



Effect of COVID-19 Pandemic on Orthodontic Practice: An Online Questionnaire Based Study

Somesh Ghose¹, ShrishCharan Srivastava², Soumyadip Panja³, Sulabh Grover⁴, Prachi Goel⁵, Richa Singh⁶

^{1,3}Post-Graduate Student, Department of Orthodontics, Chandra Dental College & Hospital, Barabanki, U.P.

²Professor & Head, Department of Orthodontics, Chandra Dental College & Hospital, Barabanki, U.P.

^{4,5,6}Reader, Department of Orthodontics, Chandra Dental College & Hospital, Barabanki, U.P.

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ABSTRACT: The spread of corona virus disease worldwide has led to major public health care issues including dental health care. The COVID-19 pandemic has had a significant impact on orthodontic treatments in relation to other routine dental treatments as orthodontic treatment requires multiple checkup visits over a longer period of time. Most dental setups were closed and millions of orthodontic patients were unable to attend their regular checkup appointments, which put them in complicated situations or urgencies and delayed or prolonged treatment duration. Patients undergoing treatment with fixed appliances reported more problems than others. This study aimed to assess the challenges faced by orthodontists providing orthodontic treatment care to their patients and their preferred solutions to overcome these challenges during the pandemic time. An online questionnaire was developed and sent to various orthodontists. The responses were categorically studied to evaluate how the Covid-19 pandemic had affected the field of orthodontic dentistry. This pandemic situation has led to a shift from routine orthodontic checkups to tele-orthodontics. Moreover, orthodontists should always prepare their patients to deal with problems related to their appliances to reduce urgencies and anxiety among the patients. Orthodontic practice is also facing a steep curve due to the current socio-economic condition of the country.

KEYWORDS: Tele-orthodontics, Covid-19 pandemic, Online dental consultation, Orthodontist perspective of Covid-19 pandemic, Orthodontic emergency/urgency management

I. INTRODUCTION

On November 2019, the outbreak of a novel coronavirus (SARS-CoV-2), responsible now for coronavirus disease (COVID-19) started from Wuhan, China; which later on spread widely around the world affecting millions. Few months later, on January 30, 2020, the World Health Organization

(WHO) announced this outbreak as a global pandemic.[1]

As of February 21, 2022, WHO reports over 418 million people affected by Covid-19 with over 5.8 million deaths globally due to this viral disease. Though the breakout started from China, the countries most affected till date are United States of America; followed by India, Brazil, France and the United Kingdom. USA has the highest mortality count till date. [2] The numbers are in a constant rise; even with vaccines available presently.

Based on genetic and epidemiological research, a single animal-to-human transmission (Chinese horseshoe bats being the most probable origin) followed by sustained human-to-human transmission led to this global pandemic. [3]

The suggested routes of human transmission of coronavirus are through airborne droplets, touching or coming in contact with an infected person or a contaminated surface. Though unexplored, blood and saliva could be probable routes of transmission; which is concerning for a dental setup. [4]

Each affected country had adopted different policies and strategies to face this pandemic, from partial to complete lockdown, to minimize the number of cases. To control the spread of infection in the absence of a vaccine during the initial breakout, WHO advocated some precautionary guidelines to reduce the spread of the infectious disease. The use of face mask, regular hand hygiene, following cough etiquette and most importantly maintaining social distancing were, and even are, still the gold standard to stop the spread of infection.[3]

As of all health care systems, dental procedures have more direct contact with aerosols with higher possibility of contracting the infection. It was suggested that regular dental practice should be postponed and only emergency care should be provided under strict precautions. Therefore, millions of orthodontic patients were not able to receive the care they needed during this pandemic,



leading to a negative impact on the orthodontic practice.[3]

The aim of this study was to assess the effect of Covid-19 pandemic on orthodontic practice management from an orthodontist's perspective.

II. MATERIALS AND METHODS

The study was carried out with a web-based questionnaire using Google Forms (docs.google.com/forms). The target group was orthodontists who were providing orthodontic treatment in either an institution-based or private setup or both. The questionnaire was structured into two sections. The first section contained personal information (Name, Mail Id, Contact Details and Duration of Orthodontic Practice) and the second section had the relevant questions with multiple answers to choose from and also options to provide their own opinions. The questionnaire [Table 1] was evaluated and validated by an experienced orthodontist to check whether the questions effectively captured the purpose of the study. The questionnaire was uploaded to the website and the

generated link was sent to 50 orthodontists via mobile phone application (WhatsApp). Out of 50 orthodontists to whom the form was sent, 45 orthodontists responded. Responses were received over a period of 1 week. This being an open voluntary questionnaire, answers to all the questions were mandatory. Respondents were able to change their answers or even choose multiple answers, if they wished to, before submitting the form. Detailed information was provided in the description bar of the 1st section of the form about the nature and aim of the study; that it would take 3-5 minutes to complete and all the responses will be confidential. Informed consent was obtained if the respondents proceeded to the 2nd part of the form containing the questionnaire. For data protection, no sign-in process was required from the respondents. Only the author had access to the collected data. For analysis of the data, responses were automatically linked to Google Sheets (docs.google.com/spreadsheets) which was downloaded to Microsoft Excel. The responses were also automatically summarized in chart and graph form in Google Forms.

