(International Print/Online Journal)

SJIF IMPACT FACTOR: 5.565
PUBMED-National Library of Medicine ID-101739732

ISSN (Print): 2209-2870
ISSN (Online): 2209-2862

International Journal of Medical Science and Current Research (IJMSCR)
Available online at: www.ijmscr.com
Volume 5, Issue 5 , Page No: 598-608
September-October 2022

IJMSCR

Covid-19 Economical Impact On Orthodontic Practice In First Wave Versus Second Wave In India - A Questionnaire Study

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Type of Publication: Original Research Paper
Conflicts of Interest: Nil

Abstract

Introduction: The Covid-19 Pandemic has had a tremendous impact on the world, causing a wide range of adverse effects, and the healthcare system has been severely impacted. Orthodontist which is one of the branch of field of dentistry primarily deals with a patient's oral cavity, which is the main medium of virus transmission. In addition, the coronavirus has struck India twice. The primary goal of the study is to determine the economic impact of the covid-19 first and second waves on orthodontic practise. Because orthodontic practise involves patients who are undergoing treatment for more than a year, the pandemic must have had an economic and social impact on orthodontists.

Material & Methods: The study's optimal sample size was calculated to be 156. The total sample and respondents numbered 170, with dental practitioners ranking highest. Participants included 88 dental practitioners, 55 junior orthodontic residents, 12 specialists and 10 senior orthodontic residents. There were 15 questions in the questionnaire. It includes questions about the financial impact of covid first wave versus second wave and the use of extra precautionary measures on their practice.

Results: Almost half respondent (51.8%) subjects believed that second covid wave was more disturbing and distressing for them while 25.3% subjects believed that both covid waves were equally disturbing and distressing. Majority of subjects (62.3%) believed that both the waves have affected practice economically.

Conclusion: According to orthodontists, general practitioners, junior and senior residents who took part in the study, India has been primarily hit by the second wave in terms of mental stress, but both the first and second waves have had a substantial economic impact on their orthodontic practice.

Keywords: Covid-19, impact on dentistry, first wave , second wave, economical impact, orthodontist

Introduction

The COVID-19 outbreak began in the Chinese city of Wuhan and quickly spread throughout the world. In India, 56,342 positive cases have been reported as of May 8th, 2020. On the 11 of February 2020, the World Health Organization (WHO) officially termed this new disease Coronavirus disease 2019 (COVID-19) and only a month later declared the COVID-19 pandemic. By the 9 of February 2021, the COVID-19 epidemic had spread to 255 countries and caused 106.1 million confirmed cases and over

million deaths, according to the WHO.[(3)] It is primarily transmitted through droplet infection[(2)] and contact with contaminated people and surfaces. The

symptoms include a fever, cough, and shortness of breath. These symptoms are similar to flu (influenza) or a regular cold, which are significantly more frequent than COVID-19. This is why COVID-19 testing is required. It's important to remember that the most important prevention measures are universal: regular hand washing and proper respiratory hygiene. As a result, a variety of techniques for reducing viral transmission have been recommended, including hand hygiene, which involves regular handwashing with soap and water or the use of an alcohol-based hand sanitizer. In addition to these measures, it has been suggested that avoiding touching the face, eyes, or nose, as well as keeping a social distance of at least 2 metres in public or crowded places, is beneficial. Many countries went into absolute lockdown to prevent cross contamination as the number of people sickened and died increased.

Health care professionals are among the most susceptible persons at risk of infection due to the virus's route of transmission. Because the oral cavity is a critical pathway of virus replication and one of the mediums of virus transmission, infected individuals' saliva is said to have a very high viral load. Dentists,orthodontist and other dental workers are especially at risk. The dental clinic, where most aerosol-generating operations take place, can become a source of infection and cross-infection. Thus, there is a risk of cross infection between patients and dental health practitioners due to the peculiarities of dental practice and machineries.(8) As a result, many national dental associations around the world, including the Indian, American, and British Dental Associations, have recommended that dental clinics be closed during this time or that dental practice be reduced to strictly emergency dental care, with all elective dental procedures suspended.(5) In addition, infection control procedures and the necessity to maintain basic precautions in the care of dental patients are also receiving more attention and emphasis.

