

**Knowledge among Pedodontics Post Graduates to Face Clinical Scenario Following Covid-19 Outbreak-A National Level Cross Sectional Survey**

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**Abstract**

**Background and aim:** The novel corona virus disease has engendered havoc in a global level. Dentists are at a high-level of peril due to the interventions like aerosol generating procedures or close vicinity to the oropharyngeal region. Children are common carriers of the disease, thus a proper precaution is necessary to be taken

for avoiding exposure to dental team or cause cross contamination. The study aims to assess the knowledge of pedodontic post graduates about the mode of transmission and safety measures that is needed to be taken to prevent transmission of COVID-19 and their preparedness to face clinical pediatric dental set up.

**Design:** The online questionnaire survey was conducted amongst a total of 385 pedodontic post-graduates through online Google forms. The Samples selected for the study were given Google form questionnaire through their e-mail id. Responses were collected. Data was recorded and entered and statistically analyzed. Descriptive statistics was conducted using SPSS version 21. Descriptive data was recorded; percentage distribution was done to calculate the results.

**Results:** This study included a total of 385 pedodontic post-graduates. A total of 165 (42.9%) had a high knowledge and were prepared well to face the clinical scenario following pandemic. The mean of 306 (79.42%) were aware of patient related safety measures to be taken in the clinic during the pandemic.

**Conclusion:** In a rapidly escalating pandemic, practitioners must acquire, update and use the reliable information and protocols, and must be prepared to face clinical scenario.

**Keywords:** COVID 19, Pedodontic Post Graduate, Questionnaire, Transmission.

### **Introduction**

With the commencement of the year 2020, the novel virus severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) emerged, spawning the corona virus disease (COVID-19). This virus has emanated a global level pandemic, and hence the World Health Organization (WHO) Director-General on the recommendation of the International Health Regulations (2005) Emergency Committee proclaimed a Public Health Emergency of International Concern (PHEIC) <sup>1</sup>. Given the extensive dissemination of SARS-CoV-2 and its transmission amongst health care providers<sup>2</sup>, dental professionals are aimed to be at higher risk for noscomial infection and can also be the potential carriers of the disease. The distinctive features of dental interventions that include aerosol

generating procedures, handling of sharps, and the provider being in close vicinity to the patient's oropharyngeal region, can lead to peril. Furthermore, if ample precautions aren't taken, the dental clinic can be a hub for potential exposure of patients to cross contamination<sup>3</sup>. Direct contact, droplet and aerosol are the attainable routes of transmission. The unique essence of dentistry, where most of the dental procedures produces tremendous amounts of droplets and aerosols, creates a potential risk of transmission of the disease. Comprehending the importance of aerosol transmission and its ramifications in dentistry can enable the identification and rectification of the negligence in daily dental practice. Additionally, special precautions must be implemented along with the standard ones during the outbreak<sup>4</sup>. Thus there is a necessity for the practitioner to highlight on the significance of safety and precautionary measures to protect the child, the caretaker and the dental professional team, while still providing effective emergency care for the evidently affected children and those who are potential carriers of the infection. Also to emphasise that, in a swiftly escalating pandemic, practitioners must acquire, update and make use of the reliable information and protocols on managing child patients. Hence, this online questionnaire survey is aimed to assess the knowledge among the pediatric dental post graduates about safety measures to be taken for prevention of transmission of COVID -19 to a child.

### **Methodology**

Our study population incorporated pedodontic post-graduates from India, regardless of their place of work, and excluded people who have not experienced formal training in pedodontic specialty or People who weren't obliging to partake. This survey was conducted between May-July 2020. An online questionnaire using Google Forms was used to collect the data.

### Pilot Study

The online questionnaire was initially directed to a panel of cognoscenti pedodontists who validated the Questions (S- CVI was 0.98- excellent content validity). A pilot study was then done amongst 30 willing participants to estimate the sample size. According to the pilot study 53.3% participants had high knowledge regarding the prevention of transmission of COVID-19 to a child. The estimated sample size was 385. Amongst the 30 samples, 15 samples were asked to re-take the survey for a reliability test (Reliability- internal consistency: Cronbachs alpha is 0.7 acceptable; Test retest reliability is 0.95- excellent)

A list of 385 students who are pursuing post-graduation degree in the Department of Pedodontics and preventive dentistry anywhere across India was made, and excluded People who have not received any formal training in pedodontic speciality and People who are not willing to participate. The online questionnaire survey was regulated through online Google forms. The Samples opted for the study was given Google form questionnaire through their e-mail id. The questionnaires were anonymous to maintain the privacy and confidentiality of all information collected in the study. The questionnaire consisted of 20 close ended questions (Document-1) to assess the knowledge of Pedodontic Post graduates related to infection control and prevention of transmission of COVID 19 amongst children in Pediatric dental clinical setup. Responses were collected via Google forms. Data was recorded and entered in excel sheet and statistically analyzed. Descriptive statistics was conducted using SPSS version 21. Descriptive data are recorded; percentage distribution is done to calculate the results.

