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Original Research Article

Post COVID-19 changes in the perception of the parents towards dentistry for their child

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ABSTRACT

Aim: The aim of the study is to evaluate the post COVID changes in the perception of the parents towards dentistry for their child/children.**Materials and Methods:** A cross-sectional questionnaire based survey was conducted among the parents of children <18 years of age to assess the behavioral changes in the parents after the COVID-19 outbreak towards pediatric dentistry. The survey was carried out with a sample of 5110 respondents.**Results:** Majority of the parents had correct knowledge regarding the COVID-19 with increase in their anxiety level post COVID-19 outbreak. Almost all the parents were taking the measures regarding the hygiene of their children. Nearly half of the parents were not willing to take their children to the dentist even in the emergency dental condition due to the risk of encountering corona virus at the dental clinic.**Conclusion:** The majority of respondents lacked confidence towards dentistry, their treatment environments, and the infection control measures taken, and were worried about contracting COVID-19 infection from the dental setting. Parents, however, demanded better infection control measures during the SARS outbreak. From the results of our survey, it is imperative that dentists and dental specialist like pediatric dentists should offer more confidence building measures towards the patients & their parents, involving them in the dental treatment planning as well as decision making and providing them timely appraisal regarding the same.This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.For reprints contact: reprint@ipinnovative.com

1. Introduction

Since its introduction to the human population in December 2019, Coronavirus Disease 2019 (COVID-19) continues to spread worldwide rapidly.^{1,2} This novel lethal strain of coronavirus, caused a global pandemic, affecting hundreds of thousands of individuals, having life-threatening outcomes, not only in medically compromised persons but also in perfectly healthy young individuals with immunocompetent system.^{3,4}

The virus primarily spreads between people through respiratory droplets, which are produced when an infected person coughs or sneezes, or by touching contaminated surfaces/objects and then touching their own mouth, nose, or possibly their eyes. Human transmission has also reported via dental treatment of infected patient via aerosol producing procedures.

The novel coronavirus disease 2019 (COVID-19) pandemic may be stressful for people, as fear and/or anxiety about a new disease, its rapid transmission and its uncertain outcomes can be overwhelming to both adults as well as in children.⁵

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As countries introduce measures to restrict movement as part of efforts to contain the COVID-19 infection transmission, general public has also been making huge changes to our daily routines and habits.⁶ Public health actions such as social distancing, quarantines, nationwide lockdowns, school closures as well as the impact of the virus on the families of infected can make people & their children feel isolated, lonely, helpless which can add on to stress and anxiety already caused by the disease itself.^{5,7} The transmission of SARS-CoV through droplets also raises concerns regarding the possibility of its spread during dental procedures, within the close confines of the oral cavity.⁸ The outbreak of Coronavirus (COVID-19) can impact the perception of the parents where even in the need for the emergency dental treatment, they prefer to stay home and use alternative remedies to manage children's dental emergencies rather than consulting the dental clinics, though various new approaches have been developed, adopted and offered during the COVID pandemic by the Government as well as the private practitioners.. During the COVID-19 outbreak, people receive a large volume of inconsistent information through social media which has suggested higher chances of infection transmission risks during dental appointments without any scientific and published evidence for the same. However, with the application of new SOPs (standard operating procedures) and consistent and reliable protocols the apprehension of parents can be allayed. The knowledge of various reasons that are causing anxiety among the public is important for the dental professionals. This could help the dental professionals involve the people directly in their as well as their close one's treatment, involve them in the policy framework & implementation and offer a seamless information transfer regarding modified SOPs introduced in dentistry post COVID, strengthening reciprocal trust.⁹ Hence, the present study was undertaken to assess the change in the perception of the parents after the COVID-19 pandemic outbreak towards dentistry.

2. Materials and Methods

A cross-sectional questionnaire based survey was conducted among the parents of children below 18 years of age to assess the perception changes in the parents after the COVID-19 outbreak towards dentistry. The survey was carried out with a sample of 6000 respondents among which only 5110 respondents completed the survey questionnaire.