This is especially critical during and following the pandemic. Orthodontists are dentists who specialize in orthodontics. Orthodontic treatment might take anywhere from 12 to 18 months, and even longer in rare cases. In this country, there are currently 117,825 dentists and orthodontic residents serving approximately 200 million people.

Orthodontic care is available in both public and private dental offices, albeit the majority of these offices are in urban areas. Most dental clinics in the country have closed, affecting orthodontic care greatly, with most orthodontists and orthodontic residents in training only offering emergency orthodontic care during the lockdown.[5]It's critical to understand the pandemic's impact on orthodontists and orthodontic residents, as well as how this may affect their future orthodontic practice, particularly in terms of infection control, as we reopen orthodontic clinics and continue to provide orthodontic care during this time and beyond. Furthermore, orthodontists and their practices have suffered serious economic and societal implications as a result of the lockdown.[7]As a result, the primary goal of this research was to establish the impact of the COVID-19 epidemic on orthodontists and orthodontic trainees in the country, particularly in terms of their current and future orthodontic careers, as well as their economic, emotional, and social well-being.[2]

Methodology:

The Ethical Committee granted ethical approval for this investigation. The study included all orthodontists, orthodontic residents, and general practitioners in India. Between August and September of 2021, participants were sent self-administered questions via an online data collection tool (Google forms). A technique called purposive sampling was applied. The respondents were also contacted via WhatsApp and direct messages sent to orthodontists and orthodontic residents throughout the country. There were 15 questions in the questionnaire. It includes questions about the financial impact of covid first wave versus second wave and the use of extra precautionary measures on their practice. Respondents were also asked if the pandemic would alter their present orthodontic practice and, if so, what changes they would make. In addition, the questionnaire measured respondents' perceptions of the pandemic's economic, emotional, and societal effects on their life. The study's optimal sample size was calculated to be 156. The total sample and respondents numbered 170, with dental practitioners ranking highest. Participants included 88 dental practitioners, 55 junior residents, 12 specialists, and 10 senior residents.

Statistical Analysis:

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Data entries were done in Microsoft Excel 2010 and analysis of results were done using Statistical Product and Service Solution (SPSS) version 21 software. Descriptive statistics such as frequency and percentage were calculated. The p value was fixed at 0.05. Chi square test was used to analyse responses of study subjects.

Results:

Out of 170 study subjects, 98 (57.7%) subjects were general dental practitioner, 65 (38.2%) subjects were junior resident, 4 (2.4%) were senior resident and 3 (1.7%) were specialist/consultant. Almost half respondent (51.8%) subjects believed that second covid wave was more disturbing and distressing for them while 25.3% subjects believed that both covid waves were equally disturbing and distressing. Majority of subjects (62.3%) believed that both the waves have affected practice economically.

Only 55 (32.3%) subjects have significantly opened their clinic during both Covid waves. Out of 170 subjects, 104 (61.2%) subjects accepted that first wave have significantly affected patient flow. Majority of participants (64.2%) significantly preferred only emergencies procedure during pandemic while 35.8% subjects performed all kind of ortho procedure.

Majority participants (47%) have used thermometer and oximeter as precautionary step while 72 (42.4%) subjects have used also have additionaly used antigen test kit. Only 96 (56.5%) subjects prefer to use PPE kit with every patient. Majority (82.4%) subject have significantly accepted that using all precautionary measures have affected them economically.

Majority (80.6%) subject have reduced their clinical hours during pandemic. 65% subjects have used different management techniques to reduce clinical hours as ortho procedures takes quite a lot of time. Majority (77.7%) subjects statistical significantly preferred using time saving alternative ortho treatment techniques. Majority (63.5%) agreed on increasing patient charges during Covid waves. Almost everyone (84%) rated impact of Covid -19 as moderate to high on their orthodontic practice. Majority (85.3%) subjects have assured that they will continue all these precautionary measures even after pandemic despite economical loss.

