

# The Impacts of the COVID-19 pandemic on private dental practice in Uyo, Akwa-Ibom State, Nigeria

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## ARTICLE INFO

**Received:** 09 April 2022

**Accepted:** 21 June 2022

**Published:** 29 July 2022

### Keywords:

COVID-19, impacts, private dental practice

**Peer-Review:** Externally peer-reviewed

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### To cite:

Nnaji, C. E., & Adamu, V. E. (2022). The Impacts of the COVID-19 pandemic on private dental practice in Uyo, Akwa-Ibom State, Nigeria. *Orapuh Journal*, 3(1), e902.  
<https://dx.doi.org/10.4314/orapj.v3i1.2>

ISSN: 2644-3740

Published by Orapuh, Inc. ([info@orapuh.org](mailto:info@orapuh.org))

Editor-in-Chief: V. E. Adamu, Ph.D., M.P.H.  
Professor (Associate), School of Global Health & Bioethics, Euclid University (Pôle Universitaire Euclide) - [www.euclid.int](http://www.euclid.int)

## ABSTRACT

### Introduction

Due to the extremely contagious nature of the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV2), and because dental operations frequently generate blood and saliva droplets that could spread the virus, the Nigerian Dental Association (NDA) strongly advised all private dental clinics unable to procure the basic PPE or COVID-19 test kits to close down completely until adequate arrangements were made for such essential supplies. As a result of this recommendation, many private dental care providers suspended their services. This study aimed to assess the impacts of the COVID-19 pandemic on private dental practice in Uyo, Akwa-Ibom State, Nigeria.

### Materials & methods

We used a 4-point Likert scale questionnaire to gather data on the impacts of the COVID-19 pandemic on the practice of 10 dental health care providers (DHCPs), using the following attributes: Very Great Extent (VGE), Great Extent (GE), Low Extent (LE), and Very Low Extent (VLE). We also collected the demographic information of the DHCPs. The results were analysed, using the 4-point Likert scale measurements and simple percentages.

### Results

90% of the respondents affirmed that the pandemic had beneficial impacts on their infection control measures while 95% indicated that the pandemic reduced patients' dental visits. In addition, 77.5% of the respondents affirmed that the pandemic had detrimental impacts on their mental health. Similarly, many of the respondents (87.5%) concluded that the pandemic strained their relationships with patients and coworkers, while almost all the respondents (97.5%) claimed that the pandemic decreased their income.

### Conclusions

We hope that this study will aid dental and other healthcare providers in better understanding the impacts of the COVID-19 pandemic on dental practice and strengthen relevant awareness across the oral healthcare system.

## INTRODUCTION

The highly infectious nature of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes coronavirus disease 2019, (COVID-19), has not only resulted in the closure of many dental clinics but has also disrupted all aspects of human life. Dental clinics have been severely affected because dental procedures usually generate blood and saliva droplets and aerosols that could lead to the spread of the infection (Ahmadi, et al., 2020; Amante et al., 2021; Tysiac-Mista & Dzedzic, 2020). COVID-19 outbreak was first reported in Wuhan, China's Hubei province in December 2019 and was declared a pandemic by the World Health Organization, (WHO) on 11th March 2020 (Yang, et al., 2020).

According to Isiekwe et al. (2020), COVID-19 was first officially reported in Nigeria in late February 2020 with the index case in Nigeria being an Italian businessman, who arrived in Lagos from Milan, Italy on 25 February 2020. Data from the Nigerian Centre for Disease Control (NCDC) (2022) revealed that 255,468 cases have been confirmed so far, with 3,142 deaths at the time this study was made and these numbers are rising gradually, with the disease spreading fast.