Table 1: List of Questions for the Study

SL. NO.	QUESTIONNAIRE
1	During Covid-19 pandemic, for how long was your clinical setup closed?
2	What was the primary reason that your clinical setup was closed?
3	How many active orthodontic cases were you handling at the time when Covid-19 pandemic started?
4	How many patients were willing to come for check-up appointments even during the time of Covid-19 pandemic?
5	How many times did you communicate with each patient in an average?
6	What was the mode of communication with your patients?
7	What was the main concern you faced among your patients?
8	How did you manage any emergency/urgency among your patients?
9	Did you open your clinical setup to address any emergency among your patients during the Covid-19 pandemic?
10	Did any of your patients opted out from starting their orthodontic treatment after the Covid-19 pandemic was relatively over?
11	Did any of your ongoing patients requested to postpone/quit their treatment due to any of their personal/financial issues after the Covid-19 pandemic was relatively over?
12	To what extent did you agree or disagree about closing your clinical setup to minimize the spread of Covid-19?

III. RESULTS AND OBSERVATIONS

A total of 45 orthodontists responded to the study. They were categorized on the basis of duration of their orthodontic practice. As very few senior practitioners could be reached or responded

to the study, the study pool of orthodontists were only beginners with 40% having less than 1 year of clinical experience and 24.4% having more than 5 years practice experience. [Fig. 1]

