

Impact of second wave of COVID-19 related lockdown on patients undergoing fixed orthodontic treatment in a dental teaching hospital

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Abstract

Background: Lockdown due to second wave of COVID-19 was implemented in Kathmandu from April 29, 2021. In most of the dental hospitals, patients' regular appointments were temporarily suspended and only emergency treatments were considered.

Objectives: To assess the impact of the COVID-19 related lockdown on the treatment among patients undergoing fixed orthodontic treatment.

Methods: A descriptive cross-sectional study was conducted among 170 individuals undergoing fixed orthodontic treatment at Kathmandu Medical College Teaching Hospital from 1st July to 30th September 2021 after obtaining ethical approval. A standard pretested self-administered online questionnaire having questions regarding impact of COVID-19 on orthodontic treatment was sent to all the study participants. Data were entered in Microsoft Excel Sheet and analysed in Statistical Package for Social Sciences version 20. Descriptive statistics like mean, standard deviation, frequency, and percentage were calculated depending upon the nature of data.

Results: Majority of the study participants (113, 66.5%) did not visit orthodontist for more than one month due to second wave of COVID-19 and were very worried (84, 49.4%) for not getting to go for regular follow-ups for their treatment. Most of them were worried thinking that their treatment time will be extended (134, 78.8%), and some (97, 57.1%) participants faced problems like broken brackets and elastics.

Conclusion: This study concluded that second wave of COVID-19 had some impact on orthodontic patients. This study highlighted the importance of teledentistry for orthodontic consultation and also the need for preparing the patients to deal with orthodontic appliances if required to prevent trauma.

Key words: Coronavirus disease-19; Fixed orthodontics; Impact.

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INTRODUCTION

The World Health Organisation (WHO) declared a public health emergency of international concern due to coronavirus disease (COVID-19) outbreak.¹ Nepal was reeling from the waves of COVID-19 and all non-essential activities were suspended, both in daily life and in the medical field. The medical activities were restricted to emergencies during lockdown.²

In oral care, making a treatment decision is a demanding task for a dental professional, resulting in considerable

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variation in treatment practices.³ Therefore, an efficient and rationalised dental emergency management strategy is required, including the implementation of teleconsultation and triaging.⁴

Orthodontic treatment is generally not considered as an emergency. However, what is not understood is the importance of monthly appointments of orthodontic practice, as well as the impact of restrictions put on patients concerning their visit to orthodontist when needed.⁵ Thus, this study aimed to assess the impact of the second wave of COVID-19 related lockdown on the treatment and psychology of patients undergoing orthodontic treatment.

METHODOLOGY

A descriptive cross-sectional study was conducted among 170 individuals undergoing fixed orthodontic treatment at Kathmandu Medical College Teaching Hospital from 1st July to 30th September 2021. Ethical approval was obtained from the institutional review committee of the same institution before data collection (Ref. 2005202107). Study participants were selected by convenience sampling method and informed consent was received from them. Individuals of age 18 years to 35 years receiving fixed orthodontic treatment, those who were able to understand English language, and use online medium for providing response were included in the study. Those under any form of psychiatric medication or consultation were excluded.

Sample size was calculated from similar study done in China by Guo et al.⁶ where prevalence (p) for negative feelings towards treatment delay was 88.3% using the formula, $n = Z^2pq/e^2$; where, n = sample size; Z = 1.96; p = 0.883 (88.3%), q = 1-p; e = permissible error = 0.05 (5%). Placing the values in the formula provided above, the total sample size = 158.75. Adding 5% of non-response rate, total sample calculated was $166.69 \approx 170$.

A pretested self-administered web-based questionnaire was obtained from a published study done by Shenoi, et al.⁵ The questions were made in Google Forms and sent to all the study participants through E-mail or Viber. The questionnaire consisted of three sections: first section included personal information, second section included questions about patient's general perspective regarding importance of regular check-ups and monthly appointments, and the last section had questions regarding impact of lockdown on patients' visit to orthodontist for treatment needs.

Pilot study was done among 10% of the study participants (17 individuals) and they were not included in the final sample. Some questions were modified due to the inappropriate response received from participants during pilot study.

After receiving filled forms, data were extracted in Microsoft Excel Sheet and analysed in IBM SPSS Statistics for Windows, version 20 (IBM Corp., Armonk, N.Y., USA). Mean, standard deviation, frequency, and percentage were calculated depending upon the nature of data.