### Results

This study included a total of 385 pedodontic post-graduate students who are pursuing degree in the

Department of Pedodontics and preventive dentistry anywhere across India, and excluded people who have not received any formal training in pedodontic speciality or people who were not willing to participate. The scored data sheet was analyzed. Out of the 20 answered questions, +1 score given for every correct answer marked and 0 score for an incorrect answer. The students were categorized based on their scores as follows (Table 1):

Score	Interpretation
15+	High knowledge
10-15	Moderate knowledge
< 10	Poor knowledge

Table 1: Knowledge level categories based on the scores obtained

Based on these scorings, in our study a total of 42.9% had a high knowledge and were prepared well to face the clinical scenario following pandemic, a total of 54.8% had moderate knowledge and around 2.3% of them had poor knowledge regarding the subject as shown in Table 2 & Diagram 1.

Knowledge Level	Frequency (N)	Percentage (%)
High	165	42.9
Moderate	211	54.8
Poor	9	2.3

Table 2: Results- Knowledge distribution in the study

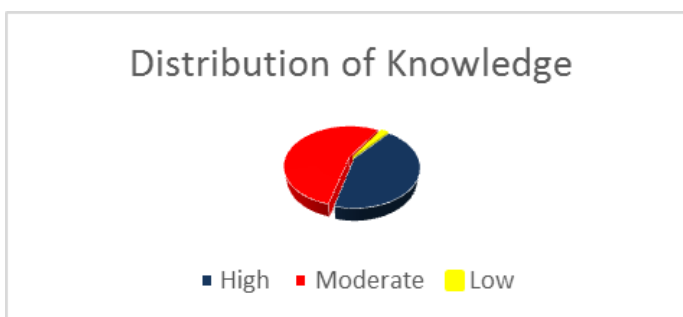


Figure 1: Percentage distribution of knowledge amongst pedodontic post-graduates regarding COVID-19 it's transmission and prevention

The questionnaire had 3 categories of questions (Table 3,5,7) , these were

- 1- Related to transmission of the disease (Q.No: 1, 2 & 3)
- 2- Related to clinic environment safety measures that are needed to be taken (Q.No: 4, 5, 6, 7, 8, 9, 11, 12, 13 & 20)
- 3- Treatment related safety measures that is needed to be followed (Q.No: 10, 14, 15, 16, 17, 18 & 19)

Related to transmission of the disease:

Table 2

Category	Question Number	No. of students who answered it correct. Frequency (N)	Percentage (%)
Related to transmission of the disease	1.	381	99.2
	2.	356	92.5
	3.	146	37.9

Table 3: Category of questions related to transmission of the disease

Category	Mean number	Maximum	Minimum	Mean percentage
1	294	381	146	76.36

Table 4: Knowledge regarding the transmission of the disease

As shown in Table 4 a mean percentage of 76.36% had the knowledge related to the transmission of the disease. Of this a maximum of 99.2% students were aware of the fact that the virus causing the disease spreads through aerosols. And minimum of 37.9% were sure that the treatment of Dental abscess has a very high level of risk of transmission.

Related to clinic environment safety measures that are needed to be taken

Table 4

Category	Q.No.	No. Of students who answered it correct. Frequency (N)	Percentage (%)
Related to clinic environment safety measures that are needed to be taken	4.	373	96.9
	5.	347	90.1
	6.	368	95.6
	7.	153	39.7
	8.	53	13.8
	9.	99	25.7
	11.	236	61.3
	12.	301	78.2
	13.	57	14.8
20.	379	98.4	

Table 5: Category of questions Related to clinic environment safety measures that are needed to be taken

Category	Mean number	Maximum	Minimum	Mean percentage
2	237	379	53	61.25

Table 6: Knowledge regarding the clinic environment safety measures that are needed to be taken

As shown in Table 6 a mean percentage of 61.25% had the knowledge Related to clinic environment safety measures that are needed to be taken. Of this maximum of 98.4% were sure of the fact that restraint devices must be cleaned and disinfected thoroughly after use. A minimum of 13.8% only knew the correct sequencing of doffing of PPE.

Treatment related safety measures that is needed to be followed

Category	Question Number	No. Of students who answered it correct. Frequency (N)	Percentage (%)
Treatment related	10.	215	55.8
	14.	332	86.2

safety	15.	358	93
measures	16.	369	95.8
that is	17.	333	86.5
needed to	18.	321	83.4
be	19.	213	55.3
followed			

Table 7: Category of questions regarding Treatment related safety measures that is needed to be followed

Category	Mean number	Maximum	Minimum	Mean percentage
3	306	369	213	79.42

Table 8: Knowledge regarding Treatment related safety measures that is needed to be followed

As shown in Table 8 a mean percentage of 79.42% had the knowledge regarding treatment related safety measures that is needed to be followed in the clinic following pandemic. Of this a maximum of 95.8% knew that number of visitors accompanying the child must be limited as much as possible, and screened for fever and symptoms of COVID-19. And around 55.3% of them know that a child, who needs Physical Behaviour management, must be delayed.

