

Safety protocols undertaken by dentists regarding covid – 19 in relation to infant oral health – A questionnaire survey

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Abstract

Background: COVID – 19 pandemic is one of the most important current medical concerns across the globe. COVID – 19 era necessitates incorporation of new procedures of approach and management in different aspects of routine dental practice. The present study aims to throw light on the safety protocols undertaken by Dentists of West Bengal regarding COVID – 19 in relation to infant oral health.

Methods: An online questionnaire survey was conducted through mail and social media to collect the responses of dentists practicing in West Bengal. The questionnaire was divided into three sections: 1. background characteristics of dentists who participated in the survey and 2. safety protocols undertaken by dentists in relation to infant oral health.

Results: Among the participants, 79.9% dental practitioners had their practice open but majority of them (42.2%) did only emergency treatments in COVID 19

Pandemic. There was an uneven distribution of type of dental treatment preferred and the safety protocols undertaken in child patients keeping COVID situation in mind.

Conclusion: Overall the dentists of West Bengal was found to be well aware of the general aspects of COVID - 19 and incorporated various safety protocols in relation to infant oral health in the light of this new era.

Keywords: COVID – 19 pandemic, questionnaire, pediatric dentistry

Introduction

The COVID-19 outbreaks were first reported in December 2019 in Wuhan, China, when a group of individuals presented with atypical pneumonia. The World Health Organization (WHO) declared COVID-19 a public health emergency of international concern (PHEIC) on January 30, 2020, and declared the outbreak a worldwide pandemic on March 11, 2020.¹

The vast majority of COVID-19 patients experience moderate symptoms such as dry cough, sore throat, and fever. The published data on COVID-19 in the world supports the concept that the majority of children do not have serious condition.

There are three theories that supports the same

- It was seen that children have a lower proclivity for immunological dysregulation.²
- Second, pro-inflammatory response indicators such as C-reactive protein are infrequent in children, indicating a lower inflammatory response to infection.³
- Finally, decreased expression of the angiotensin converting enzyme 2 (ACE-2) receptor, which is required for virus binding, lowers the frequency of COVID -19 in children.⁴

The disease has a 7–14-day incubation period. Children with this infection may be asymptomatic or have just minor symptoms. These symptoms may include fever,

dry cough, exhaustion and upper respiratory symptoms such as nasal congestion. It is unlikely for it to develop to lower respiratory tract infections. In addition, unusual symptoms such as nausea, diarrhoea, hyposmia, and dysguesia have been observed. With the emergence of COVID-19 cases in children, there has been a recent trend of Kawasaki-like disease, also known as multisystem inflammatory syndrome (MIS-C). COVID-19 has a good prognosis in youngsters, with a fatality rate of 0.01 percent. There is currently no research describing the intraoral findings in a COVID positive child. COVID-19 affected children have a lower white blood cell count, especially lymphocytes and neutrophils. Thrombocytopenia may occur. Patients who are severely impacted by COVID-19 have high liver enzymes, impaired coagulation, and elevated D-dimers. Chest radiographs of children generally exhibit bilateral patchy airspace consolidations, commonly at the periphery of the lungs, peri bronchial thickening and ground-glass opacities.⁵

SARS-CoV-2 infected children were found to be asymptomatic in 16–45 percent of cases.⁶ Symptom based screening for SARS-CoV-2 is difficult in children due to the lack of characteristic signs or symptoms and a significant proportion of asymptomatic infection.⁷

With this background, this study aims to assess the safety protocols undertaken by dentists regarding COVID – 19 in relation to infant oral health.

Materials and methods

A. Clearance from the Ethical Committee: The ethical clearance certificate was obtained from the Institutional Ethical Committee of Haldia Institute of Dental Sciences and Research, Haldia, West Bengal.

B. Study design and sample selection: A web-based questionnaire survey was conducted for a period of 3 months by preparing google form consisting of 14

questions. It was mandated that all questions be answered. The questionnaire were distributed among 850 dental practitioners in and around Haldia and Kolkata region through email and social media. Online informed consents were obtained from the participants. They were guaranteed with the anonymity of their responses.

C. Statistical Analysis: The data from the responses were tabulated in Microsoft Excel and analysed with SPSS

V.24 (Statistical Package for Social Sciences, IBM Corp., Armonk, NY). The descriptive analysis included the expression of participants' responses to the study questionnaire using frequency and percentage.