Table 1: Current Status of Practice

	Frequency (n)	Percentage (%)
Junior Resident	**65**	**38.2%**
Senior Resident	**4**	**2.4%**
Specialist/Consultant	**3**	**1.7%**
General Dental Practitioner	**98**	**57.7%**
Total	**170**	**100%**

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Table 2: In youí opinion which covid wave in india was moíe distuíbing and distíessing foí you

	Frequency (n)	Percentage (%)
First Wave	**39**	**23%**
Second Wave	**88**	**51.8%**
Both	**43**	**25.3%**
Total	**170**	**100%**

Table 3: Has both the waves affected youí píactice economically

	Frequency (n)	Percentage (%)
Yes, it has affected a lot	**106**	**62.3%**
No, not much	**11**	**6.4%**
Second wave affected more	**29**	**17%**
First Wave affected a lot	**24**	**14.2%**

Table 4: Have you kept youí clinic opened duíing fiíst wave and second wave of coíonaviíus?

	Frequency (n)	Percentage (%)
Yes, I kept it opened during both wave	**55**	**32.3%**

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No, it was closed during first wave	**93**	**54.7%**
No, it was closed during second wave	**22**	**13%**
	Chi square value = 8.21, p =0.036* (Yes vs No)	

*p<0.05 – statistical significant diffeíence

Table 5: Which wave has affected youí patient flow

	Frequency (n)	Percentage (%)
First Wave	**104**	**61.2%**
Second Wave	**66**	**38.8%**
	Chi square value = 5.48, p =0.092 (Yes vs No)	

p> 0.05 – no statistical significant difference

Table 6: Do you prefer doing only emergencies or all kinds of ortho procedures during this pandemic

	Frequency (n)	Percentage (%)
Yes, I do only emergencies	**109**	**64.2%**

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I do all kinds of ortho procedure	**61**	**35.8 %**

Table 7: What extía píecautionaíy measuíes you have staíted taking to avoid covid-19 infection

	Frequency (n)	Percentage (%)
Thermometer	**4**	**2.3%**
Oximeter	**6**	**3.5%**
Antigen test at clinic	**8**	**4.8%**
All of above	**72**	**42.4%**
Only a and b	**80**	**47%**

Table 8: Do you prefer to use new PPE kit with every patient

	Frequency (n)	**Percentage (%)**
Yes	**74**	**43.5 %**
No, I use one kit for one day	**96**	**56.5 %**
	Chi square value = 3.12, p =0.287(Yes vs No)	

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Table 9: Have all these píecautionaíy measuíes affected you economically

	Frequency (n)	Percentage (%)
Yes, it has affected	**140**	**82.4 %**
No, I am fine with it	**30**	**17.6 %**
	Chi square value = 17.39, p < 0.001 (Yes vs No)**	

****p<0.001 – highly statistical significant diffeíence**

Table 10: Have you íeduced youí clinical houís duíing this pandemic

	Frequency (n)	Percentage (%)
Yes	**137**	**80.6%**
No	**33**	**19.4%**
	Chi square value = 14.86, p < 0.001(Yes vs No)**	

**p<0.001 – highly statistical significant diffeíence

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Table 11: How do you manage to íeduce clinical houís as oítho píoceduíes takes quite a lot of time

	Frequency (n)	Percentage (%)
I have divided timeslot for every kinds of patients	**54**	**31.8%**
I do very limited(3-5) patients everyday	**45**	**26.5%**
I open my clinic either at day or at evening time only.	**16**	**9.5%**
All of the above	**55**	**32.2%**

Table 12: Do you píefeí using time saving alteínative oítho tíeatment technique (eg. Elastic module instead of ligatuíe wiíe etc)

	Frequency (n)	Percentage (%)
Yes	**132**	**77. 7 %**
No	**38**	**22.3 %**
	Chi square value = 14.86, p < 0.001(Yes vs No)**	

**p<0.001 – highly statistical significant diffeíence

Table 13: Do you agíee on incíeasing patient chaíges duíing fiíst and second wave