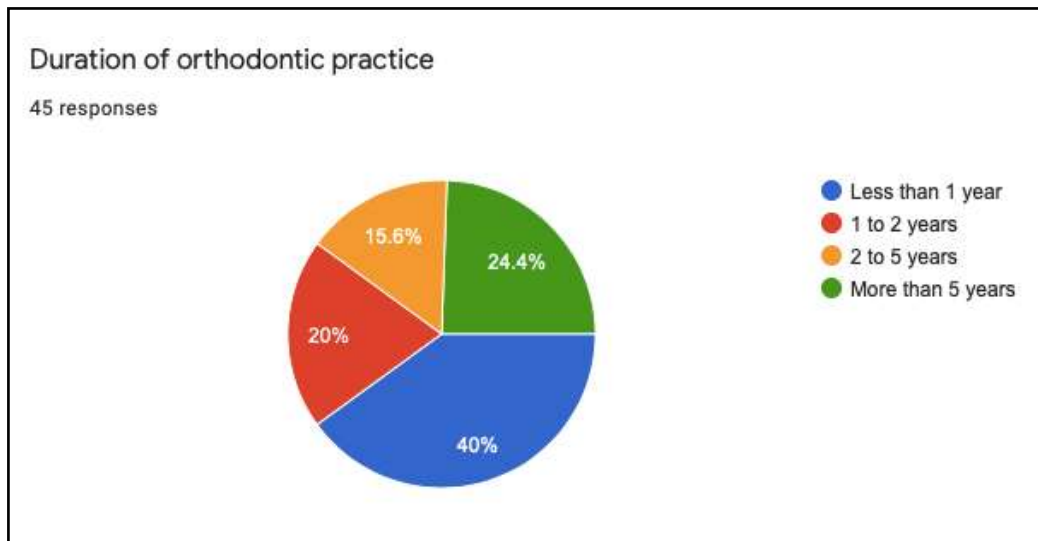


Fig. 1

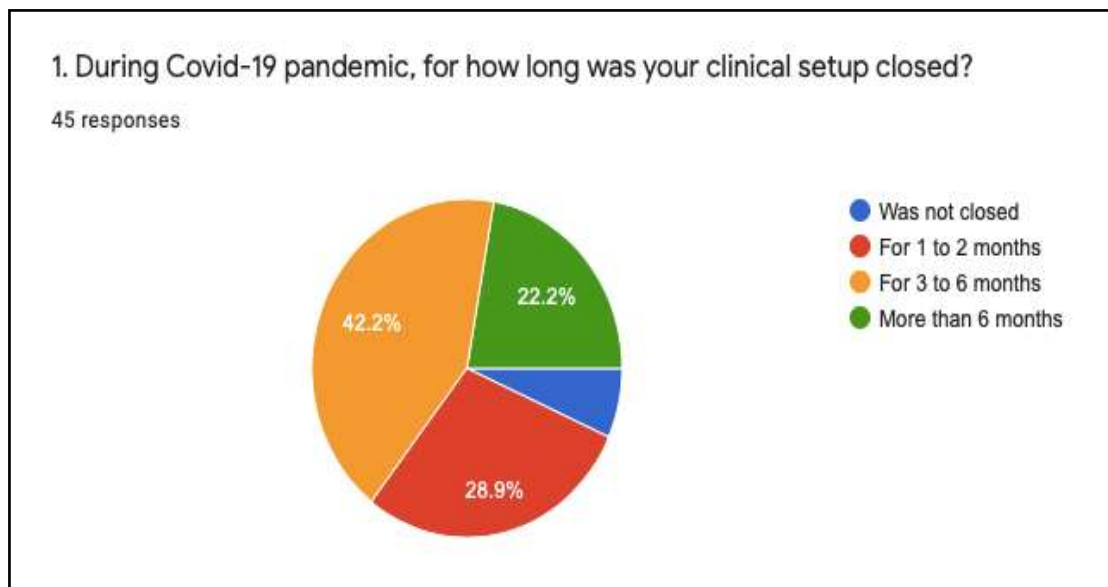


Fig. 2

In India, there was nationwide complete lockdown starting from 25th March, 2020 till 31st May, 2020 (68 days) followed by partial lockdown with imposed restrictions by the Government of India. [5] Most dental practitioners throughout the nation had closed their clinical setups during that period.

Our study showed that most of the orthodontists (42.2%) had closed their clinical setup for about 3-6 months with 22.2% of them keeping it closed for more than 6 months. We received only 3 responses (6.7%) whose clinical setup was not closed during the whole phase of lockdown. [Fig. 2]

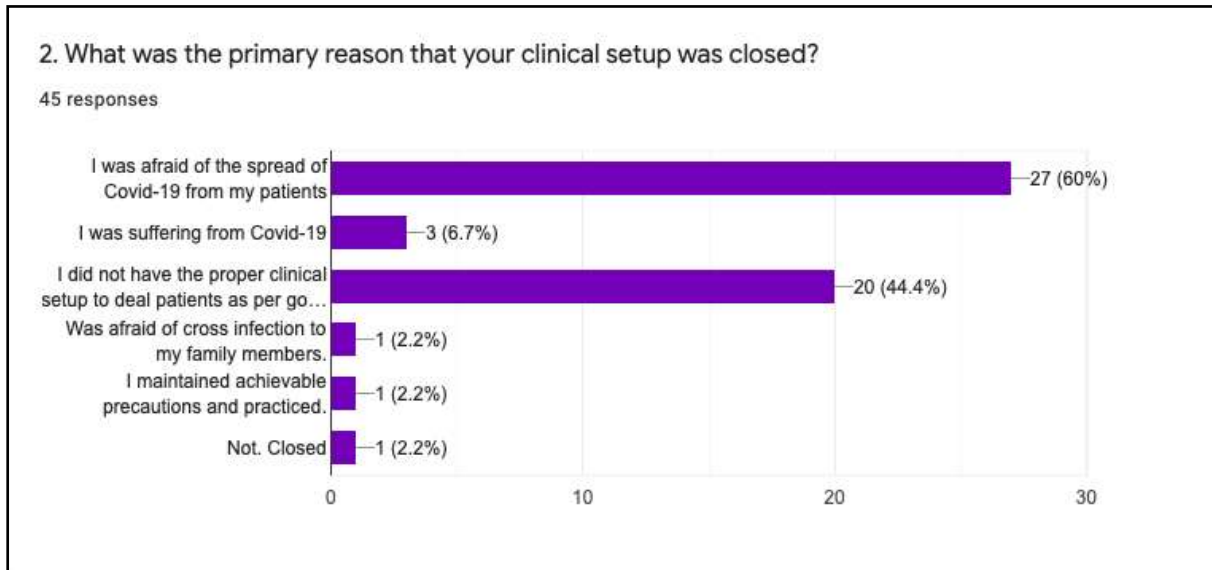


Fig. 3

The respondents could opt for multiple options for this question and even provide their own reasons for closing their clinical setup.

Most of the respondents (60%) were afraid of the spread of Covid-19 infection from their patients and

many of them (44.4%) did not have the proper clinical setup as per government regulation even after complete lockdown was over. [Fig. 3]