Results

A total of 850 survey questionnaires were distributed. Among them 700 were filled and returned. The background characteristics are given in Table 1 which shows highest proportion of the Dentists (59.0%) were from the age group of 30-39 years. Most of the Dentists (58.6%) were Pediatric Dentists.

Background characteristics of dentists who participated in the survey

Table 1: Distribution of Dentists' details

Characteristics		N	%
Age	<30 years	218	31.2
	30-39 years	413	59.0
	40-49 years	52	7.4
	≥50 years	17	2.4
Speciality	General	214	30.6
	Pediatric	410	58.6
	Other Speciality	76	10.8

The safety protocol followed by the dentists are detailed in the Table 2 to Table 15. Among the participant dentists, 79.9% kept their dental practice open during the COVID-19 pandemic among which (42.2%) opted for emergency

treatments only. In case of treating patients aged below 14 years, 62.1% stated that they treated them often whereas 22.0% stated that they treated them rarely.

Majority of the participating dentists (58.4%) said that they would rather prefer clinical dentistry over tele dentistry. When dealing with patients traveling from various states or countries, majority of the dentists (96.9%) enquired about the travel details of the children and their care givers, 79.9% of them evaluated their body temperature and 63.9% of them measured their SpO2 prior to the treatment.

Pre-procedural mouth rinse was recommended by 87.8 percent of dentists during treatment. 0.12% Chlorhexidine topped in the list of preprocedural mouth rinses amongst majority (55.7%) of the responders. Although 86.5% of

dentists believed that wearing PPE would increase fear and concern among youngsters, majority (72.8 %) of them did not use any child-friendly PPE during the treatment. When asked if they sought RTPCR, majority of the dentists (55.0%) reported to have it done occasionally.

In the case of restorative treatments, most of the dentists (45.1%) acknowledged to using a rubber dam for isolation occasionally. Very few (4.6%) of the responders admitted of using rubber dam in all instances. Keeping the COVID-19 situation in mind, majority of the dentists preferred Temporary and atraumatic restoration (45.1%) over Fluoride toothpaste (26.9%). Pit and fissure sealants (14.0%) followed thereafter. Silver diamine fluoride (7.4%) and Fluoride varnish (6.6%) were found to be the less sought choices.

Safety protocols undertaken by dentists in relation to infant oral health

Table 2: Distribution of responses to the Question 1

Question	Responses	N	%
Have you had your dental practice open in COVID 19 Pandemic?	Yes	566	79.9
	No	134	20.1

Table 3: Distribution of responses to the Question 2

Question	Responses	N	%
extent did you do dental treatment in child patients?	Full extent	115	20.3
	Limited extent	212	37.5
	Emergency	239	42.2

Table 4: Distribution of responses to the Question 3

Question	Responses	N	%
How often do you treat patients below 14 years of age?	Mostly	435	62.1
	Sometimes	111	15.9
	Rarely	154	22.0

Table 5: Distribution of responses to the Question 4

Question	Responses	N	%
Do you prefer tele dentistry over clinical dentistry given the COVID situation?	Yes	291	41.6
	No	409	58.4

Table 6: Distribution of responses to the Question 5

Question	Responses	N	%
Do you ask about travel history and medical history of children and their care givers as part of screening?	Yes	678	96.9
	No	22	3.1

Table 7. Distribution of responses to the Question 6

Question	Responses	N	%
Do you measure body temperature of children and their care givers prior to treatment?	Yes	559	79.9
	No	141	20.1

Table 8: Distribution of responses to the Question 7

Question	Responses	N	%
Do you measure SpO2 of children and their care givers prior to treatment?	Yes	447	63.9
	No	253	36.1

Table 9: Distribution of responses to the Question 8

Question	Responses	N	%
Do you advocate pre - procedural mouth rinse in child patients?	Yes	614	87.8
	No	86	12.2

Table 10: Distribution of responses to the Question 9

Question	Responses	N	%
If yes, what do you prefer?	1% H2O2	16	2.6
	0.12% CHX	342	55.7
	0.5% Povidone Iodine	256	41.7

Table 11. Distribution of responses to the Question 10

Question	Responses	N	%
Do you think wearing PPE raise the anxiety of children?	Yes	605	86.5
	No	95	13.5

Table 12: Distribution of responses to the Question 11

Question	Responses	N	%
Do you use child friendly PPE while operating on a pediatric patient?	Yes	190	27.2
	No	510	72.8

Table 13: Distribution of responses to the Question 12

Question	Responses	N	%
Do you request RTPCR in children prior to treatment?	Always	56	8.0
	Mostly	42	6.0
	Sometimes	368	52.6
	Never	233	33.4

