

Effect of COVID-19 Pandemic on Clinic Attendance and Management of Dental Patients: Our Experience at Dental Hospital, Obafemi Awolowo University Teaching Hospitals' Complex, Ile Ife, Nigeria

Abstract

Background: COVID-19 infection, declared pandemic by WHO in January 2020 constituted a public health problem due to the highly infectious nature of the disease and the subsequent lockdown imposed by the government to control the spread. Dental services delivery was severely affected.

Methodology: This is a retrospective study. Subjects were consecutive patients who presented at the Dental Centre, Obafemi Awolowo University Teaching Hospital Complex from August 2019 to August 2020. Patients' data was obtained from Oral Diagnosis Clinic records. Patients' data obtained include sociodemographics, complaints, diagnosis and treatment given. Analysis was done using the STATA software package. Descriptive statistics was done using frequency and percentages while bivariate analysis was done using student test, $p > 0.05$.

Results: A total of 892 patients (524, 58.7% females and 368, 41.3% males) presented at the dental clinic during the study period. Their age was 41.6 (18.9) years and the majority of patients (882, 99.3%) presented on account of orofacial pain. Significant reduction of dental clinic attendance was found as 643 (72%) patients attended the clinic 6 months before pandemic and only about one third, 229 (28%) patients attended the clinic 6 months into the pandemic. Medications (72%), indirect pulp capping (73%) and oral health counseling were the frequently adopted treatment protocols. Root Canal Treatments (RCT) (1.2%) and surgical extractions were not frequent.

Conclusion: Only about one-third attendance was recorded at start of Covid-19 pandemic in our centre. The management strategies at the critical times involved more of medications, indirect pulp capping and counseling.

Introduction

Covid-19 disease is a condition caused by a novel strain of corona virus called SARS-COV 2 [1]. The first sets of cases, initially described as pneumonia cases of unknown cause in Wuhan City, Hubei Province of China were first reported to WHO in December 2019 [2]. By January 2020, WHO declared Coronavirus disease, a Public Health Emergency of International Concern (PHEIC) [1,2]. Globally, over 200 countries including Nigeria have experienced Covid 19 disease outbreak [3]. The index case of Covid 19 infection in Nigeria was confirmed in Lagos state on 27th February 2020. Ever since then, the incidence of Covid 19 infection has been on the increase in Nigeria and there has been a spread across states [2]. As at 12:14 am, 12th



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December 2020, 72,140 confirmed cases, 5,228 active cases, 65,722 discharged cases, and 1,190 deaths resulting from Covid-19 infection have been reported by NCDC in Nigeria. (NCDC 2020)

The impact of Covid 19 pandemic on clinic attendance and healthcare delivery cannot be overemphasized. The Commonwealth fund on April 23, 2020 reported a 60% decline in the number of visits to ambulatory care practices early in the pandemic [4]. Vollmer et al also found a 35% reduction in emergency department at Imperial college Healthcare, NHS trust, which was mainly amongst the elderly (>65years of age) and those arriving by their own means either by public or personal transport [5]. A 42% reduction in Non-COVID related emergency admission was also noted after March 12 in this study by Vollmer et al [5].

Healthcare delivery system in Nigeria as in other countries experienced a reduction or halt of many clinical activities in order to control COVID-19 transmission [6]. More so, the shortage of personal protective equipment and ventilators as well as reported infection in health care workers as a result of occupational exposures affected the delivery of healthcare services [3,7]. A WHO survey involving more than half of the countries showed 49% disruption in treatment of diabetes and diabetes-related complications; 42% for cancer treatment and 31% for cardiovascular emergencies [8]. Reassignment of staff in most health care facilities to support COVID-19 outbreak also contributed to the discontinuation of and reduction in delivery of some health care services.

WHO country reports on COVID-19 shows that dental services were not widely included as part of most countries' COVID-19 preparedness and response plans [1]. Most dental procedures require contact with oral fluids which poses the risk of COVID-19 transmission as the virus can be identified and detected in saliva. In fact, the dentist was referred to as the most at risk healthcare worker for contracting COVID-19 in an article published in New York Times on the 15th of March 2020 [9]. The knowledge of the risk of COVID-19 transmission through inhalation of droplets and contact with saliva has led to serious reduction and avoidance of some dental procedures that generate aerosols and splatter in most dental facility. These procedures include ultrasonic scaling, polishing with air polishers,

tooth preparation for crown and bridges with dental hand pieces and also tooth bleaching by air abrasion units. In order to reduce the risk of COVID 19 transmission in the dental facility, the use of antiseptic mouth rinse before oral examination and procedures; use of saliva ejectors with a low or high volume, and strict adherence to personal protective measures were recommended [10,11].

Considering the high risk of COVID-19 transmission with treatment and its impact on dental services delivery, dental practice was greatly affected as most patients. Many patients, for the fear of contracting the infection, preferred to abandon their dental care but to later present with complications. This affected patients' attendance and subsequent dental services utilization. Data on the severity and the subsequent pattern of this challenge in our environment has not been documented in the scientific literature, and this is important to foster comparison with findings from other countries. This study is aimed at determining our local experience on the effect of COVID-19 pandemic on dental clinic attendance and dental patient management at the time of occurrence of the pandemics.