The average incubation period of COVID-19 is estimated to range from 2 to 14 days (Liu, et al., 2020). Although the complete clinical manifestations of the coronavirus disease have not been fully clarified, Wu et al. (2020) explained that the symptoms of COVID-19 are similar to the formerly identified coronavirus infections. These include fever, dry cough, ageusia, anosmia, and fatigue. However, the SARS-CoV-2 has a higher infectious rate than the previously known coronavirus. Reported cases of the disease have ranged from very mild in severity (with some patients asymptomatic) to severe respiratory, enteric, hepatic, and neurological symptoms, sometimes resulting in death (Zhu, et al., 2020). Older people as well as people of all ages who have underlying medical conditions such as heart disease, lung disease, and diabetes are more likely to die of COVID-19 (Li et al., 2020, as cited in Inegbenosun et al., 2020).

Guo et al. (2020) and Peng et al. (2020) explained that the virus could spread through respiratory droplets and contaminated surfaces, via the mucous membrane of the mouth, eyes, and nose, and even via the fecal-oral route. This highly contagious nature of the virus made many

medical institutions stop all elective procedures to reduce the risk of infection. Kohn et al. (2003) noted that blood and saliva droplets are inevitably generated during dental procedures if handpieces and ultrasonic instruments are used. To et al. (2020) added that these droplets could contaminate the dental instruments and the office environment. Hence, both dental practitioners and patients could be at risk of being infected with microbial pathogens.

Given the highly infectious nature of the SARS-CoV-2 and the fact that dental procedures usually generate blood and saliva aerosols, droplets, and splatter resulting in the spread of the virus (Jamal et al., 2020; Meng et al., 2020; Rothe et al., 2020), the Nigerian Dental Association (NDA) (2020) through the association for dental clinics, issued recommendations that dental practitioners limit their services to emergency treatments. Also, the NDA advocated the use of Personal Protective Equipment (PPE) and a strict observance of the standard precautionary protocols at all times. For instance, dental healthcare providers and their assistants should regularly provide pre-procedural mouth rinses for the patients and frequently disinfect the dental instruments (Al-Omiri et al., 2021). Furthermore, the NDA strongly advised that private dental clinics unable to procure the basic PPE or COVID-19 test kits should close down completely until adequate arrangements are made for such essential supplies (NDA, 2020).

The NDA (2020) mentioned that assessment of the situation one month after the recommendation showed that more than 80% of private dental clinics were shut down, due to the inability to procure the requisite safety kits. With the near-total collapse of dental care nationwide, dental patients unable to access the few functioning private and public dental facilities are now faced with variable degrees of discomfort, while dental clinics are grappling with the perilous economic situation, which may lead to permanent closure or retrenchment of dental workforce resulting in job losses for dental practitioners and other support staff if this pandemic is not contained soon.

## MATERIALS AND METHODS

### *Research design*

A descriptive cross-sectional survey was carried out to study the impacts of the COVID-19 pandemic on private dental practice in Uyo, Akwa-Ibom State.

*Sample size and sampling technique*

Ten (10) private dental service providers were randomly selected for the study through a non-probability convenience sampling technique.

*Study setting*

The study was carried out among private dental health care providers residing in Uyo, Akwa-Ibom State, Nigeria. Dental clinics, dental laboratories, and mobile dental care providers participated in the study.

*Data collection*

Respondents were informed about the purpose of the study and their right to voluntary participation in the research. Thereafter, a structured questionnaire, using the following attributes: Very Great Extent (VGE), Great Extent (GE), Low Extent (LE), and Very Low Extent (VLE) was administered to them and retrieved after they filled in the required information.

*Likert's Scale Rating: 4 Point Scale: -*

- Very Great Extent (VGE): 4 points
- Great Extent (GE): 3 points
- Low Extent (LE): 2 points
- Very Low Extent (VLE): 1 point

*Data analysis*

The data collected were organized using frequency tables and analysed using the 4-point Likert scale measurements and simple percentages.

**RESULTS**

**Table 1:**  
Distribution of respondents according to the type of private practice

Type of private practice	Frequency	%
Dental Clinic	3	30
Dental Laboratory	1	10
Mobile (home, school, etc.)	6	60
<b>Total</b>	<b>10</b>	<b>100</b>

The distribution above shows that three types of private practices were involved in the survey. Of the 10 respondents, mobile dental practice (which included school-, home-, and office-based providers) had the highest frequency of (60%) (Table 1).

