistant using PPE	Not important (1): 1.2% Slightly important (2): 4% Quite important (3): 3.7% Extremely important (4): 91.1%
Social distancing in waiting rooms	Not important (1): 1.5% Slightly important (2): 3.7% Quite important (3): 6% Extremely important (4): 88.8%
Dentist washing hands frequently	Not important (1): 1% Slightly important (2): 3.9% Quite important (3): 3.5%

	Extremely important (4): 91.7%
Staff other than dentist wearing mask	Not important (1): 2.5% Slightly important (2): 4.2% Quite important (3): 6.7% Extremely important (4): 86.5%
Open window/fresh air in clinic	Not important (1): 4.8% Slightly important (2): 6.2% Quite important (3): 10% Extremely important (4): 79%
Using disposable dental instruments	Not important (1): 2.7% Slightly important (2): 3.5% Quite important (3): 5.6% Extremely important (4): 88.2%
Providing pretreatment antiseptic mouthwash	Not important (1): 6.9% Slightly important (2): 9.1% Quite important (3): 9.4% Extremely important (4): 74.6%
Changing conventional instruments (handpiece) to hand instruments	Not important (1): 15.8% Slightly important (2): 9.8% Quite important (3): 9.6% Extremely important (4): 64.7%

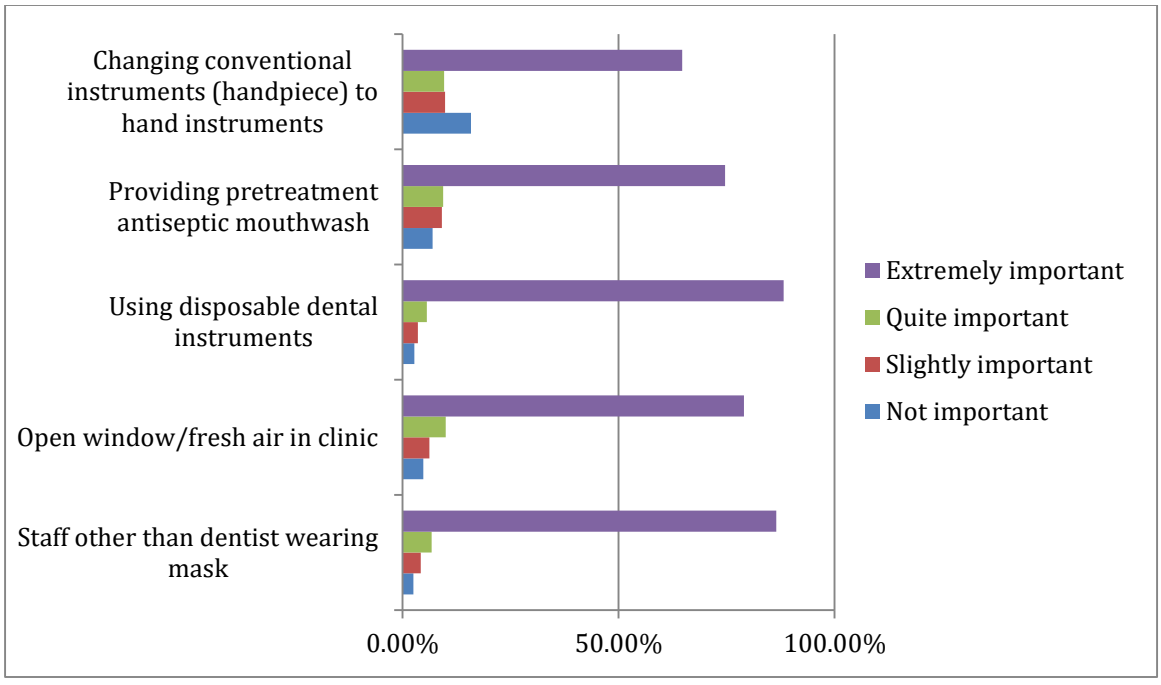

Figure 2 Response of parents when inquired about the infection control practice in clinics

Table 3 and figure 2 shows the comparison of responses on the basis of gender, which shows statistically significant difference when inquired about contracting virus from the dental clinic (p-value: .038), main reason for visit (p-value: .002), asking COVID-19 related questions at clinic entrance (p-value: .006), Countertops/chairs cleaned between patients (p-value: .021) and using disposable dental instruments (p-value: .022). Table 4 shows the comparison of responses on the basis of educational level, which shows statistically significant difference when inquired about Mother's feeling since the beginning of COVID-19 pandemic (p-value: 0.008), Child taken to dentist since schools closed (p-value: .005), experience during the visit (p-value: .011) and using disposable dental

instruments (p-value: .032). Table 5 shows that the majority of survey questions exhibited statistically significant comparisons among age groups.