Materials & Methods

This is a retrospective study of all patients who presented at Dental Centre, Obafemi Awolowo University Teaching Hospital Complex between August 2019 (6 month before declaration of Covid 19 infection as a pandemic disease by WHO) and August 2020 (6 month after the declaration of Covid-19 infection as a pandemic disease by WHO).

Data was obtained from Oral Diagnosis Clinic records within the study period. Sociodemographic characteristics of patients, presenting complaints, diagnosis and treatment modalities of patients who presented within the study period were recorded.

Analysis was done using the STATA 14 software package. Continuous variable were presented as mean ± standard deviation (SD). Categorical variables were presented as frequency and percentage (n (%)) while bivariate analysis was done using student t- test, after confirming the Normal distribution of the data with appropriate test. The p value of <0.05 was taken as statistically significant.

Results

Age and Sex Distribution of Study Participants: A total of 643 participants (270 males and 372 females) visited dental hospital 6 months before Covid 19 pandemic while 249 (98 males and 151 females) patients presented 6 months into the pandemic period . The mean age of participants who attended dental hospital during the pandemic was higher than those who attended before the pandemic. More than a quarter of patients that attended the hospital during Covid 19 pandemic were in their second decade decade of life (Table 1, Figure 1).

Common presenting complaints among dental patients before and during Covid 19 Pandemic

Toothache was the commonest reason for dental consultation before and after the Covid 19 experience. The proportion of patients with toothache, swelling and TMJ pain were higher during the

pandemic Table 2.

Clinical diagnosis before and during Covid 19 pandemic

The percentage of patients presenting with apical periodontitis, chronic periodontitis, space infection, dentine hypersensitivity and TMJ pain was significantly increased during Covid 19 pandemic while those presenting with dental caries, periapical cyst, and burning mouth syndrome and aphthous ulcer was reduced to zero Table 3.

Dental treatment given to patients before and During Covid 19 pandemic

The frequent treatment given after the pandemic was routine extraction and medications. Surgical extraction, RCT, root planing,

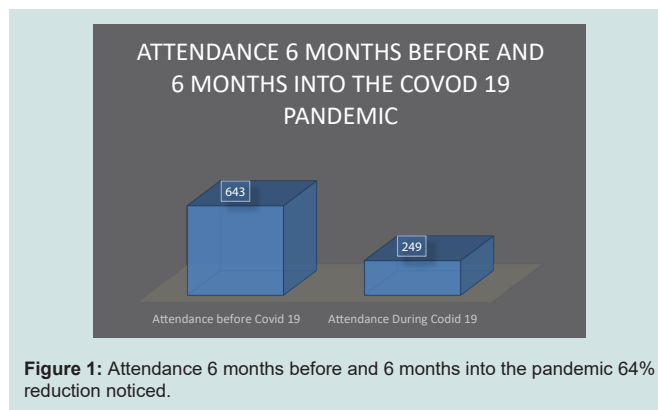


Table 1: Age and Sex Distribution of Study Participants.

Variable	Before COVID-19	During COVID-19	P value
Sex			0.256
Male	270 (42.0)	98 (39.4)	
Female	372 (58.0)	151 (60.6)	
Total	643 (100)	249 (100)	
Mean age (SD)	41.2 (0.7)	42.8 (39.4)	0.256
Age group			
<20	80 (12.4)	23 (22.3)	
21-30	176 (27.4)	71 (28.5)	0.251
31-40	106 (16.5)	33 (11.3)	
41-50	73 (11.4)	37 (14.9)	
51-60	86 (13.4)	28 (11.2)	
>60	122 (19.0)	57 (22.9)	
Total	643 (100)	249 (100)	

Table 2: Common presenting complaints among dental patients before and during Covid 19 Pandemic.

Complaints	Before Covid 19	During Covid	P value
Toothache	548 (85.2)	222 (88.4)	0.0001*
Tooth ache and swelling	20 (3.11)	13 (5.22)	
Gum bleeding	21 (3.27)	7 (2.61)	
Sensitive teeth	39 (6.1)	0 (0)	
TMJ pain	8 (0.9)	4 (1.6)	
Jaw swelling	4 (0.6)	1 (0.4)	
Tooth decay	3 (0.5)	2 (0.8)	
Total	643 (100)	249 (100)	

Fishers exalt; *statistically significance

Table 3: Clinical diagnosis before and during Covid 19 pandemic.