Table 14: Distribution of responses to the Question 13

Question	Responses	N	%
Do you perform restorative treatment of children under	Always	32	4.6
	Mostly	116	16.6

rubber dam isolation?	Sometimes	316	45.1
	Never	236	33.7

Table 15: Distribution of responses to the Question 14

Question	Responses	N	%
What do you prefer in children with carious lesion with or without restorative needs keeping COVID situation in mind?	Fluoride varnish	46	6.6
	Silver diamine fluoride	52	7.4
	Pit and fissure sealants	98	14.0
	Temporary and atraumatic restoration	316	45.1
	Fluoride toothpaste	188	26.9

The awareness about the COVID-19 pandemic among the participating dentists are detailed in the Table 16 to Table 19. Most of them stated the common symptom to be loss of smell and taste (83.6%) followed by fever (83.1%), sore throat (71.0%), shortness of breath (64.1%) and cough (62.7%). Majority of the responders (78.3%) stated that the mode of transmission was through all of the following- hand shake, coughing & sneezing and touching surfaces such as door knobs and handles. Most of them (58.0%) regarded the incubation period to be 1-14 days. 75.0% of them stated that their sources of information were derived both from social media and health authorities.

Discussion

According to Hoang's recent systematic review, there were 7,780 paediatric patients with COVID-19 infection symptoms in 131 papers published across 26 countries. Fever (59.1%) and cough (55.9%) were the most frequent symptoms found in children but 19.3% of children were carriers without active infection.⁸ Coronavirus disease 2019 has the potential for transmission via respiratory droplets and splatter

(aerosol) from saliva and blood of the patients in contact with mucous membranes and infected fomites.^{9,10} This leaves dental professionals in potentially high-risk situations. Young children may not present severe signs of the ailment, but they are nonetheless susceptible to it, presenting a considerable transmission potential in the community. Given the present uncertain scenario, paediatric dentists providing oral care to children must comprehend current local, regional, and national guidelines and react appropriately to changes to safeguard the safety of dental care providers and patients.^{10,11}

To control the infection in dental practice, guidelines were quickly published for the dental profession by the World Health Organization and Centers for Disease Control and Prevention (CDC) and since then it has been updated on regular basis.^{12,13} Furthermore, some reports provided important information on the signs and symptoms of COVID-19, probable transmission routes, and referral procedures to improve knowledge and preventive practices of dental professionals.^{14,15} The American Academy of Pediatric Dentistry (AAPD) provided monthly updates on its website, including checklists, in the field of paediatric dentistry.¹⁶ Surprisingly, despite the existence of exceptional disinfection protocols and a positive attitude toward disinfection among oral health practitioners in the face of the COVID-19 epidemic, a recent study revealed a lack of knowledge in dentists about fundamental aspects of disinfection protocols.^{17,18}

The present study investigated the awareness and safety protocols undertaken by dentists regarding COVID – 19 in relation to infant oral health. The results of the study showed that most of the participating dentists were from the age groups of <30 years and 30-39 years. This is similar to the study conducted by Sami Aldhuwayhi et al. (2021) on COVID-19 knowledge and perceptions

among dental specialists where the participants were mostly from the age groups of <30 years and 30-39 years (293 out of 396). Another similarity with this study was that most of the participant dentists were pediatric dentists (102 out of 396) in comparison to the other specialties.¹⁹

The present study found that, majority of the dentists had their practice open and most of them did dental treatment to limited extent and emergency treatments. Katrin Bekes et al (2021) conducted a study on impact of COVID-19 pandemic on pediatric dentistry in Austria and knowledge, perception and attitude among pediatric dentists. They reported that, 72.4% of the dentists had their practice open and all of them (100.0%) did dental treatment to limited extent and emergency treatments. Another similarity with this study was that most of the participant dentists (77.8%) conducted temporary restoration as preferred treatment for carious lesions.²⁰

Majority of the participant dentists were found to be cautious enough to ask every detail about travel history of the patients and suggested thermal checking, SpO₂ assessment and RTPCR. Many dentists advocated pre-procedural mouth rinse in child patients mostly with chlorhexidine and preferred to perform restorative treatment of children under rubber dam isolation.

Conclusion

The study reveals that the awareness and safety protocols undertaken by dentists regarding COVID – 19 in relation to infant oral health was adequate and up to the mark to prevent the transmission of infection and give best possible treatment. Further studied in larger scale is recommended to achieve more precise results regarding the long-term implications of COVID-19 on dentists.

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