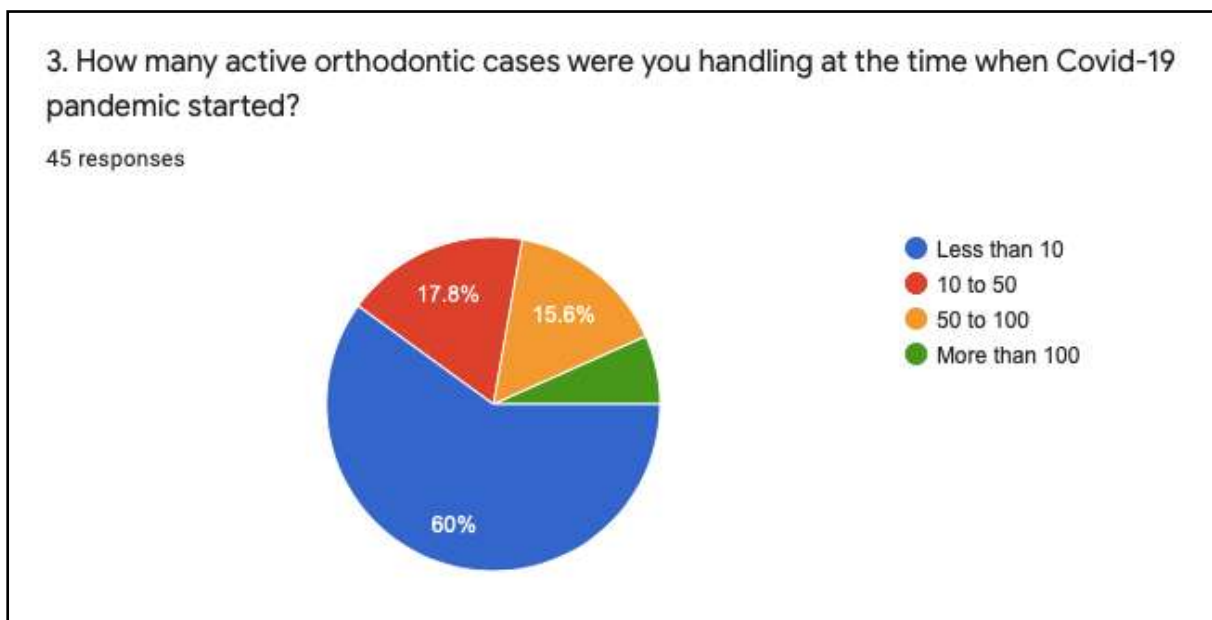


Fig. 4

Since most of the orthodontists were just beginners, 60% of them were treating less than 10 patients at the time of lockdown and only 6.6% had more than 100 active patients. [Fig. 4]

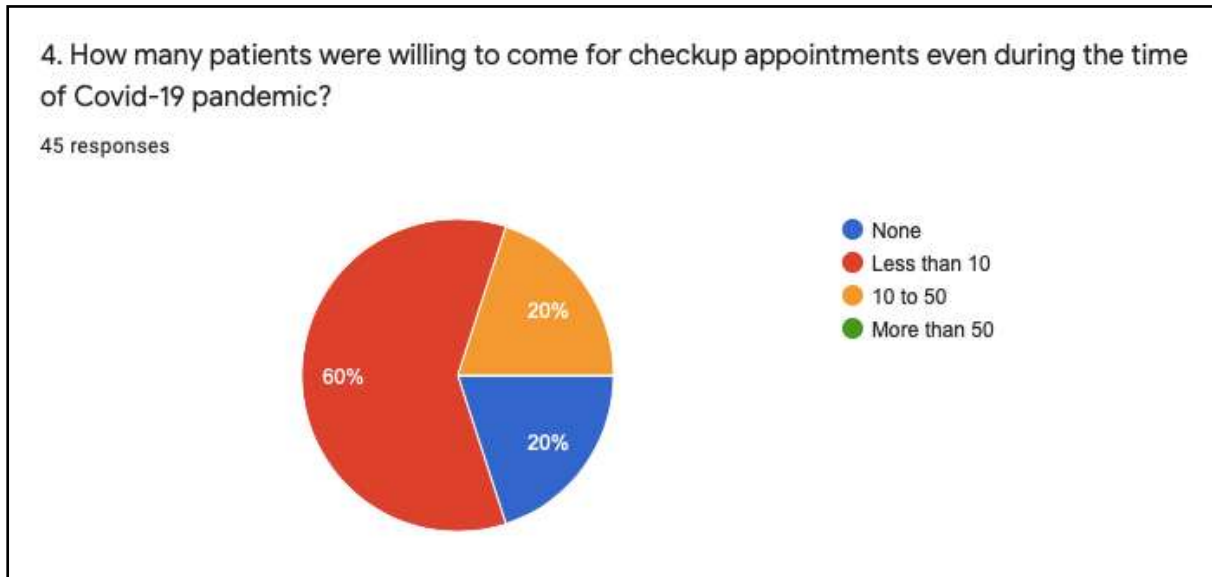


Fig. 5

Most of the orthodontists (60%) reported that few patients (less than 10) were willing to come for their regular check-up appointments during the time of the pandemic. [Fig. 5]

