

Prosthodontic Attitudes and Practices among Dentists during the First Wave of COVID-19 Era

Abstract

Context: Coronavirus disease (COVID-19) is a highly infectious disease that poses a threat in dental practice especially in prosthetic clinics due to the peculiar nature of prosthodontic procedures. **Aims:** The aim of this study was to determine the attitude and practices in prosthodontics during COVID-19 period. **Settings and Design:** An online cross-sectional survey was done among dentists practicing prosthodontics across Nigeria. **Materials and Methods:** The survey was carried out by sending validated structured self-administered questionnaire to dentists on different social and speciality platforms. The questionnaire was designed into four segments namely socio-demographics, attitude, practice, and preparedness of dental staff towards COVID-19. **Statistical Analysis Used:** Data analysis was done using SPSS software program, version 25.0. Statistical significance was established at $P = <0.05$. **Results:** A total of 123 participants were seen with mean age of 45.20 ± 10.80 years. The specialists (48.0%) constituted the largest group, and the majority of participants were from the southwest (74.8%). Only 27.6% were very eager to perform dental procedures. Majority (64.2%) of the treatment was done by consultation via telephone calls, the use of telephone calls was not associated with age nor gender ($P = 0.903, 0.611$, respectively). A total of 31.7% attended to emergency cases occasionally. Only 13.4% performed prosthodontic treatment and this procedure was done in line with recommended guidelines to control and prevent the spread of COVID-19. **Conclusion:** The eagerness to perform dental procedures was low and majority of treatment was done by consultation via telephone calls. However, prosthodontic procedure was done by a few of the dentists according to the recommended guidelines for prevention and control.

Keywords: COVID-19, practice, prosthodontics

Introduction

Coronavirus disease-2019 (COVID-19) is a highly infectious respiratory disease that has been declared a pandemic by the World Health Organization (WHO).^[1] It is caused by a novel coronavirus and has clinical symptoms such as fever, dry cough, fatigue, myalgia, dyspnea, and recently symptoms such as loss of smell and taste have been added. Infections have risen to millions globally with number of deaths increasing by the day. The contagious nature of this virus has made many medical institutions to cancel elective procedures.^[1]

In dentistry, the patient and dentist are highly at risk because of the generation of aerosol from hand pieces and ultrasonic instrument used during dental procedures^[2] coupled with the nature of close contact between dentist and patient during dental treatment.^[3] Post-infection period are challenging to dentist because of relatively prolonged incubation period (might

be up to 14 days with no symptoms, mild cases with little or no symptoms) that makes it difficult for dental staff to recognize or detect existence of infection. Patient with COVID-19 infections with no symptoms are particularly of significant threat to the dentist and other staff.^[4]

The Centre for Disease Control and Prevention (CDC), American Dental Association (ADA) and WHO have recommended guidelines to prevent the spread of this disease. These include the use of personal protective equipment (PPE), hand wash or sanitizer, rubber dam isolation, anti-retraction hand piece, taking detailed patient evaluation, ensuring patient use of mouth rinses before dental procedures and disinfection of the clinic.^[5-7]

It is necessary that dentist (especially the prosthodontist, due to the nature of the aerosol-generating procedures [AGP]) have a high level of awareness and show this in their practice to control and manage the spread of the disease. The aim of this study therefore is

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Received: 15-Aug-2021

Accepted: 26-Jan-2022

Published: 04-May-2022

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Access this article online

Website:

www.jwacs-jcoac.org

DOI: 10.4103/jwas.jwas_36_21

Quick Response Code:



How to cite this article: Adenuga-Taiwo OA, Akinboboye BO, Awotile AO, Onigbinde OO. Prosthodontic attitudes and practices among dentists during the first wave of COVID-19 era. J West Afr Coll Surg 2020;10:15-8.

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to determine the dental practices in prosthetic clinics during the first wave of COVID-19 pandemic period.

Materials and Methods

This was an online cross-sectional survey involving dentists in prosthodontics practice either in the clinics or laboratories across Southern part of Nigeria. The study traversed levels of designation and different clinical/laboratory settings. The survey was carried out by sending validated structured self-administered questionnaire^[8] to all dentists on different dental social and speciality platforms. The questionnaire was designed into four segments namely socio-demographics, attitude, practice, and preparedness of dentists towards COVID-19. The questionnaire was worded in English language. The questionnaire contained a brief description of the study which was followed by 10 questions. The questions assessed the level of attitude and practice of dental procedures during COVID-19 pandemic period and preparedness in compliance of preventive measures in handling suspected cases. Participation was voluntary and an informed consent was made by participants

on survey form. The participants were advised to return the completed questionnaire through the online platform to the authors. Regular reminders were sent every week on the dental platforms. The study was for a period of 4 weeks after which responses were collated for analysis.