RESULTS

The mean age of the study participants was 22.75 ± 4.63 years. Out of 170 study participants surveyed, 108 (63.5%) were females and 62 (36.5%) were males. Majority of the study participants (113, 66.5%) had not visited their orthodontist for more than one month due to second wave of COVID-19 and were very worried (84, 49.4%) as they were not getting to go for regular follow-ups for their treatment (Table 1). Most of them were worried thinking that their treatment time will be longer and they will have to wear braces on for much more time (134, 78.8%). More than half of them (97, 57.1%) had problems like broken brackets and elastics. Majority (109, 64.1%) thought that orthodontic treatment should be considered an emergency because of certain problems like cuts or lacerations and swellings sometimes (Table 2).

Table 1: Distribution of responses toward "Patients' general perspective regarding importance of regular check-ups/monthly appointments" domain

S.N.	Questions	Options	Response, n (%)
Q1	How long has it been since you visited your orthodontist?	More than one month	113 (66.5)
		Much more than two months	57 (33.5)
		I do not remember	-
Q2	How worried are you that you are not getting to go for regular follow ups for your treatment?	Very worried, I wish to meet my orthodontist soon	84 (49.4)
		Not so worried, everything that goes wrong can be fixed later	65 (38.2)
		I am more concerned about the worldwide pandemic	21 (12.4)

Q3	Are you following all the instructions given by your orthodontist, such as wearing of elastics and other oral hygiene instructions?	Yes, following all of it very accurately	141 (82.9)
		Sometimes, not too regular	29 (17.1)
		No, I do not have the material needed (e.g., My elastics got over and lack of floss)	-
Q4	Have you been in touch with your orthodontist?	Yes, I call my orthodontist if at all I have any problems regarding my treatment	154 (90.6)
		No, I have not called my orthodontist since the lockdown started	16 (19.4)
		I tried calling my orthodontist, but he/she is never reachable	-
Q5	Does your orthodontist check on you regularly?	Yes, my orthodontist calls me regularly to check if everything is okay	83 (48.8)
		No, my orthodontist has not called me since the lockdown started	45 (26.5)
		My orthodontist calls me, but I do not pick up because anyway there is no use since I cannot visit him/her	13 (7.6)

Table 2: Distribution of responses toward "Impact of lockdown on patients' visit to orthodontist for treatment needs" domain

S.N.	Questions	Options	Response, n (%)
Q1	What exactly are you most worried about regarding your treatment?	My treatment time will be longer and I will have my braces on for much more time	134 (78.8)
		My treatment can go wrong, things that are not supposed to happen with my teeth can happen	36 (21.2)
		My orthodontist will have a lot of work post lock down, so he/she will not be able to give enough time to my treatment	-
Q2	Since the lockdown started, have you had any problems with anything fixed in your mouth (eg, brackets, elastics, appliances and plates)	Yes, there are many problems with things fixed in my mouth	97 (57.1)
		No, I have not faced major problems with my braces since lockdown	73 (42.9)
		I do not know how to check, and I am unsure	-
Q3	What problems are you most commonly facing with your braces?	The wire came out and is poking me, and I have pain	27 (15.9)
		A few brackets and elastics have come out	77 (45.3)
		No problems	66 (38.8)
Q4	Have you suffered from any emergency such as pain, swelling, lacerations/ cuts, etc., due to treatment since the lockdown?	No, my braces/ appliances have not given me any problem	70 (41.2)
		Yes, but I called my orthodontist and asked him/her what to do	84 (49.4)
		Yes, but I took self-medication without informing my orthodontist and I am fine	16 (9.4)
Q5	Do you think that orthodontic treatment should be considered an emergency?	Yes, because I do not want anything to go wrong with my treatment	54 (31.8)
		Yes, because sometimes certain problems can be considered as emergencies such as cuts/ lacerations, swellings, etc.	109 (64.1)
		No, because it is not life threatening	7 (4.1)
Q6	Who do you think this lockdown is affecting more?	I think my orthodontist is more affected than I am	13 (7.6)
		I think I am more affected than my orthodontist	13 (7.6)
		I think this lockdown is affecting both me and my orthodontist equally	144 (84.7)
Q7	This lock down has:	Made me realise the importance of me being regular with my appointments	160 (94.1)
		Made me realise that is okay to miss appointments because nothing happened	-
		Made no difference to what I think about my treatment	7 (4.1)

Q8	What do you think about your treatment cost following the lockdown?	Orthodontist may charge extra or unnecessary procedures to make up for money loss	26 (15.3)
		Not worried, since I believe that the amount remains same that was told to me earlier	130 (76.5)
		I am okay with anything as long as my treatment finishes fast	14 (8.2)
Q9	Following this lockdown, when do you plan to visit your orthodontist?	I will rush to the hospital as soon as I can	100 (58.8)
		I will wait for my orthodontist to call me and give me an appointment	70 (41.2)
		I will not go till the pandemic is entirely over	-
Q10	Are you scared to visit your orthodontist after the lockdown ends?	Yes, I am scared	27 (15.9)
		No, I am not scared	122 (71.8)
		Not so much, but my fear has increased as compared to before	21 (12.4)

DISCUSSION

This study was conducted to identify the difficulties faced by the patients undergoing fixed orthodontic treatment during the lockdown period due to second wave of COVID-19 and also to determine the overall impact of restrictions on their treatment progress.