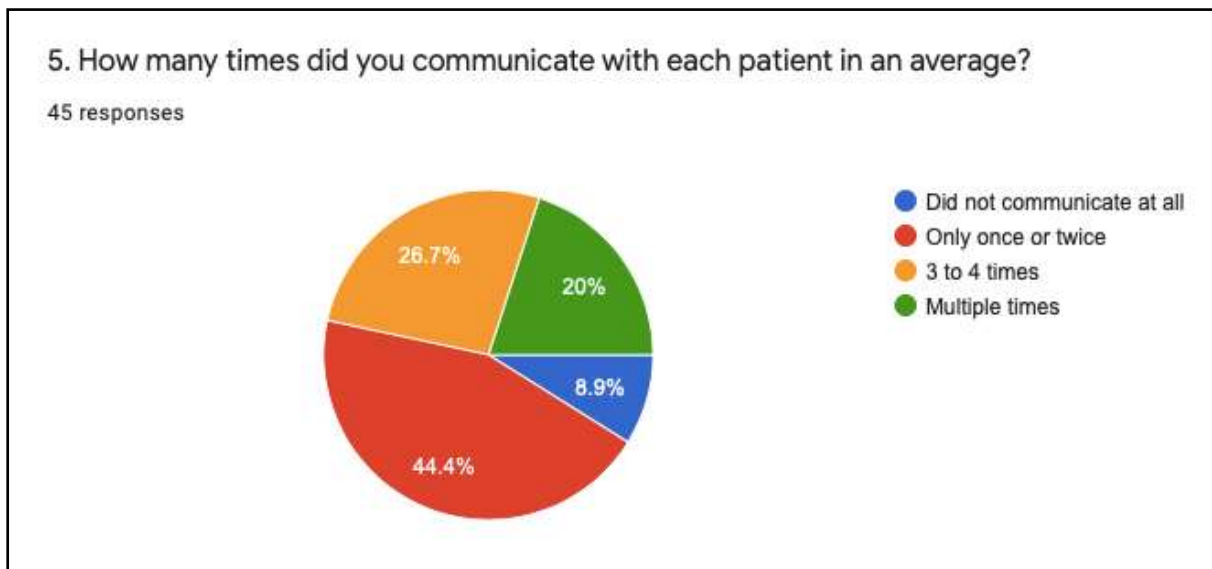


Fig. 6

Most orthodontists (44.4%) communicated once or twice in an average with their patients to deal with their problems. Surprisingly, 8.9% of the orthodontists did not have any communication with their patients during the time of the pandemic. [Fig. 6]

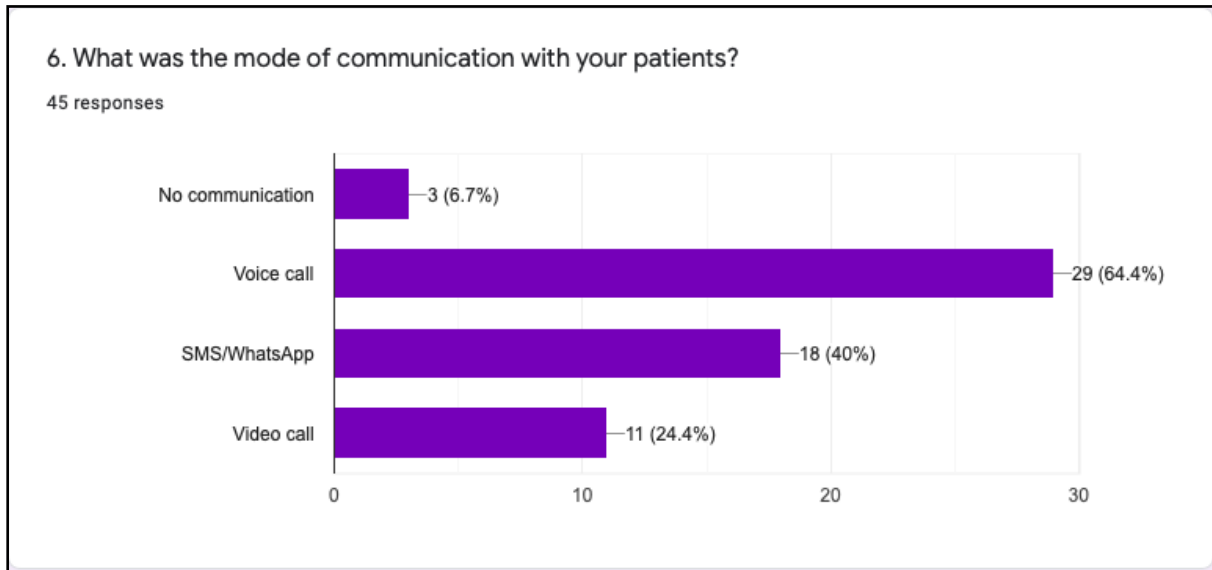


Fig. 7

The respondents could opt for multiple options for this question. 64.4% orthodontists communicated with their patients via normal phone call while 40% preferred communication via SMS/WhatsApp. 24.4% used video call for their mode of communication. [Fig. 7]