Diagnosis	Before Covid	During Covid	P value
Apical Periodontitis	278 (43.3)	120 (48.4)	0.0001*
Chronic Periodontitis	130 (20.2)	56 (22.6)	0.0001*
pericoronitis	64 (10.0)	18 (7.3)	0.0001*
Periodontal abscess	48 (7.5)	14 (5.7)	0.0001*
pulpitis	61 (7.5)	17 (6.85)	0.0001*
Space infection	12 (1.9)	5 (2.0)	0.0001*
Crack tooth	9 (1.4)	2 (0.8)	0.0001*
Dentine sensitivity	7 (1.1)	4 (1.6)	0.0001*
Dentoalveolar abscess	2 (0.3)	6 (2.4)	0.0001*
caries	10 (1.6)	0 (0)	0.0001*
TMJ	4 (0.6)	3 (1.2)	0.0001*
Aphthous	2 (0.2)	0(0)	0.0001*
Failed restoration	7 (1.1)	1 (0.4)	0.0001*
sialolithiasis	2 (0.3)	1 (0.4)	0.0001*
Periapical cyst	1 (0.2)	0 (0)	0.0001*
Burning mouth syndrome	1 (0.2)	0 (0)	0.0001*
Total	643 (100)	249 (100)	0.0001*

Fishers exalt; *statistically significance

Table 4: Dental treatment given to patients before and During Covid 19 pandemic.

Diagnosis	Before Covid	During Covid	P value
Routine extraction	268 (41.7)	129 (52.0)	0.0001*
Surgical extraction	28 (4.4)	0 (0.0)	
RCT	152 (23.6)	2 (0.8)	
Root planning	111 (15.7)	4 (1.6)	
medication	34 (5.3)	87 (35.1)	
Pulp capping	8 (1.3)	21 (8.5)	
gingivectomy	21 (3.3)	0 (0)	
I and D	8 (1.2)	2 (0.8)	
Apicectomy	2 (0.3)	0 (0)	
Amalgam filling	18 (2.8)	3 (1.3)	
Sensodyne toothpaste	3 (0.5)	3 (1.3)	
Total	643 (100)	249 (100)	

gingivectomy and apicectomy were significantly reduced during Covid-19 pandemic Table 4.

Discussion

The COVID-19 pandemic which has posed significant challenges to every sector worldwide had a negative impact on patient attendance at the Dental Centre of the Obafemi Awolowo University Teaching Hospital Ile-Ife. A reduction in the number of patients and therefore, common presenting complaints, the diagnosis of the same and elective procedures were observed during the period in view.

Different studies including Alves et al and Watson et al reported pandemic related reduction in patient volume [12,13]. While the overall patients count reduction by 64% observed in this study was in agreement with the finding by H. Guo et al [14]. it was higher than the 38% reported in their study. This may be due to the fact that only emergency services were considered by H. Guo et al. However, University of Rochester Eastman Institute of oral health, who also offered emergency dental services, reported over 2-fold or 85% reduction in patients seen [15].

Whereas both elective and emergency dental services were

available during the study period, more emergency services were rendered; the aforementioned reduction can be attributed to a number of factors. Restriction of movement and/or lockdown as a a principal measure to curb the spread of the virus was paramount. Access to the dental clinic was therefore difficult unless it was strictly a need for emergency treatment. Opening days and working hours were shortened to limit exposure of dental care givers to the virus and as an additional barrier against spread of the virus in view of the initial unavailability of personal protective equipment. The adverse effect on the economy impacted on the population with dwindling earnings and by extension purchasing power owing to widespread business closure, especially in lower income populations such as those obtained our locality [16]. Finally, the perceived risk of getting exposed to the virus in the hospital setting might also have discouraged patients from seeking dental care [17].

During the period in view, there was no significant difference in the magnitude of the most common presenting complaint (toothache), before and during the pandemic (85.2% and 88.4% respectively). Toothache is a common clinical condition that often presents as an emergency, thereby explaining the similarity of observation. Temporomandibular joint related pain recorded a 0.7% increase to 1.6% of complaints during the pandemic period compared to pre-pandemic period as a result of increased stress and anxiety arising from the uncertainties associated with the pandemic [18]. In addition, psychological disturbances are identified risk factors for the development of temporomandibular disorders [19]. Overall, pain related conditions were commonly observed during the pandemic probably due to their emergency nature.

Pulpal and periapical conditions were the most common diagnosis before and during the COVID-19 pandemic with the attendant symptom of pain associated with these conditions prompting clinic attendance. This may also suggest a high restorative treatment need of the population in which this study was conducted [20].

A reduction in invasive and aerosol generating procedures was observed during the COVID-19 pandemic period as expected in accordance with proposed safety protocols to reduce the risk of exposure of dental health care workers to COVID-19 infection and in compliance with guidelines for emergency treatment given by the Federal Ministry of Health Nigeria Also noteworthy is a 7-fold greater usage of prescription medications during the COVID-19 period (35.1%) compared to pre-pandemic period as palliative for odontogenic pain as part of emergency service provision [21].

Within the limitations of this study, our results suggest that the COVID-19 pandemic altered dental care seeking behavior of individuals in need of elective dental treatment. Patient attendance reduced by over one third during the COVID-19 period.

Conclusion

Patient attendance reduced to about one-third of prior attendance before the COVID-19 pandemic period. The management of dental lesions at this critical period involved less invasive procedures.

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