2.1. Designing of web-based questionnaire

A close-ended web based questionnaire was designed using a template provided by the Google Forms (Google Inc., USA). To design an online version of the questionnaires, Google Drive application was accessed through an existing Google account and a new Google Forms template was

created. All the questions along with choices were entered onto the Google Form template and were saved. The link to this questionnaire was sent to the parents who fulfilled the inclusion criteria and consented to their participation in the survey. Each surveyor or participant⁷ could access the link to the online questionnaire through any smartphone/laptops using internet.

2.2. Questionnaire design

The questionnaire addressed the demographic information of the participant, level of knowledge (or KAP, Knowledge, attitude and practice regarding COVID-19) about the COVID-19 and questions regarding changes in their perception regarding dentistry and dental treatment. A pilot study was conducted among 150 parents before the survey to validate the questionnaire.

The questionnaire was offered to the parents by snow-ball method. The responses were recorded electronically using the Google Form application on a smartphone. As the present study used a web-based questionnaire, all the responses were directly saved into Google's online database. A computer-generated code starting from 1 to 6000 was assigned to all the participants as their identity.

2.3. Statistical analysis

All the data were subjected to statistical analysis with the Statistical package for Social Sciences software (SPSS, Version 24.0, IBM, U.S).

3. Results

Of the 5110 respondents or 6000, 1712 (33.5%) were male and 3398 (66.5%) were female. Majority of the respondents belonged to the age group of 41-50 (40.3%) years followed by 31-40 (38.5%) and 20-30 (21.3%) years.

Table 1:

		Frequency	Percentage
Age	20-30	1087	21.3
	31-40	1966	38.5
	41-50	2057	40.3
Gender	Male	1712	33.5
	Female	3398	66.5
Number of children	One	1840	36.48.5
	Two	2478	
	More than two	792	15.5

Regarding the knowledge of corona among the parents, 100% parents knew that corona is a virus. Majority of the parents (60.3%) were had the knowledge about common COVID-19 associated symptoms such as fever, tiredness and dry cough. According to the respondents, majority (58%) considered that after exposure to COVID-19 it will take 5 days to develop the symptoms. The transmission

of COVID-19 is through person to person as well as from droplets or contaminated surface was agreed to by 83.3% of the participants.

After the pandemic outbreak throughout the world, 90.5% of the parents in the present are now afraid to go out of their houses due to the COVID related anxiety among 89.8% of them. Even during this critical time 16.8% parents accepted that, their children are going out of the houses majorly to market (9.5%).

Mostly all (98.3%) the parents were taking all the measures taken to maintain hygiene i.e. use of facemask, regular handwash and use of sanitizer. Also, 99.3% parents were sure of using facemask properly. Almost half of the parents agreed that they have brought maximum changes in the hygiene level of their child.

Majority (61.8%) parents were not prepared at all to send their child to school/outside the house even after the lockdown period. In response to the question of visit to dentist in emergency, dental situation 43.5% parents agreed visit to dentist, 36.3% were not sure while 20.3% disagreed to visiting the dentist. Further almost all (99.5%) parents denied to pre-appointment call before visiting the dentist (ref the above table). Adding to it, majority of the parents (63.5%) denied getting treatment for their child at the clinic during the current times even in case of need.

4. Discussion

Today, people can access news from various ways due to the timely reporting of official media, and the transparency and timeliness of modern multimedia platforms. It is a good sign that all parents we interviewed expressed concern about COVID-19.

Among the respondents in the survey, majority passed on COVID-19 information to their children, indicating that they highly value their children's health. All the respondents knew that the COVID-19 is a virus, as this fact has been definitively proven. Among which 60.3% had correct knowledge of the common symptoms of COVID-19 and 83.3% had proper knowledge regarding the different modes of its transmission. However, this finding reveals respondents awareness of the route of transmission and their intent to knowledge about the virus and diseases in general. A previous survey conducted in Hong Kong during the 2003 SARS outbreak found that approximately 80% of the respondents paid attention to SARS via regularly watching or listening to the news.¹⁰ Since modern multimedia spreads more easily and more widely, people can receive much information on COVID-19. This means that modern multimedia has played an important role in this outbreak.