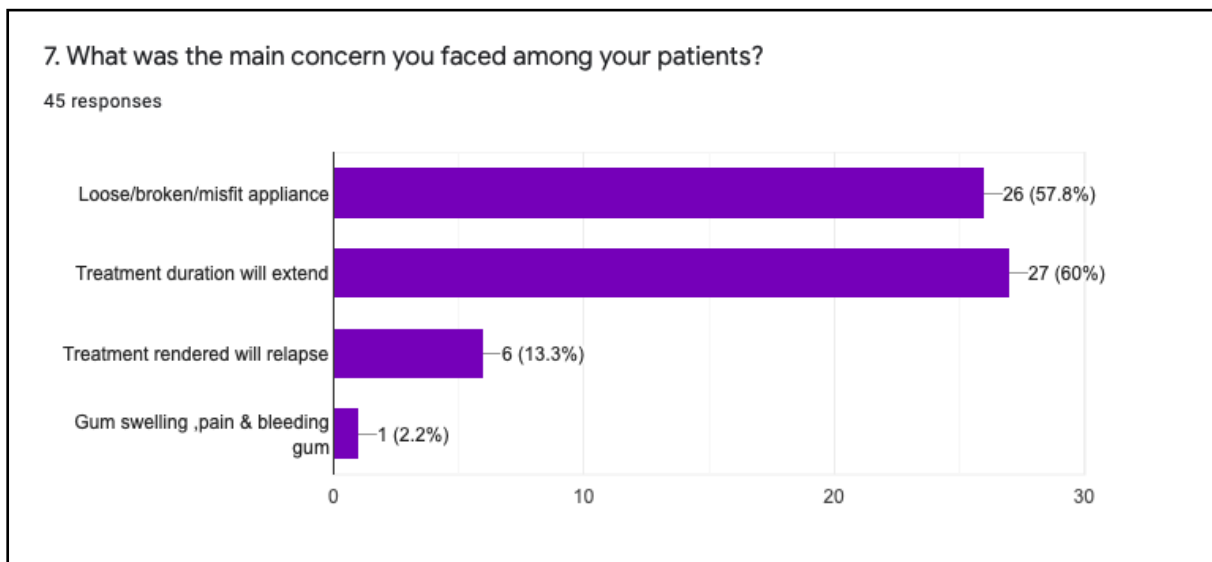


Fig. 8

The respondents could opt for multiple options for this question. The most common concerns faced by the orthodontists among their patients were that the treatment duration may increase due to missed appointments (60%) and problems regarding loose/broken/misfit appliance (57.8%). Some were even concerned about the relapse of the treatment rendered (13.3%). [Fig. 8]

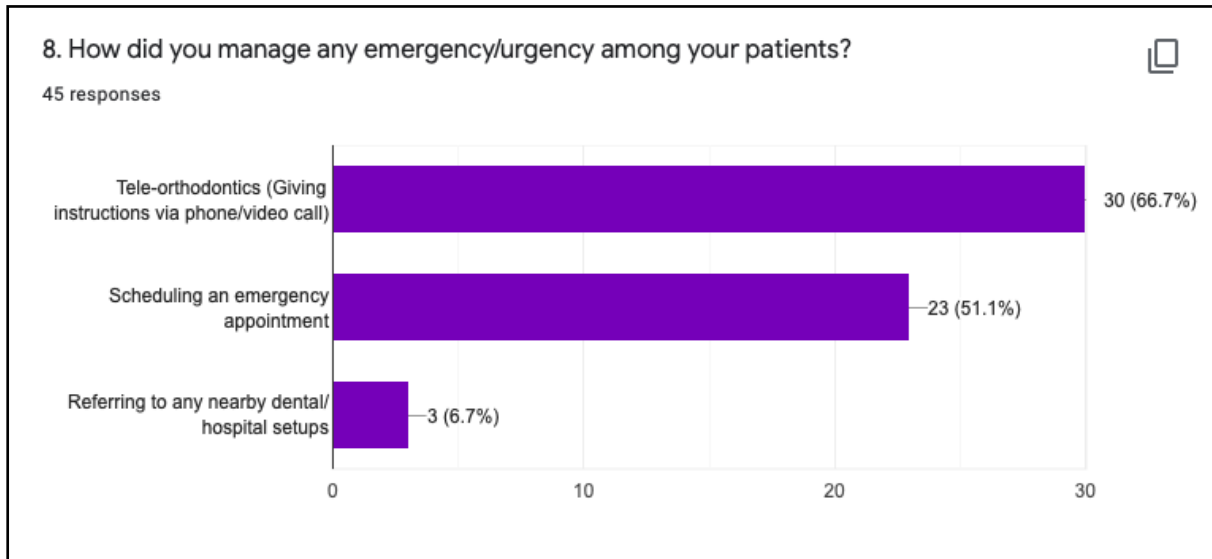


Fig. 9

The respondents could opt for multiple options for this question. Most of the orthodontists (66.7%) used tele-orthodontics to manage any urgency among their patients while 51.1% scheduled an emergency appointment to manage their patients. [Fig. 9]