Table 3 Comparison of survey responses on the basis of gender

Survey Questions	Males	Females	p-value
Worry about contracting the virus from the dental clinic	Very worried: 24% Somewhat worried: 61% Not worried: 15%	Very worried: 29% Somewhat worried: 62% Not worried: 8%	.038*
Main reason for the visit	1st visit: 6% Cleaning: 17% Filling: 25% Emergency: 34% Other: 18%	1st visit: 2% Cleaning: 11% Filling: 19% Emergency: 40% Other: 28%	.002*
Asking COVID-19 related questions at clinic entrance	Not important (1): 16% Slightly important (2): 14% Quite important (3): 9% Extremely important (4): 61%	Not important (1): 14% Slightly important (2): 7% Quite important (3): 6% Extremely important (4): 74%	.006*
Countertops/chairs cleaned between patients	Not important (1): 1% Slightly important (2): 6% Quite important (3): 2% Extremely important (4): 90%	Not important (1): 2% Slightly important (2): 1% Quite important (3): 1% Extremely important (4): 96%	.018*
Social distancing in waiting rooms	Not important (1): 2% Slightly important (2): 3% Quite important (3): 10% Extremely important (4): 85%	Not important (1): 1% Slightly important (2): 4% Quite important (3): 4% Extremely important (4): 91%	.021*
Using disposable dental instruments	Not important (1): 2% Slightly important (2): 5% Quite important (3): 9% Extremely important (4): 84%	Not important (1): 3% Slightly important (2): 2% Quite important (3): 4% Extremely important (4): 91%	.022*

Table 4 Comparison of survey responses across educational levels

Survey Questions	School	Diploma	University	p-value
Mother's feeling since the beginning of COVID-19 pandemic	Generally anxious and depressed: 20% Sometimes anxious sometimes hopeful: 64% Generally positive: 16%	Generally anxious and depressed: 4% Sometimes anxious sometimes hopeful: 73% Generally positive: 23%	Generally anxious and depressed: 8% Sometimes anxious sometimes hopeful: 70% Generally positive: 22%	.008*
Child taken to dentist since schools closed?	Yes: 58% No: 42%	Yes: 29% No: 71%	Yes: 47% No: 53%	.005*
Experience during the visit	Comfortable: 90% Uncomfortable, won't take the child another time: 8% Uncomfortable, left the clinic devoid of treatment: 1%	Comfortable: 73% Uncomfortable, won't take the child another time: 17% Uncomfortable, left the clinic devoid of treatment: 10%	Comfortable: 75% Uncomfortable, won't take the child another time: 20% Uncomfortable, left the clinic devoid of treatment: 4%	.011
Consuming disposable instruments	Not important (1): 7% Slightly important (2): 2% Quite important (3): 2% Extremely important (4): 88%	Not important (1): 2% Slightly important (2): 4% Quite important (3): 0% Extremely important (4): 94%	Not important (1): 2% Slightly important (2): 4% Quite important (3): 7% Extremely important (4): 87%	.032*