The cause of COVID-19 is a coronavirus similar to the SARS virus of 2003.¹⁰ The virus can be spread through saliva, bodily fluids and airborne droplets when people cough or sneeze, which is the major route of transmission.^{11,12} Similarly, in the present study parents

were aware of the different modes of transmission of COVID-19.

During 2003 SARS outbreak, aerosols were considered the major route of transmission.¹³ Aerosols are defined as airborne particles that range in size from 0.5 to 10 microns. They are produced during the use of ultrasonic instruments, e.g., high-speed rotary hand pieces and 3-in-1 syringes. Irrigating solutions, which produce the therapeutic effects of lavage, also combined with blood, saliva, and bacteria to produce potentially harmful airborne particulates.¹⁴

Since dental treatment can involve considerable saliva or blood splatter from the patient, it can carry a high risk of virus transmission.^{15,16} Therefore, the dental department has a higher risk of infection than other departments or other places.

Although during the 2003 SARS outbreak there was a general concern that visiting the dentist might be a source of infection given the potential for virus loading in aerosols generated by many dental procedures, some one-thirds of the respondents were not afraid about contracting SARS and did not avoid dental treatment, and three-fifths were not worried about contracting SARS in the dental setting.⁹ In contrast, in the present study more than half of the parents showed unwillingness to visit dentist even in case of emergency dental situation of their child. Hence, although parents identified aerosol contamination as a risk, they were fearful of dental offices. Perhaps, the general public has a limited understanding of the extent of aerosol contamination that occurs during dental procedures.

A previous study of Hong Kong and UK patients indicated that more than one half of those surveyed were concerned about contracting infections during dental treatment and considered the control measures taken by the dental profession to prevent infections such as HIV/AIDS as unsatisfactory.¹⁷ Perceptions of dental infection control have since improved.¹⁸ This is similar to the present study where more than half of the respondents were not sure or did not want to perform any dental procedure at dental clinic. Whereas in a study by Yip HK et al (2007)¹⁹ less than one-third (30.0%) of the 463 respondents said they were not afraid of contracting the SARS coronavirus from their dentists and did not avoid dental treatment for that reason. Nearly three-fifths (56.7%) did not worry about contracting SARS from dental treatment. Fewer than 10% of the respondents thought that dentists ran a high risk of contracting SARS. In a study conducted by Sun J et al (2020),¹⁰ 82.49% of the parents said that they would take their child/children to the hospital for treatment during the COVID-19 outbreak if the child/children had a severe toothache, while the rest said that they would not. It was believed that this practice of these approximately 20% parents would prolong their child's/children's condition, which may lead to a greater incidence of dental disease.

Table 2:

		Frequency	Percentage
Q1 What is corona?	Bacteria	00	00
	Virus	5110	100
	Fungi	00	00
	Protozoa	00	00
Q2 Most common symptoms of COVID-19	Fever, tiredness, running nose	304	6
	Fever, tiredness, dry cough	3080	60.3
	Dry cough, running nose, fever	1726	33.8
	Person to person	230	4.5
Q3 COVID-19 is transmitted via	Droplets or contaminated surface	601	11.8
	Both of the above	4255	83.3
	Don't know	24	0.5
Q4 After exposure to COVID-19 it takes how many days to develop symptoms?	2 days	270	5.3
	3 days	500	9.8
	4 days	1378	27
	5 days	2962	58
Q5 Are you afraid to go out after corona?	Yes	4624	90.5
	No	486	9.5
Q6 Is your child going out of the house during corona pandemic?	Yes	857	16.8
	Market No	4854253	9.583.3
If yes, what all places the children's go?	Playground	127	2.5
	Both of the above	76	1.5
	Other place	169	3.3
	Frequent handwash only	88	1.8
Q7 Measures taken by you to maintain hygiene?	Sanitization only	00	00
	Facemask only	00	00
	All of the above	5022	98.3
Q8 Do you know how to wear mask?	Yes	5073	99.3
	No	37	0.8
	1	347	6.8
Q9 Changes brought in the hygiene level of your child (1-no change to 5- maximum)	2	204	4
	3	536	10.5
	4	1291	25.3
	5	2732	53.5
Q10 Will you visit the dentist in case of emergency dental situation of the child during this period?	Yes	2221	43.5
	No	1036	20.3
	Not sure	1853	36.3
Q11 Will you want your child to be treated at dental clinic in current situation if need arise?	Yes	1865	36.5
	No	3245	63.5
Q12 How prepared are you to send your child to school/ outside the house after the lockdown period?	Completely prepared	756	14.8
	Partially prepared	995	19.5
	Not prepared at all	3156	61.8
	Don't know	203	4
Q13 Is anxiety level increased due to COVID-19?	Yes	4588	89.8
	No	522	10.3
Q14 Will you make a pre-appointment call before visiting the dental clinic?	Yes	25	0.5
	No	5085	99.5