	Frequency (n)	Percentage (%)

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Yes, I agree	**108**	**63.5 %**
No, I don't agree	**62**	**36.5%**
	Chi square value = 6.01, p =0.063 (Yes vs No)	

p>0.05 – no statistical significant difference

Table 14: On íange of 1-4 how will you íate impact of COVID-19 on oíthodontic píactice

	Frequency (n)	Percentage (%)
1-very less impact	**5**	**3 %**
2-mild impact	**22**	**13%**
3-moderate impact	**80**	**47%**
4-highly affected the overall practice.	**63**	**37%**

l'able 15: Aíe you going to continue all these píecautionaíy measuíes even afteí pandemic despite economical loss

	Frequency (n)	Percentage (%)
Yes	**145**	**85.3%**

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No	**25**	**14.7%**
	Chi square value = 19.06, p < 0.001 (Yes vs No)**	

**p<0.001 – highly statistical significant diffeíence

Discussion:

The amount of effect that coronavirus pandemic has done on all sectors of healthcare during both the wave in India , it has particularly affected a bit more to dental field, because of the high level of exposure of dentists and patients in the course of providing care in the dental clinic setting. As a result, there have been major interruptions in dental care around the world as the profession struggles to develop acceptable guidelines for care during this time. Similarly, the pandemic has had an impact on orthodontic care .

As a result, evaluating the impact on orthodontists and orthodontic care in particular, with the goal of reducing these impacts, is critical at this time for the speciality. To do so, orthodontists and orthodontic residents and general dental practitioner must be consulted, since they are best positioned to highlight the pandemic's impact, first on themselves as individuals, and then on the care and treatment they provide as specialists .

The goal of this study was to determine the economic impact of the Covid -19 pandemic on orthodontic practice in India during the first wave, which included the entire closure of dental clinics owing to fear of pandemic spread, and the second wave, which was disastrous in terms of lives lost. According to the research we conducted, 51.8 percent of respondents thought the second wave was more unsettling and unpleasant, while their patient flow was more disrupted during the first wave, and both waves had a significant economic impact. Furthermore, because the field of orthodontics deals with patients who are undergoing treatment for more than a year and require monthly visits, and each patient's work takes at least 1/2 to 1 hour, the pandemic has forced orthodontists to reduce treatment time by changing their treatment techniques (e.g, using module instead of ligatures) and employing more time-saving methods. This study also discovered that orthodontists have shortened their clinical hours to avoid crowding, and all of these changes must have had a financial impact on orthodontists.

The importance of conducting such a study is further emphasized by the fact that some protective measures that orthodontists/dental clinicians use in daily clinical practice were already a part of dentistry prior to the pandemic, but Covid-19 has raised the bar of quality as well as the quantity of protective equipment used, putting a financial strain on clinicians.(2)

Furthermore, because there was less patient flow, dealing with extra equipment, and extra finances to provide best quality practice not only to protect ourselves but also to patients cost dental clinicians/orthodontists more than they earn, which is one scenario, but the other is that it has taught them the importance of using these protective measures, which has undoubtedly helped them avoid becoming infected with this rapidly spreading disease to a greater extent.

This study also discovered that many orthodontists increased their clinic costs during covid to deal with a financial problem caused by the pandemic, with 63.5 percent agreeing that boosting charges is a sensible strategy to deal with the financial issues they are facing.

The findings of this study emphasize the importance of maintaining high-quality protective measures for everyone's safety, despite their high cost, as well as reasonable clinic charges to maintain service quality, which will not only provide patients with high-

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quality treatment but will not financially burden orthodontists.

Conclusion:

A large percentage of respondents believed the pandemic would have an impact on how they practice orthodontics in the future, particularly in terms of infection control. Furthermore, the majority of study participants said the epidemic has impacted their economic, emotional, and social life. However, they claim that the patient flow was harmed more during the first wave due to the entire halt. According to orthodontists, general practitioners, junior and senior residents who took part in the study, India has been primarily hit by the second wave in terms of mental stress, but both the first and second waves have had a substantial economic impact on their orthodontic practice.

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