Table 5 Comparison of survey responses on the basis of age

Survey Questions	20-35 years	35-50 years	50+ years	p-value
Readiness of parent to visit dentist through the pandemic	Yes: 23% No: 7% Only for emergency: 71%	Yes: 9% No: 10% Only for emergency: 81%	Yes: 14% No: 7% Only for emergency: 79%	.004*
Mother's perception	Generally anxious and depressed: 10% Sometimes anxious sometimes hopeful: 73% Generally positive: 17%	Generally anxious and depressed: 6% Sometimes anxious sometimes hopeful: 72% Generally positive: 22%	Generally anxious and depressed: 14% Sometimes anxious sometimes hopeful: 59% Generally positive: 27%	.024*
Chief cause for the visit	1st visit: 7% Cleaning: 14% Filling: 20% Emergency: 40% Other: 18%	1st visit: 1% Cleaning: 13% Filling: 23% Emergency: 39% Other: 24%	1st visit: 3% Cleaning: 14% Filling: 22% Emergency: 29% Other: 32%	.011
Measuring temperature at clinic entrance	Not important (1): 3% Slightly important (2): 10% Quite important (3): 9% Extremely important (4): 77%	Not important (1): 2% Slightly important (2): 5% Quite important (3): 4% Extremely important (4): 88%	Not important (1): 5% Slightly important (2): 4% Quite important (3): 5% Extremely important (4): 87%	.046*
Dentist/assistant using PPE	Not important (1): 3% Slightly important (2): 9% Quite important (3): 2% Extremely important (4): 86%	Not important (1): 0% Slightly important (2): 1% Quite important (3): 3% Extremely important (4): 96%	Not important (1): 0% Slightly important (2): 4% Quite important (3): 7% Extremely important (4): 89%	.000*
Social distancing	Not important (1): 3% Slightly important (2): 5% Quite important (3): 7% Extremely important (4): 85%	Not important (1): 1% Slightly important (2): 1% Quite important (3): 6% Extremely important (4): 91%	Not important (1): 0% Slightly important (2): 7% Quite important (3): 5% Extremely important (4): 88%	.022*
Dentist washing hands frequently	Not important (1): 2% Slightly important (2): 5% Quite important (3): 6% Extremely important (4): 87%	Not important (1): 0% Slightly important (2): 2% Quite important (3): 2% Extremely important (4): 96%	Not important (1): 0% Slightly important (2): 7% Quite important (3): 2% Extremely important (4): 91%	.008
Staff wearing mask	Not important (1): 6% Slightly important (2): 5% Quite important (3): 9% Extremely important (4): 80%	Not important (1): 1% Slightly important (2): 1% Quite important (3): 8% Extremely important (4): 90%	Not important (1): 1% Slightly important (2): 9% Quite important (3): 3% Extremely important (4): 87%	.000
Utilizing disposable instruments	Not important (1): 5% Slightly important (2): 8% Quite important (3): 10% Extremely important (4): 76%	Not important (1): 2% Slightly important (2): 0% Quite important (3): 4% Extremely important (4): 94%	Not important (1): 0% Slightly important (2): 3% Quite important (3): 3% Extremely important (4): 95%	.000*
Giving preventive antiseptic mouthwash	Not important (1): 8% Slightly important (2): 14% Quite important (3): 14%	Not important (1): 4% Slightly important (2): 6% Quite important (3): 9%	Not important (1): 12% Slightly important (2): 9% Quite important (3): 5%	.001

	Extremely important (4): 64%	Extremely important (4): 81%	Extremely important (4): 75%	
Changing conventional instruments (handpiece) to hand instruments	Not important (1): 21% Slightly important (2): 16% Quite important (3): 12% Extremely important (4): 51%	Not important (1): 14% Slightly important (2): 6% Quite important (3): 10% Extremely important (4): 70%	Not important (1): 12% Slightly important (2): 9% Quite important (3): 6% Extremely important (4): 73%	.001

4. DISCUSSION

It can be noted from the findings that there were very few statistically significant differences when compared the survey responses across gender and educational levels. However, majority variables were statistically significant when compared on the basis of age. The overall level of knowledge and awareness of parents was found to be satisfactory. A study conducted by Sun et al., (2020) in Shenzhen, China reported that there was statistically significant association of age, level of education and gender when inquired whether the environment of dental clinic was more dangerous than that of public places. When inquired about whether the parents were keen to visit dental clinic due to emergence or severe pain, 79% of our study participants aging more than 50 years answered yes. Conversely, the Chinese study showed that more than 85% of the similar age group participants responded the same.

Our findings revealed that 88.8% of the participants felt that social distancing was extremely important when it comes to seating in the waiting area. Similar results were observed in a study conducted in Hyderabad, India where 89.5% participants felt the need of social distancing and maintenance of hygiene in the waiting rooms of dental university hospitals (Kavitha et al., 2020).

Another study conducted in Makkah, Saudi Arabia revealed that only 32% were interested in having their dentist wash their hands before the start of treatment. Similar number of participants was also interested in getting their mouth rinsed before the start of dental treatment (Rajeh, 2020). However, it was noticed in our study that 91.7% were highly interested in letting their dentist wash their hands before the treatment and 74.6% asking for mouth rinsing. These numbers are clearly higher in our study.

5. CONCLUSIONS

The overall knowledge and awareness regarding dental clinics infection protocol among the study participants is satisfactory.
No statistically significant association of gender and educational levels was observed. Age of participants is statistically significant regarding knowledge and awareness, with middle aged participants showing higher levels.

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Authors' contribution

Ali yahya alfari, Nawaf Alabdullatif: Introduction and literature review
Anas Ramadan, Yazeed Alghamdi: Methodology and conclusion
Hussain alqahtani, Ateet Kakti: Statistics and discussion writing

Ethical approval

This study was approved by the medical ethics committee of Riyadh Elm University (FUGRP/2021/220/387/373).

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Conflicts of interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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