In a survey conducted in Hong Kong during the 2003 SARS outbreak, over two-thirds of respondents from different age groups (68.7%), different genders (68.6%), and different education levels (68.8%) said they were not worried about contracting SARS in the dental setting and did not want to avoid dental treatment.⁹ The present study's findings are not similar. This indicates that the medical quality of our dental departments is still not comparable to that of developed regions, which is not a good sign.

In the present study, 90.5% parents are afraid to go out of their house after the corona outbreak. Moreover, more than half of the parents are not prepared at all to send their children to school or outside the house.

Aside from hand hygiene, one of the infection control measures is the routine use of a face mask. Face mask works by providing a physical barrier between the mouth and nose of the wearer and potential contaminants in the immediate environment.¹⁵ Face masks are used as a protective barrier to reduce the risk of transmission of microorganisms between patients, HCWs, and the environment. In a study conducted by Kumar J et al (2020),²⁰ 88.5% of participants thought that they knew the proper steps of wearing a surgical face mask; however. These results may be because of its simplest design, which leads many participants to mistakenly assume that they know the proper steps of wearing it.²⁰ Similarly in the present study, almost half (53.5%) of the parents reported to the maximum changes brought in the hygiene level of their children. And 98.3% parents were using all the measures to maintain hygiene like use of facemask, regular hand wash and use of sanitizer.

Parents and caretakers play an important role in teaching children to wash their hands. Explain that hand washing can keep them healthy and stop the virus from spreading to others. During this pandemic period also, parents can help their child stay active by encourage their child to play outdoors with all safety measures—it's great for physical and mental health and use indoor activity breaks (like stretch breaks or dance breaks) throughout the day to help their child stay healthy and focused.

Thus, it is need of the time that parents are to be informed about preventive measures undertaken by municipal health departments, dental associations and dental departments, which include patient screening (COVID- 19 or suspected patients visiting), the strengthening of hospital environment disinfection, and the provision of special protective equipment for both dentists and patients (using gargles, rubber dams, strong suction and other equipment).^{21,22} Previous studies have confirmed that the preventive measures above are effective against the virus.^{23,24} Nevertheless, parents need to have a correct understanding of dental procedures and should try to avoid taking their children to hospitals or dental clinics if it is not urgent. In cases of emergency, however, timely medical treatment should be sought, and the appropriate precautions should be observed.

5. Conclusions

The majority of respondents lacked confidence towards dentistry, their treatment environments, and the infection control measures taken, and were worried about contracting COVID-19 in the dental setting. Parents, however, demanded better infection control measures during the SARS outbreak. From the results of our survey, it is very discouraging to note that dental patients in India have such confidence in their dentists, the treatment they provide, and the cross-infection control measures implemented.

This indicates that parents have poor trust in the protection measures of the hospital, and they are wrong to worry about the sterilization and disinfection of our medical apparatus, as well as the respective protection measures between dentists and patients. This enlightens us that we need to strengthen the propaganda of hospital protection work during the outbreak of COVID-19 to let parents know that we can minimize the droplets and blood or aerosols produced in the treatment process and adequately disinfect and sterilize our medical equipment, as well as perfect protective measures between dentists and patients.

6. Conflict of Interest

The authors declare that there are no conflicts of interest in this paper.

7. Source of Funding

None.

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