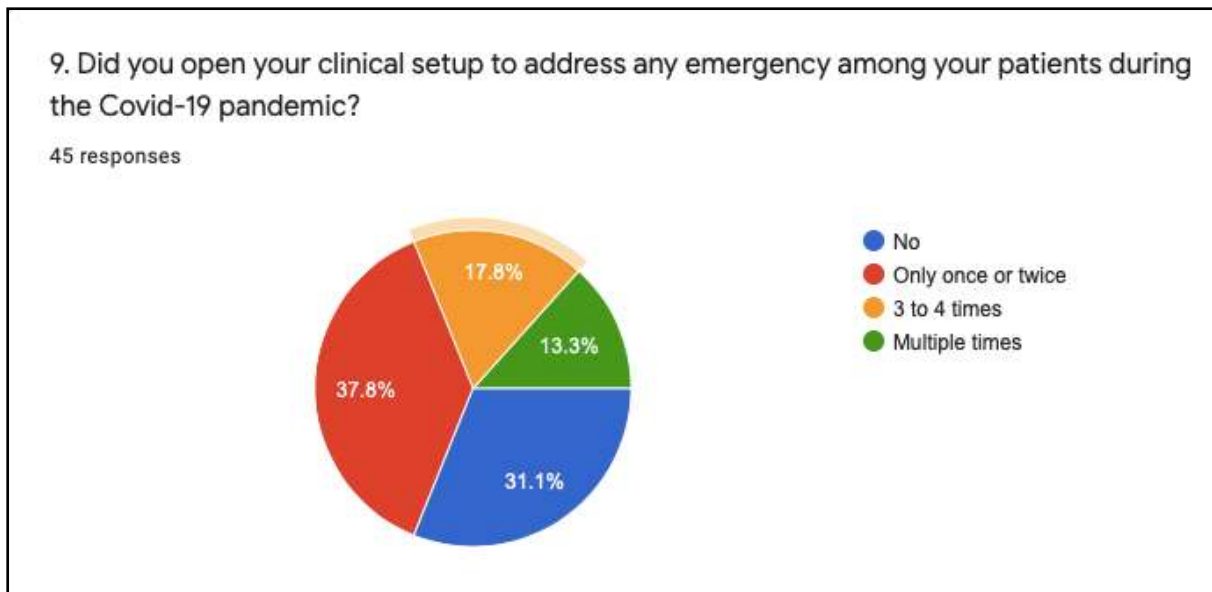


Fig. 10

37.8% orthodontists opened their clinical setup once or twice to address any emergency among their patients while 31.1% reported that they did not open their setup during the time of pandemic. [Fig. 10]



10. Did any of your patients opted out from starting their orthodontic treatment after the Covid-19 pandemic was relatively over?

45 responses

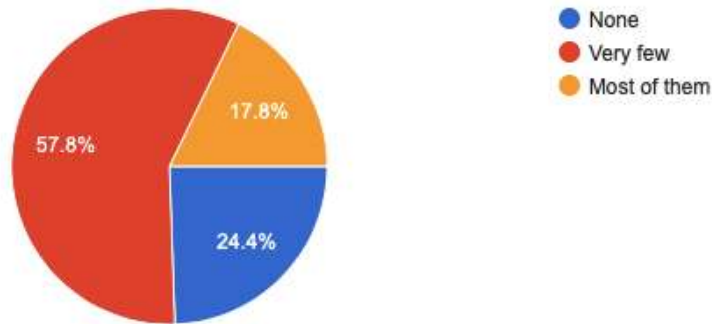


Fig. 11

Most of the orthodontists (57.8%) reported that at least a few of their patients opted out from starting their orthodontic treatment after the pandemic was relatively over. [Fig. 11]

11. Did any of your ongoing patients requested to postpone/quit their treatment due to any of their personal/financial issues after the Covid-19 pandemic was relatively over?