In the present study, most of the study participants (113, 66.5%) revealed that they had not visited their orthodontist for more than one month due to second wave of COVID-19 and were very worried about their treatment prognosis (84, 49.4%). Similar delayed visit to orthodontist was reported in a study by Shenoi, et al.⁵ due to the ongoing pandemic where majority (48%) missed follow-up visit for over two months which made them very concerned about their treatment outcomes. In this study, most of the study participants (134, 78.8%) were anxious thinking that their treatment time will be longer and they will have to wear braces on for much more time. Their trepidation seems obvious as several studies have shown that missed appointments prolongs the duration of fixed orthodontic treatment.⁷⁻⁹ A study by Trenouth also pointed out a serious concern that a significantly increased number of failed appointments may ultimately lead to discontinuing treatment by the patients.¹⁰

During lockdown period, 154 (90.6%) participants in this study were in touch with their orthodontist. They used to call their specialist if they had any problems regarding their treatment. During the second wave of COVID-19 in Kathmandu Valley, most of the participants (83, 48.8%) revealed that they were called by their orthodontist regularly to check if everything regarding the braces worn was alright. However, few (13, 7.6%) did not receive their orthodontist's call thinking that it was of no use as they could not visit the hospital due to lockdown. In contrast, only half of the participants were in touch with their orthodontist during the lockdown period in a study

done by Shenoi, et al.⁵ The alteration in findings may be due to difference in the level of interest of patients in their ongoing treatment or due to long distance of hospital or clinic and lack of transport facility in lockdown period, though patients felt the need to visit their orthodontist.

Certain treatment mechanics in fixed orthodontic treatment require regular follow-ups. Over a period of time, the elastics used for retraction or space closure mechanics show force decay. Due to plaque accumulation, the oral hygiene also deteriorates.⁵ In this study, more than half of the participants (97, 57.1%) had one or other problem due to things fixed in their mouth. Most of them (77, 45.3%) complained that their few brackets and elastics have come out. Few (27, 15.9%) were suffering from pain due to dislodged wire poking on to the soft tissues. In a study done by Gyawali, et al., a total of 176 emergency appointments were reported in a period of six months for 327 patients undergoing fixed orthodontic therapy and the most common reason for emergency visit to orthodontist was loosening of brackets or bondable buccal tubes followed by loosening of bands. In this study, 109 (64.1%) participants considered orthodontic treatment as an emergency as sometimes certain problems like cuts, lacerations, or swelling can occur. During the lockdown due to second wave of COVID-19, many faced emergency conditions due to braces and 84 (49.4%) called their orthodontist for consultation. Similarly, several studies have shown that orthodontic treatment carried a higher risk of oral mucosal lesions due to trauma caused by orthodontic appliances.¹¹⁻¹³ During fixed orthodontic treatment, oral ulcers may occur as a result of rubbing of the lips and cheeks on brackets, bands or other appliances inside the mouth.¹⁴

In the present study, most of the individuals (144, 84.7%) felt that this lockdown affected patient and orthodontist both. Also, this lockdown made 160 (94.1%)

patients realise the importance of being regular with their appointments. During the course of orthodontic treatment, conventionally, the interval between appointments ranges from three to four weeks that may presently be rescheduled from five to six weeks. However, the interval is dependent upon each treatment phase, evolution of the case, and patient's need.¹⁵ Majority of participants of this study (130, 76.5%) believed that the amount for treatment will remain same as it was told to them earlier and 122 (71.8%) were not scared to visit their orthodontist after the lockdown ends. This shows the positive attitude of the patients towards their ongoing fixed orthodontic therapy and their hope for their successful treatment completion.

This study had some limitations. This was a self-administered online survey, so information bias could not be avoided. Also, the study was conducted among orthodontic patients of a single institution only,

therefore, the study findings cannot be generalised to the orthodontic patients of wider area.

CONCLUSION

The findings of the study concluded that patients undergoing fixed orthodontic treatment were mostly concerned about their treatment getting prolonged due to second wave of COVID-19. The results imply that the second wave had one or other impact among individuals undergoing fixed orthodontic treatment. This study directed towards the importance of teledentistry for orthodontic consultation and also the need of preparing the patients to deal with orthodontic appliances if required to prevent trauma in any soft tissue of oral cavity.

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