ASESSMENT OF KNOWLEDGE AND AWARENESS OF COVID-19 PROTOCOLS IN DENTAL CLINIC BY THE PARENTS: A SURVEY-BASED STUDY AMONG THE PARENTS ATTENDING REU CLINICS

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Abstract

Introduction: 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.

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.

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. Protecting health care workers and patients is of upmost importance, and we must focus on preventing future outbreaks. (Panday et al., 2021; Halepas & Ferneini, 2020).

Patients in dental facilities are exposed to COVID-19 contamination if dental authorities do not fulfil 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 (Siles-Garcia et al., 2020; del Pilar Cabrera-Tasayco et al., 2020).

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. The proportion of dental and oral infections was raised. (Hanafy & Abd 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 professionals have the obligation to protect the public and keep high standards of care and infection control (Ather et al., 2020; Meng, Hua & Bian, 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 on the basis of gender, educational levels and age.

Materials and Methods:

Study Design: This is a cross sectional study conducted among the parents of pediatric patients using an online survey.

Study Sample: 519 parents were contacted 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). Validity of the questionnaire was tested by sending it to experienced researchers in REU but no changes were made.

Statistical Analysis: Collected data was analyzed using SPSS version 22, where descriptive as well as inferential statistics was conducted. Comparisons between groups were made with the value of significance kept under 0.05 by Chi-square test.

Results:

A total of 519 parents participated in the study, 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). 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 (24.9%), 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 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: 0.006), 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 showed statistically significant differences among age groups.

### 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%)          |                     |
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| Fear of contracting virus from someone: 20.6%                                |
| pandemic                                                                       | 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 wearing personal protective equipment                         | 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%                                                     |
| Survey Questions                                                                 | Males                                               | Females                                          | p-value |
|----------------------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|---------|
| Perception of danger of dental clinic compared with public places                | No Statistically Significant Association             | .091                                             |         |
| Willingness of parent to go to the dentist during the pandemic                  | No Statistically Significant Association             | .220                                             |         |
| Worry about contracting the virus from the dental clinic                         | Very worried: 24%                                   | Very worried: 29%                               | .038*   |
|                                                                                 | Somewhat worried: 61%                               | Somewhat worried: 62%                           |         |
|                                                                                 | Not worried: 15%                                    | Not worried: 8%                                 |         |
| Father’s feeling since the beginning of COVID-19 pandemic                        | No Statistically Significant Association             | .872                                             |         |
| Mother’s feeling since the beginning of COVID-19 pandemic                        | No Statistically Significant Association             | .431                                             |         |
| Which barrier you faced to take your child to dental clinic during the COVID-19 pandemic | No Statistically Significant Association             | .727                                             |         |
| Child taken to dentist since schools closed?                                    | No Statistically Significant Association             | .207                                             |         |
| Main reason for the visit                                                       | 1st visit: 6%                                       | 1st visit: 2%                                    | .002*   |
|                                                                                 | Cleaning: 17%                                       | Cleaning: 11%                                   |         |
|                                                                                 | Filling: 25%                                       | Filling: 19%                                    |         |
|                                                                                 | Emergency: 34%                                     | Emergency: 40%                                  |         |
|                                                                                 | Other: 18%                                         | Other: 28%                                      |         |
| Experience during the visit                                                      | No Statistically Significant Association             | .696                                             |         |
| Measuring temperature at clinic entrance                                         | No Statistically Significant Association             | .070                                             |         |
| Asking COVID-19 related questions at clinic entrance                             | Not important (1): 16%                              | Not important (1): 14%                           | .006*   |
|                                                                                 | Slightly important (2): 14%                         | Slightly important (2): 7%                       |         |
|                                                                                 | Quite important (3): 9%                             | Quite important (3): 6%                          |         |
|                                                                                 | Extremely important (4): 61%                        | Extremely important (4): 74%                     |         |

Table 3: Comparison of survey responses on the basis of gender
| Survey Questions | School | Diploma | University | p-value |
|------------------|--------|---------|------------|---------|
| 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* |
| Dentist/assistant wearing personal protective equipment | No Statistically Significant Association | No Statistically Significant Association | .897 |
| 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* |
| Dentist washing hands frequently | No Statistically Significant Association | No Statistically Significant Association | .334 |
| Staff other than dentist wearing mask | No Statistically Significant Association | No Statistically Significant Association | .953 |
| Open window/fresh air in clinic | No Statistically Significant Association | No Statistically Significant Association | .054 |
| 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* |
| Providing pretreatment antiseptic mouthwash | No Statistically Significant Association | No Statistically Significant Association | .289 |
| Changing conventional instruments (handpiece) to hand instruments | No Statistically Significant Association | No Statistically Significant Association | .699 |

