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ECONOMICAL IMPLICATIONS OF COVID-19 ON ORTHODONTIC PRACTICE IN INDIA

Orthodontics

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ABSTRACT

BACKGROUND: This study was done to study the impact of COVID-19 on Indian Orthodontists whether they decide to increase or decrease their treatment tariff due to the current new investments to be made and overcome the hurdles and challenges of the current situation.
AIM: The aim of this study was to assess the economic implications of COVID-19 in orthodontics among the Orthodontists practicing in India.
MATERIALS AND METHODS: A survey of 34 questions was circulated among Orthodontists all over India and their response was collected. Pearson's Chi-square test was used to compare the difference of proportions between pre and post COVID-19 responses.
RESULTS: The results show that almost most of them either want to maintain the same tariff or increase it and only a very few of them want to reduce it. The results obtained were statistically significant with a p value < .001.
CONCLUSION: Based on the responses received, majority of the Orthodontists opted to keep the tariff same or increase it, only a few of them chose to decrease.

KEYWORDS

COVID-19, Orthodontics, Economy

INTRODUCTION

Orthodontic appliances have come a long way with the increase in concern for improving the aesthetic appearance of the people. Advancement in science and technology has not only made significant changes in our day to day living activities but also in the field of Orthodontics. Starting from the first appliance which was a expansion arch introduced by Pierre Fauchard in the year 1729 to the current era where 3D computer imaging technology is used which we can now use to create custom-made brackets there has been a drastic improvement in the appliances to make them more aesthetically appealing and patient-friendly.

Ever since the start the importance given by society and customs to aesthetics is always high and increasing, Orthodontic treatment has been almost like a necessity for patients as they are more concerned with their aesthetic appearance, though some require orthodontics to improve their functions as well, they want the best the practioner can provide with no compromise. It definitely is one of the most demanding procedures in dentistry and in the current chaotic situation of the recent Pandemic COVID-19, which started during late 2019 has been progressing worldwide and has impacted everyone's life in a negative way including the life of an Orthodontist.

According to single Nations guidelines during COVID-19 pandemic, dentists should accept in the private practice only non-deferrable urgencies, such as an abscess or irreversible pulpitis. Orthodontic problems, like general dentistry problems, represent urgencies, not true emergencies, so a video call or message with a photo might be the best options to evaluate the case [1].This means that only emergency procedures can be carried out during this period, and so both old and new orthodontic patients can be diagnosed and follow-up can only be done by telephonic or by internet conversations. Other speciality Dentists like Oral surgeons are permitted to treat their patients as they tend to have emergency cases unlike the Orthodontist and this has affected the economy of them in the past few months.

Aerosol procedures must not be performed in the dental clinic as per the guidelines given and for bonding or re-bonding, removing the excess composites usually aerosol procedures are to be done. Orthodontists may see lots of patient in a single day and this makes strict infection control measures with the highly transmissible SARS-CoV-2 an area of concern[2].

However one can start practising after modifying their clinic by adding a negative pressure room to and both the Doctor and the assistant using proper personal protective equipment or aids to protect both themselves and also the patients. Orthodontists must be especially cognizant of the available evidence to provide a safe environment for themselves, their patients (and patient family members), and the entire orthodontic team[3].

This however requires a lot of investment as one has to spend a lot on these. Sharing public memos based on orthodontic emergencies and other information on social media platforms and websites, can serve to educate the public and allow orthodontists to defend their position during this challenging time[4].

MATERIALS & METHODS:

Study population:

A cross-sectional survey was conducted to obtain responses from Orthodontists from every state in India during mid-week of May 2020. A total of 122 responses were obtained. Ethical approval was obtained from the Institutional Review Board.

Questionnaire:

The questionnaire consisting of 39 questions was designed using an online survey instrument (Google forms) and was shared on various social media platforms. The questions in the survey were structured and assessed for treatment tariff of various orthodontic appliances , pre and post the occurrence of COVID-19. Also, demographic details such as age, gender and years of practise were included among the 39 questions.

STATISTICAL ANALYSIS:

Statistical analysis of the data was done using Statistical Package for Social Sciences, IBM Corporation, SPSS Inc., Chicago, IL, USA version 21 software package (SPSS). Descriptive statistics including

frequencies and percentages were computed for various parameters like age, gender, clinical experience and responses of the participants. Pearson's Chi-square test was used to compare the difference of proportions between pre and post COVID-19 responses. The level of significance in the present study was kept at $p<0.05$.