### Discussion

This survey provides an insight on the level of knowledge regarding the transmission and prevention of COVID-19 by pedodontic post-graduates thus expressing the level of preparedness to face clinical scenario following the pandemic. Transmission of SARS-CoV-2, can occur through direct, indirect, or close contact with infected people through infected secretions such as saliva and respiratory secretions or through their respiratory droplets, which are > 5-10 µm in diameter. Droplets <5µm in diameter are referred to as droplet nuclei or aerosols<sup>5</sup>. The other possible transmission windows<sup>6</sup>:

- Inhalation of airborne, as it stated that the virus may stay in the air for extended period of time.

- The direct contact with body and oral fluids.
- The direct contact with blood.
- Patient materials may work as risk factor if the dentists get in contact with them.
- Risk of exposure to nasal or oral mucosa.
- The contact with non-sterilized instrumented (contaminated) indirectly.
- If the infected patients cough or sneeze inside the waiting room of the clinic.

Dental abscess has very high infection, and treating that poses high potential of risk of transmission of disease<sup>7</sup>. In our study a mean of 76.36% had a high knowledge regarding transmission of the disease, this was comparatively lesser when compared to the study done by Kinariwala N. et al, 2020 on knowledge of COVID-19 amongst Indian practicing dentists<sup>8</sup>. This implies that the post-graduates need more educational intervention and updation before facing the clinical scenario.

The guidelines issued by the WHO<sup>5</sup>, AAPD<sup>9</sup>, CDC<sup>10</sup>, IDA<sup>11</sup> and DCI<sup>12</sup> have included detailed instructions stressing the importance of minimising cross-infection, maintaining the safety of dental healthcare providers, paediatric patients and their guardians, and the proper use of PPE. In our study a mean of 61.25% had the knowledge related to clinic environment safety measures that is needed to be done, this was found to be similar to the study by Bansal P. et al<sup>13</sup>, 2020 where majority of the respondents whether graduate and postgraduate, young or experienced displayed good knowledge scores regarding the effective disinfectant for general areas in clinical settings (63.3%)

Because of the long incubation period (2-14 days)<sup>14</sup> for everyone, and because children can be asymptomatic or present with mild, nonspecific symptoms, all child patients and parents should be considered as potential carriers of SARSCoV-2 unless proved otherwise. They are

critical for avoiding the transmission of SARS-CoV-2 virus to children as well as transmission from infected children to healthcare professionals. The guidelines given by AAPD<sup>9</sup>, must be followed to minimize transmission of disease in children or by the children. In our study a mean of 79.42% had the knowledge regarding treatment related safety measures that is needed to be followed in the clinic following pandemic. Although reported clinical manifestations of COVID-19 in children are generally less severe than those of adult patients, young children, and particularly infants, remain vulnerable to infection and pose a significant transmission risk. Thus there is a need to have high knowledge regarding the treatment precautionary measures to be taken. Despite the findings introduced here, it is important to stress that this survey had limitations. The study was not categorised based on socio-demographic character, because of the difference in knowledge level and teaching skills within different demographic areas, it could lead to a change in the final result of the study; this could act as a limitation to the study. The study was also not categorised based on their educational level ( 1<sup>st</sup> / 2<sup>nd</sup>/ 3<sup>rd</sup> year), because of the difference in intellectual levels amongst the 1<sup>st</sup> /2<sup>nd</sup> /3<sup>rd</sup> year, the answers submitted may be biased.

### Conclusion

Children's oral health is imperative for overall health. Appropriate oral health management, disease prevention and treatment for children during the COVID-19 global pandemic are critical to their oral and general health. With the first phase of the pandemic now receding, it is possible that we could see health care authorities permitting elective treatments, but with all the infection control protocols and preventive measures as well as risk assessment of patients. The, dental professionals should be aware of the recently updated knowledge about COVID-19 and practice according to the standards of treatment

guidelines and the recommended infection control measures in dental settings.

The current study strongly recommends the need for the central authority of dental professionals to provide interim regulations in the form of mandatory Online CDE programs and training with constantly upgrading guidelines. Indeed, the Government of India together with the Indian Dental Council need to lead this initiative. Dental teams must ensure they remain current in their understanding of local, regional, and national guidance are advised to follow the Centers of Disease Control and Prevention (CDC) and World Health Organization (WHO) guidelines to face the current clinical scenario.

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