**Table 4: Comparison of survey responses on the basis of educational levels**

| Survey Questions | School | Diploma | University | p-value |
|------------------|--------|---------|------------|---------|
| Perception of danger of dental clinic compared with public places | No Statistically Significant Association | No Statistically Significant Association | .720 |
| Willingness of parent to go to the dentist during the pandemic | No Statistically Significant Association | No Statistically Significant Association | .266 |
| Worry about contracting the virus from the dental clinic | No Statistically Significant Association | No Statistically Significant Association | .624 |
| Father’s feeling since the beginning of COVID-19 pandemic | No Statistically Significant Association | No Statistically Significant Association | .620 |
| 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* |
| Which barrier you faced to take your child to dental clinic during the COVID-19 pandemic | No Statistically Significant Association | No Statistically Significant Association | .693 |
| Child taken to dentist since schools closed? | Yes: 58% No: 42% | Yes: 29% No: 71% | Yes: 47% No: 53% | .005* |
| Main reason for the visit | No Statistically Significant Association | No Statistically Significant Association | .107 |
| Experience during the visit | Comfortable, would take child again: 90% | Comfortable, would take child again: 73% Uncomfortable, rather | Comfortable, would take child again: 75% | .011 |
Table 5: Comparison of survey responses on the basis of age

| Survey Questions                                                                 | 20-35 years                      | 35-50 years                      | 50+ years                      | p-value  |
|---------------------------------------------------------------------------------|----------------------------------|----------------------------------|--------------------------------|----------|
| Perception of danger of dental clinic compared with public places               | No Statistically Significant Association | No Statistically Significant Association | No Statistically Significant Association | .514     |
| Willingness of parent to go to the dentist during the pandemic                 | Yes: 23%                         | Yes: 9%                          | Yes: 14%                        | .004*    |
|                                                                                  | No: 7%                           | No: 10%                          | No: 7%                          |          |
|                                                                                  | Only for emergency: 71%          | Only for emergency: 81%          | Only for emergency: 79%         |          |
| Worry about contracting the virus from the dental clinic                        | No Statistically Significant Association | No Statistically Significant Association | No Statistically Significant Association | .980     |
| Father’s feeling since the beginning                                            | No Statistically Significant Association | No Statistically Significant Association | No Statistically Significant Association | .248     |
| Mother’s feeling since the beginning of COVID-19 pandemic | 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* |
| Which barrier you faced to take your child to dental clinic during the COVID-19 pandemic | No Statistically Significant Association | | | .053 |
| Child taken to dentist since schools closed? | No Statistically Significant Association | | | .774 |
| Main reason 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 |
| Experience during the visit | No Statistically Significant Association | | | .104 |
| 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* |
| Asking COVID-19 related questions at clinic entrance | No Statistically Significant Association | | | .105 |
| Countertops/chairs cleaned between patients | No Statistically Significant Association | | | .365 |
| Dentist/assistant wearing personal protective equipment | 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 in waiting rooms | 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 | Not important (1): 2% | Not important (1): 0% | Not important (1): | .008 |
| Hands frequently | Slightly important (2): 5% Slightly important (3): 6% Extremely important (4): 87% | Slightly important (2): 0% Slightly important (3): 2% Extremely important (4): 96% | No Statistically Significant Association |
| Staff other than dentist 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% | .000 |
| Open window/fresh air in clinic | Not important (1): 8% Slightly important (2): 14% Quite important (3): 14% Extremely important (4): 64% | Not important (1): 4% Slightly important (2): 6% Quite important (3): 9% Extremely important (4): 81% | .122 |
| Using disposable dental 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% | .000* |
| Providing pretreatment antiseptic mouthwash | Not important (1): 8% Slightly important (2): 16% Quite important (3): 12% Extremely important (4): 51% | Not important (1): 4% Slightly important (2): 6% Quite important (3): 9% Extremely important (4): 81% | .001 |
| 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% | .001 |

**Discussion:**

This study aimed to assess the knowledge and awareness of parents visiting REU clinics regarding the protocols followed during COVID-19 pandemic. It can be noted from the findings that there were very few statistically significant differences when compared the survey responses on the basis of gender and educational levels. However, majority variables were found to be 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. However, no statistically significant differences were observed for similar subgroups in our study. When inquired about whether the parents were willing to take their children to dental clinic due to emergence or severe pain, 79% of our study participants aging more than 50 years answered yes. On the other hand, 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% of the study participants 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% of the study participants 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.

Conclusions:
- The overall level of knowledge and awareness regarding dental clinics infection protocol among the study participants is satisfactory.
- No statistically significant association of gender and educational levels with the level of knowledge and awareness.
- Age of participants is statistically significant when it comes to the knowledge and awareness, with middle aged participants showing higher levels.

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