45 responses

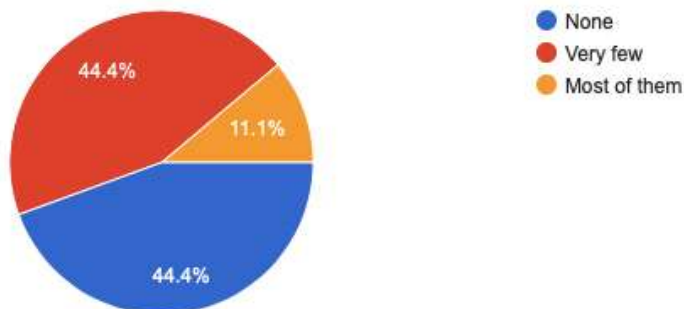


Fig. 12

About 44.4% orthodontists reported that few of their ongoing patients requested to postpone/quit their treatment due to personal/financial reasons after the pandemic was relatively over and 11.1% reported most of their patients requested the same. [Fig. 12]

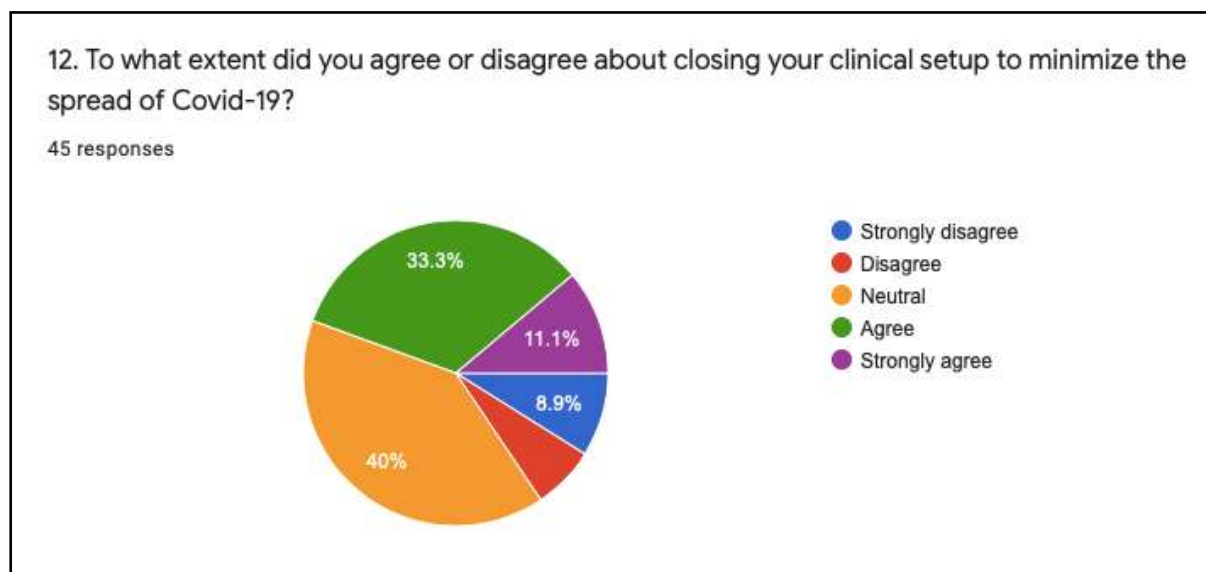


Fig. 13

40% of the orthodontists had a neutral opinion about closing their clinical setup to minimize the spread of Covid-19. About 44.4% orthodontists favoured the closure of their setup while 15.6% of them were against the closure of the clinical setup. [Fig. 13]

IV. DISCUSSION

There is very little literature available till date on an orthodontist's view-point about the effect of Covid-19 on general orthodontic practice. Among the few studies available, Sycinska-Dziarnowska et al (2021) reported that there was a significant decrease in orthodontics phrase queries from 2020; suggesting a general decrease in interest about orthodontic treatment among people especially during the early phase of the pandemic outbreak. [6]

In our study, we found that most orthodontists had to close their clinical setup due to the spread of Covid-19 infection even though they had patients undergoing orthodontic treatment. This led to increased anxiety among the patients and also complications with their appliances due to prolonged appointment duration. Total treatment duration also increased invariably.

Though few patients were willing to come for their scheduled check-up visits even during the time of the pandemic, orthodontists mostly preferred tele-orthodontics to deal with the urgencies. Few emergency appointments were even scheduled maintaining proper protocol.

The study also pointed out that there was a general tendency among the patients to delay or opt out from undergoing orthodontic treatment due to

significant personal and financial crisis in the immediate aftermath of the Covid-19 pandemic.

V. CONCLUSION

The Covid-19 pandemic had a significant impact on general dental practice including orthodontic practice. Closure of clinical setups, due to obvious reasons, had an immense effect on both orthodontists and patients undergoing orthodontic treatment. There is a marked shift from regular check-up clinic visits to tele-orthodontics. Orthodontia being an expensive, aesthetic treatment modality in our developing country, many patients are facing personal and financial challenges in the current economic scenario to undergo the treatment. As a whole, orthodontic practice is going through a rough patch at present. But hopefully all of us will come out of this situation much stronger.

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