Data were retrieved from the SurveyMonkey online platform in Excel spread sheet and was subjected to analysis using SPSS software program, version 25.0. Descriptive analysis was done for all discrete variables and a test of association was carried out using Pearson's chi-square test. Statistical significance was established at $P \leq 0.05$.

Results

A total of 123 participants were enlisted in this study after completion of an online questionnaire survey forms. The mean age was 45.20 ± 10.80 with male 60.2% predominance [Table 1]. Most of the participants in the study were consultants/specialists (48.0%) working in tertiary and federal hospitals. The participants were drawn from the three geo-political zones of Nigeria: South-west (74.8%), South-east (15.4%), and South-south (9.8%) [Table 1].

The proportion of participants who responded "very often" to question on continued treatment under routine infection was 27.6%.

The proportion of participants who occasionally attended to emergency patients during pandemic period was 31.7% [Table 2]. Approximately 64.2% of participants engaged in telephone consultation as a treatment option during the pandemic period [Figure 1].

The proportion of participants who reported carrying out prosthodontics laboratory procedures "very often" were 43.9% and "fairly done" were 14.6%.

Most of the prosthodontics procedure done was fabrication of removable prosthesis (58.6%). All patients treated were very often treated as suspected COVID-19 patients by majority (61.0%) of participants.

Among the study participants, 3.7% of the population reported that they saw confirmed cases although method of confirmation was not stated.

Only 13.4% performed prosthodontic clinical treatment and this procedure was reported to be done in line with recommended guidelines to control and prevent the spread of COVID-19.

Table 1: Sociodemographic characteristic of participants

Variable	Frequency (n = 123)	Percentage
Age group (years)		
21–30	19	15.4
31–40	28	22.8
41–50	35	28.5
51–60	35	28.5
61–70	6	4.9
Mean \pm SD	45.20 \pm 10.8	
Gender		
Male	74	60.2
Female	49	39.8
Designation		
House officer	7	5.7
Dental officer	23	18.7
Resident	18	14.6
Consultant	59	48.0
General dental practice	16	13.0
Type of practice		
Private	14	11.4
State hospital	39	31.7
Tertiary/federal hospital	70	56.9
Zone of practice		
South-west	92	74.8
South-east	19	15.4
South-south	12	9.8

Table 2: Responses of participants to procedures and cases

	Very often	Fairly often	Occasional	Hardly ever	Never
Perform dental laboratory procedure	54 (43.9)	18 (14.6)	33 (26.8)	9 (7.3)	9 (7.3)
Attend to emergency patients during pandemic period	11 (8.9)	23 (18.7)	39 (31.7)	21 (17.1)	29 (23.6)
Do prosthodontics clinical procedure	16 (13.4)	23 (18.7)	36 (29.3)	18 (14.6)	30 (24.4)
Treat all cases as suspected cases	75 (61.0)	20 (16.3)	9 (7.3)	9 (7.3)	10 (7.3)
Refer all confirmed cases to appropriate institution/unit	60 (48.8)	13 (10.6)	6 (4.9)	12 (9.8)	32 (26.0)
Recorded any confirmed cases in your clinic/center	0 (0.0)	0 (0.0)	4 (3.7)	0	119 (96.7)