Table 1: Demographic Data

CATEGORY	FREQUENCY (n)	PERCENTAGE (%)
Gender		
Male	75	61.5
Female	47	38.5
Age		
25-35 years	77	63.1
35-45 years	16	13.1
45-60 years	20	16.4
Above 60 years	9	7.4
State		
South India	79	64.8
North India	43	35.2
Years of experience		
1-10 years	83	68.0
10-20years	13	10.7
20-30years	12	9.8
Above 30 years	14	11.5

RESULTS & DISCUSSION:

For this study 122 orthodontists responded and their responses are given below:

Consultation charge: To this, surprisingly 83.6% (n=102) did not change their tariff, only 13.1% (n=16) increased their charges and 3.3% (n=4) reduced their charges.

Removable appliance charge: To this, 50% (n=61) did not change their tariff, 33.4% (n=41) increased their charges and 1.6% (n=2) reduced their charges. 15% (n=18) of them did not practice this in their clinic.

Orthopaedic appliance charge: To this, 53.2% (n=65) did not change their tariff, 30.4% (n=37) increased their charges and none of them reduced their charges. 16.4% (n=20) of them did not practice this in their clinic.

Removable functional appliance charge: To this, 61.4% (n=75) did not change their tariff, 27.1% (n=33) increased their charges and none of them reduced their charges. 11.5% (n=14) of them did not practice this in their clinic.

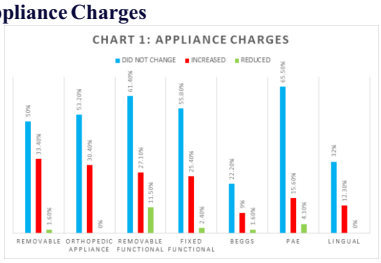
Fixed functional appliance charge: To this, 55.8% (n=68) did not change their tariff, 25.4% (n=31) increased their charges and 2.4% (n=3) reduced their charges. 16.4% (n=20) of them did not practice this in their clinic.

Beggs appliance charge: To this, 22.2% (n=27) did not change their tariff, 9% (n=11) increased their charges and 1.6% (n=2) reduced their charges. Shockingly 67.2% (n=82) of them did not practice this in their clinic.

Pre adjusted edgewise appliance charge: To this, 65.5% (n=80) did not change their tariff, 15.6% (n=19) increased their charges and 4.1% (n=5) reduced their charges. 14.8% (n=18) of them did not practice this in their clinic.

Lingual braces charge: To this, 32% (n=39) did not change their tariff, 12.3% (n=15) increased their charges and nobody reduced their charges. 55.7% (n=68) of them did not practice this in their clinic.

Chart 1: Appliance Charges



Ceramic braces charge: To this, 62.3% (n=76) did not change their tariff, 16.4% (n=20) increased their charges and 4.9% (n=6) reduced their charges. 16.4% (n=20) of them did not practice this in their clinic.

Self-ligating braces charge: To this, 61.3% (n=75) did not change their tariff, 13.1% (n=16) increased their charges and 4.89% (n=6) reduced their charges. 20.5% (n=25) of them did not practice this in their clinic.

Aligners charge: To this, 36% (n=45) did not change their tariff, 28% (n=35) increased their charges and 1.6% (n=2) reduced their charges. 32.4% (n=40) of them did not practice this in their clinic.

Transpalatal arch charge: To this, 36% (n=45) did not change their tariff, 25.6% (n=32) increased their charges and 1.6% (n=2) reduced their charges. 35.2% (n=43) of them did not practice this in their clinic.

Orthodontic mini screw charge: To this, 36.8% (n=46) did not change their tariff, 34.4% (n=43) increased their charges and 1.6% (n=2) reduced their charges. 25.4% (n=31) of them did not practice this in their clinic.

Surgical cases charge: To this, 41% (n=50) did not change their tariff, 18.9% (n=23) increased their charges and 1.6% (n=2) reduced their charges. 38.5% (n=47) of them did not practice this in their clinic.

Removable retainer charge: To this, 61.6% (n=75) did not change their tariff, 27.9% (n=34) increased their charges and 1.6% (n=2) reduced their charges. 8.9% (n=11) of them did not practice this in their clinic.

Fixed retainer charge: To this, 66.4% (n=81) did not change their tariff, 11.4% (n=14) increased their charges and 6.6% (n=8) reduced their charges. 15.6% (n=19) of them did not practice this in their clinic.