**Table 2:**  
Distribution of respondents based on years of practice

Years of practice	Frequency	%
0-9	6	60
10-19	2	20
20-29	2	20
30-39	0	0
≥40	0	0
<b>Total</b>	<b>10</b>	<b>100</b>

The Table above shows the distribution of respondents based on years of experience. Most of the respondents (60%) were in the early stage of their career (0-9 years) (Table 2).

**Table 3:**  
The extent to which COVID-19 preventive guidelines improved respondents' infection control measures

Response	Freq	%	Scale	%
VGE	7	70	28	70
GE	2	20	6	15
LE	1	10	2	5
VLE	0	0	0	0
<b>Total</b>	<b>10</b>	<b>100</b>	<b>36</b>	<b>90</b>

VGE = Very Great Extent, GE = Great Extent, LE = Low Extent, VLE = Very Low Extent

The Table above shows the extent to which COVID-19 preventive guidelines improved respondents' infection control measures. The Likert scale measurement showed that COVID-19 preventive guidelines tremendously improved respondents' infection control measures (90%) (Table 3).

**Table 4:**  
The extent to which the pandemic (negatively) affected dental visits

Response	Freq.	%	Scale	%
VGE	8	80	32	80
GE	2	20	6	15
LE	0	0	0	0
VLE	0	0	0	0
<b>Total</b>	<b>10</b>	<b>100</b>	<b>38</b>	<b>95</b>

VGE = Very Great Extent, GE = Great Extent, LE = Low Extent, VLE = Very Low Extent

The data above show that the pandemic severely affected dental visits (95%). The pandemic (negatively) affected dental visits to a VGE (80%) and to a GE (20%) (Table 4).

**Table 5:**  
The extent to which the pandemic (negatively) affected the mental health of the respondents

Response	Freq	%	Scale	%
VGE	5	50	20	50
GE	2	20	6	15
LE	2	20	4	10
VLE	1	10	1	2.5
<b>Total</b>	<b>10</b>	<b>100</b>	<b>31</b>	<b>77.5</b>

VGE = Very Great Extent, GE = Great Extent, LE = Low Extent, VLE = Very Low Extent

The Table above shows the extent to which the pandemic (negatively) affected respondents' mental health. The Likert scale measurement revealed that the pandemic badly affected respondents' mental health (77.5%). The pandemic (negatively) affected respondents' mental health to a VGE (50%), a GE (20%), a LE (20%), and to a very less extent [VLE] (10%) (Table 5).

**Table 6:**  
The extent to which the pandemic (negatively) affected the relationship of DHCPs with patients and colleagues

Response	Freq	%	Scale	%
VGE	6	60	24	60
GE	3	30	9	22.5
LE	1	10	2	5
VLE	0	0	0	0
<b>Total</b>	<b>10</b>	<b>100</b>	<b>35</b>	<b>87.5</b>

VGE = Very Great Extent, GE = Great Extent, LE = Low Extent, VLE = Very Low Extent

The Likert scale results above show that the pandemic adversely affected respondents' relationships with patients and colleagues (87.5%). The results also showed that the pandemic (negatively) affected the DHCPs' relationships with patients and colleagues to a VGE (60%), a GE (30%), and a LE (10%) (Table 6).

**Table 7:**  
The extent to which the pandemic (negatively) affected the income of the respondents

Response	Freq	%	Scale	%
VGE	9	90	36	90
GE	1	10	3	7.5
LE	0	0	0	0
VLE	0	0	0	0
<b>Total</b>	<b>10</b>	<b>100</b>	<b>39</b>	<b>97.5</b>

VGE = Very Great Extent, GE = Great Extent, LE = Low Extent, VLE = Very Low Extent

Data from the Likert scale above show that the pandemic had detrimental impacts on respondents' income (97.5%). The results also showed that the pandemic (negatively) affected respondents' income to a VGE (90%), and a GE (10%) (Table 7).