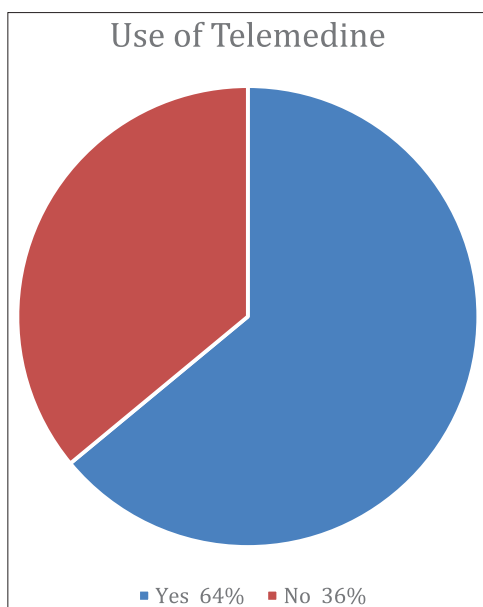


Figure 1: Use of telemedicine

Discussion

This study aimed to evaluate the prosthodontic practices and attitude among the dentists in the southern part of Nigeria during the first wave of COVID-19 pandemic. Following infection control guidelines is crucial as the COVID-19 virus is documented to be transmittable through contact with oral, nasal and eye mucous membranes.^[9] A case report from Germany provided evidence of transmission of COVID-19 through contact with asymptomatic patients.^[10] Indications have shown that transmission of COVID-19 may occur during AGP.^[11] This can explain the reason for the decline in the prosthodontic procedures performed in the clinics and the lack of enthusiasm amongst the dental practitioners especially during the first wave when knowledge about the disease was sparse. Assessing infection control in prosthetic clinic during this period was very essential because of the risk involved and there was a greater risk of cross-infection due to the use of materials which are exchanged among the dentists and the patients as reported in the reviewed study of the Korean Society of Prosthodontic Review^[12] and a recent systematic review.^[13] In this study, most of the prosthodontic procedures were reported to be performed under strict infection control due to the high possibility of infection risk. Though not high when compared with other dental specialities.^[14]

Our findings on infection control practices were similar to the findings in the prosthetic clinics of some private dental centers in India^[15] and a contrast to the government hospitals^[16] in Riyadh, Saudi Arabia. However, our study encompassed private, government state and teaching hospitals across the southern part of Nigeria which showed more variability. The result of our study showed that the Consultants/Specialists responded more towards activities in the clinic when compared to that of the registrars/dental officers. This might be due to low number of participants at some level of designation such

as the house officers, senior registrars, principal dental officers and senior dental officers with less coverage of participants in both South-East and South-South geo-political zones. This calls for future studies to be done to obtain a larger sample of the dental workforce.

Prosthodontic work was reduced during pandemic period resulting in 29.3% of dental practitioner performing prosthodontics work occasionally, whereas 24.4% abstained from performing prosthodontic procedure.^[15]

However, due to restriction in movement during the pandemic period, the number of participants attending to patients was reduced (34.1%) and this is similar to the finding in China where the demand for urgent dental treatment decreased by 38%.^[17] Furthermore, the use of telephone in the prosthetic clinic proved to be essential in this pandemic period and a large proportion (64.2%) of the participants made use of this service, which is similar to other studies^[18,19] that also reported the use of telemedicine and WhatsApp in dental practice. In suspected or confirmed COVID-19 cases, dental emergencies are referred to as urgent dental care services as seen in other studies.^[20,21,22]

Universal precautions in infection control should be implemented in all dental practices including prosthetic clinics. This is reinforced in the recommendations considered for reopening dental practices globally.^[23] The document contains five domains: (1) practice preparation and patient considerations, (2) PPE for dental practice personnel, (3) management of the clinical room, (4) dental procedures, and (5) postoperative cleaning/disinfection/waste management.

In the practice preparation and patient considerations, the dental practice must be triaged into healthy group, shielded group, high-risk group, confirmed and suspected case groups.^[24] All patients must wear facemasks, wash hands with soap/use hand sanitizer, and undergo temperature check at the clinic entrance. Surgery procedures should be timed and all equipment should be sterilized. All work surfaces should be disinfected. Staff routines (don and doffing of PPE) and appointment should also be scheduled. PPE for dental practice personnel is essential to prevent cross transmission and act as a barrier from exposures to potentially infectious diseases. PPE should include gloves, face masks(N95/surgical), face shield, protective clothing, and enclosed footwear. Treatment rooms in the clinic must be well ventilated with windows and doors open to reduce aerosol exposure. Redundant materials, equipment, and instruments must be removed to prevent clutters, and the floors of surgery cleaned after each procedure. In cross infection control, when using and transferring dental materials between prosthetic clinics and dental laboratories, the CDC recommended that dental practitioners disinfect all impressions, dental casts, metal framework, bite registrations or wax before sending them to the dental laboratory.^[6,25]

Some limitations of this study include the number and distribution of participants not representing the whole Nation (Nigeria), and thus the results may lack external validity.

Also, the questionnaire was not specific on the clinical work and laboratory work which undermined the response to the questions asked, likewise information on how confirmed cases was determined by participants was not stated. More studies are needed to elaborate these shortcomings and to improve the recommendations to all stakeholders.

Conclusion

Most dentists were not very eager to perform dental procedures in prosthetic clinic during this pandemic period. Majority of treatment was by consultation via telephone calls and prosthodontic procedures were done with caution observing guidelines and precautionary measures laid out by the National Centre for Diseases Control and other Health authorities.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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