Invisible retainer charge: To this, 58.2% (n=71) did not change their tariff, 22.2% (n=27) increased their charges and 0.8% (n=1) reduced their charges. 18.9% (n=23) of them did not practice this in their clinic.

Chart 2 : Retainer Charges

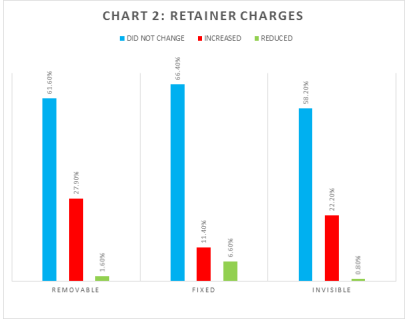
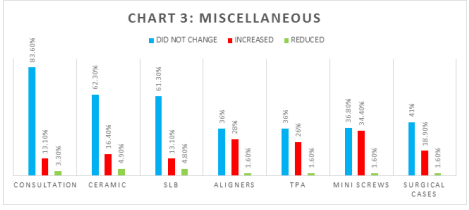


Chart 3 : Miscellaneous



As per Pearson Chi Square test the results obtained in this study is statistically significant with a value of $p<.001$.

Dentistry provides both substantial local and national economic benefits 5. In this time of uncertainty, predicting the effect of the impact of the COVID-19 pandemic on the dental industry is difficult; however, using lessons from the 2007-2010 global financial crisis, broadly a decrease in dental services should be anticipated, with the initial stage focused toward a reduction in routine, preventive, non-urgent care followed by a period of reduction in utilization of higher-cost services consistent with recessionary times 6.The Orthodontic treatment being both non-urgent and on the expensive side when compared to other dental procedures. This can cause a huge downfall in the economic status of an Orthodontist especially when they have to

do lot of investments according to the guidelines provided for the safety and precaution of the doctor, staff and patients. Because of these new investments and other expenses, the need to increase the treatment tariff might occur.

Table 2 : Treatment Tariff

CATEGORY	OLD TREATMENT TARIFF	NEW TREATMENT TARIFF
CONSULTATION	Rs.200 to Rs.400	Rs.500 to Rs.800 & above
REMOVABLE APPLIANCE	Rs.1500 to Rs.3000	Rs.3000 to Rs.4000 & above
ORTHOPAEDIC APPLIANCE	Rs.8000 to Rs.10000	Rs.10000 to Rs.12000 & above
REMOVABLE FUNCTIONAL APPLIANCE	Rs.6000 to Rs.8000	Rs.8000 to Rs.10000 & above
FIXED FUNCTIONAL APPLIANCE	Rs.10000 to Rs.12000	Rs.12000 to Rs.15000 & above
BEGGS APPLIANCE	Rs.10000 to Rs.12000	Rs.13000 to Rs.17000 & above
PRE- ADJUSTED EDGEWISE APPLIANCE	Rs.15000 to Rs.25000	Rs.17000 to Rs.37000 & above
LINGUAL BRACES	Rs.1 Lakh to Rs.1.25 Lakhs	Rs.1.05 Lakhs to Rs.1.80 Lakhs & above
CERAMIC BRACES	Rs.30000 to Rs.40000	Rs.35000 to Rs.55000 & above
SELF LIGATING BRACES	Rs.40000 to Rs.50000	Rs.45000 to Rs.65000 & above
ALIGNERS	Rs.75000 to Rs.1 Lakh	Rs.1 Lakh to Rs.1.5 Lakhs & above
TRANSPALATAL ARCH	Rs.3000 to Rs.3500	Rs.3500 to Rs.4000 & above
TEMPORARY ANCHORAGE DEVICE	Rs.1500 to Rs.2000	Rs.2000 to Rs.2500 & above
SURGICAL CASE	Rs.30000 to Rs.40000	Rs.40000 to Rs.50000 & above
REMOVABLE RETAINER	Rs.2000 to Rs.3000	Rs.3000 to Rs.4000 & above
FIXED RETAINER	Rs.3000 to Rs.5000	Rs.4000 to Rs.8000 & above
INVISIBLE RETAINER	Rs.3000 to Rs.4000	Rs.4000 to Rs.6000 & above

CONCLUSION:

Based on the responses received, majority of the Orthodontists opted to keep the tariff same or increase it, only a few of them chose to decrease.

LIMITATIONS OF STUDY:

There are two major limitations in this study that could be addressed in future research. First, the study has a less sample size while comparing to the population of the study and second is the lack of previous research studies on the topic.

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