**Table 8:**  
The sum analyses of the Likert scale measurements from the various tables above

Table	Points Scale obtainable	Points Scale obtained	%
3	40	36	18
4	40	38	19
5	40	31	15.5
6	40	35	17.5
7	40	39	19.5
<b>Total</b>	<b>200</b>	<b>179</b>	<b>89.5</b>

The above distribution shows that the COVID-19 pandemic had a great impact on private dental practice based on the parameters that were measured. The total Likert score of 179 (89.5%) shows the extent of the impacts (Table 8).

## DISCUSSION

The results of this study show that 60% of private dental healthcare practitioners in Uyo operate mobile dental care. These practitioners are in the early stage (0-9 years) of their practice. The aggregate scale point, 179 (89.5%) from the

study revealed that the pandemic had significant impacts on private dental practice in Uyo, Akwa-Ibom State, Nigeria.

90% of the respondents under study reported tremendous improvements in their infection control measures due to the COVID-19 safety precaution protocols. This is consistent with the findings of Aladelusi et al. (2021) who reported that the COVID-19 pandemic has led to improvement in infection control protocols in most dental facilities in Nigeria. Also, most respondents (95%) indicated that the pandemic reduced patients' dental visits. The income of dental practitioners in the private sector is determined by the number of dental visits they receive and the treatments they provide, either directly through private offices and clinics or indirectly through the supply of services (Coulthard et al., 2020; Novaes et al., 2021). Thus, a reduction in the number of dental visits would impact their income negatively.

Furthermore, 77.5% of the respondents affirmed that the pandemic had a detrimental impact on their mental health while 87.5% held that the pandemic (negatively) affected their relationships with patients and coworkers. This result is analogous to the findings of Owen et al. (2022) who noted that 82% of dentists reported high levels of stress caused by financial pressures due to the pandemic. The study further stated that their interactions with patients and colleagues had been greatly affected. Consequently, they had been using both adaptive and maladaptive coping methods to cope with the stress of the pandemic, with more than one-third (66.7%) of the dentists drinking alcohol more frequently than before the pandemic (Owen et al., 2022).

Almost all the respondents (97.5%) concluded that the pandemic decreased their income. A similar study by Novaes et al. (2021) among dentists in Sao Paulo, Brazil reported a negative financial impact with a reduction of more than 50% of monthly income. The report further stated that dentists who worked in the private sector had greater (negative) financial impacts. Another study reported that only 27% of American dental surgeons were able to offer full payment to their employees (Ghani, 2020). Also, the American Dental Association [ADA] (2022) reported that the COVID-19 pandemic led to a 17.9% decrease in net income for general dentists in 2020 compared with 2019.

## CONCLUSIONS

This study provides evidence of the impacts of the COVID-19 pandemic on private dental practice in Uyo, Akwa-Ibom State, Nigeria. Several studies have found that dental practitioners are more likely to contract SARS-CoV-2 due to the unique risks associated with dental treatments. Because of this precarious scenario, the NDA recommended that all private dental clinics unable to get basic PPE and COVID-19 safety kits be closed down. Although this recommendation was in the interest of patients and practitioners, it had many impacts on private dental practitioners. The pandemic has resulted in a significant decrease in the number of dental visits made by patients. It has also caused huge emotional, mental, and financial difficulties among private dental healthcare practitioners. However, the COVID-19 preventive guidelines have enhanced infection control measures among dental practitioners

We hope that this study will aid dental and other healthcare providers in better understanding the impacts of the COVID-19 pandemic on dental practice and strengthen relevant awareness across the oral healthcare system.

**Acknowledgment:** The authors acknowledge all the researchers whose works were cited in this paper, and the Chief Mentor, Orapuh College of Scholars (OCS), Dr. V. E. Adamu, for his mentorship and astute tutelage.

**Ethical Approval:** Nil

**Conflicts of Interest:** None declared

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