



ANALYSIS OF EXPENDITURE FOR DENTAL PRACTICE DURING COVID 19: PANDEMIC SITUATION IN KOTTAYAM AND CHENNAI – A COMPARATIVE SECTIONAL STUDY

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ABSTRACT

The study was an attempt to know the expenditure analysis for practising dentistry in COVID-19 by the dentists residing and practising in Kottayam and Chennai.

This study enlightens us about the difference and the negative aspects of how COVID 19 has caused drastic changes in expenses regarding practising dentistry during the pandemic.

The study was conducted in the form of a questionnaire survey that was distributed to various dental clinics in Kottayam and Chennai. The study was conducted from April 2021 - June 2021 by selecting random Chennai and Kottayam dental clinics.

A list of twenty-one open-ended questions was framed related to the cost of the materials, their availability, any hike or surge in the consultation fees, number of patients, and changes in electricity bill, before and during COVID. A total of 50 dentists responded each from Kottayam and Chennai, respectively. The overall chi-square analysis P-value was <0.05, considered statistically significant.

The pandemic has worked as a slow poison and gradually caused too many complications for the patient and the dentist, as due to the increase in protective measures done by the operator, the expense has reflected in treatment as well as the total cost for the treatment also, causing drastic changes in the affordability for effective and various treatment options. Furthermore, the high demand and inefficient supply of materials have also been a prominent aspect of this change.

The overall conclusion of this study shows us the percentage and the chi-square. The overall P-value by chi-square analysis was <0.05, considered statistically significant.

KEYWORDS: COVID 19 pandemic, COVID 19 expenditure, dental practice during COVID 19, the Kottayam pandemic situation in Chennai, and the comparative sectional study of COVID 19.

INTRODUCTION

COVID -19, an unexpected guest, first came to light on November 17 2019. A 55-year-old from Hubei Province in China was suspected, per the South China Morning Post¹. The virus was supposed to be stemmed out of the wet market in Wuhan, and scientists also suspected it originated from the bats and somehow passed on to other animals such as the pangolin, which then passed it on to humans and in the current scenario, the disease is spreading between people without any animal intermediary². As per records of late 2019, the pandemic has spread over 185 countries, with over 2.6 million

cases individuals have been infected and over 180000 have died.

COVID-19 affects different people in different ways. Most infected people will develop mild to moderate illness and recover without hospitalization.³ Experience with SARS and the 2009 influenza pandemic showed that containment could buy us some time⁴

Most common symptoms: Fever, dry cough, tiredness. Less common symptoms: aches and pains. Sore throat, Diarrhoea, Conjunctivitis, headache. Loss of taste or smell. A rash on the skin or discolouration of fingers or toes. Serious



symptoms: difficulty breathing or shortness of breath, chest pain or pressure, loss of speech or movement.

COVID 19 pandemic has become a real-life threatening issue for health care workers around the globe and has caused serious consequences for dental practitioners. As regular dental care has been put to a stop in the country due to this pandemic, only the urgent cases are being considered by the dental team with the required personal protective equipment making it a little difficult to manage yet effective and providing safe delivery of dental treatment. As a result, a nationwide lockdown was put in place on March 24 2020, restricting the movement of about 1.38 billion population of India⁵.

COVID-19 has not only killed people by virus incursion but also due to economic and mental collapse, where developing countries suffered from unemployment and hunger. India enforced 68 days of four-phased-lockdown from March 24 to May 31 to deal with COVID-19⁶. In the beginning, coronavirus cases in India happened due to the abroad connection rather than transmission within the country. The first three infection cases occurred on January 30 and February 3 in Kerala as they returned from Wuhan⁷. The main aim of this study is to compare and analyze the expenditure for practising dentistry in Chennai and Kottayam during the Covid 19 pandemic.

MATERIALS AND METHOD

A cross-sectional study was conducted to analyse expenditure for dental practice due to covid-19 among the dentists residing and practising in Kottayam and Chennai. Ethical Clearance was taken obtained from the Department of

RESULTS

Public Health Dentistry, SRM Dental College and Hospital Ramapuram. The study was conducted from April 2021 - June 2021 by selecting random Chennai and Kottayam dental clinics. A list of twenty-one open-ended questions was framed related to the cost of the materials, their availability, any hike or surge in the consultation fees, number of patients, and changes in electricity bill, before and during covid, respectively. The dentist acknowledged questions prepared in the form of google forms. The study also highlights the facts about the patient response to the treatment and the precautions and changes brought by the practitioners, as in this case, the dentists, while conducting the treatment and the patient flow in the clinic regularly. Materials cost and availability also play a strong role in figuring out the average expense as it differs from one supplier to another.

A total of 50 dentists responded from Kottayam and Chennai each. As observed in Chennai, the years of practising experience were a maximum of 6-10 years [46%], and most dentists [76%] had one clinic. It was found that during the covid time, the patient flow was more when compared to pre covid time, and the electricity bill was more during the covid time. After analyzing the received data from Kottayam, it was observed that the years of practising experience were maximum of 6-10 years [40%], and most dentists [80%] had one clinic. It was found that during the covid time, the patient flow was more than pre covid time. In addition, the electricity bill was higher during the covid time. A Chi-square test was performed on the utilization of dental services in Chennai and Kottayam. The P-value <0.05 was considered to be statistically significant.

Figure 1: Distribution of study participants included in the study

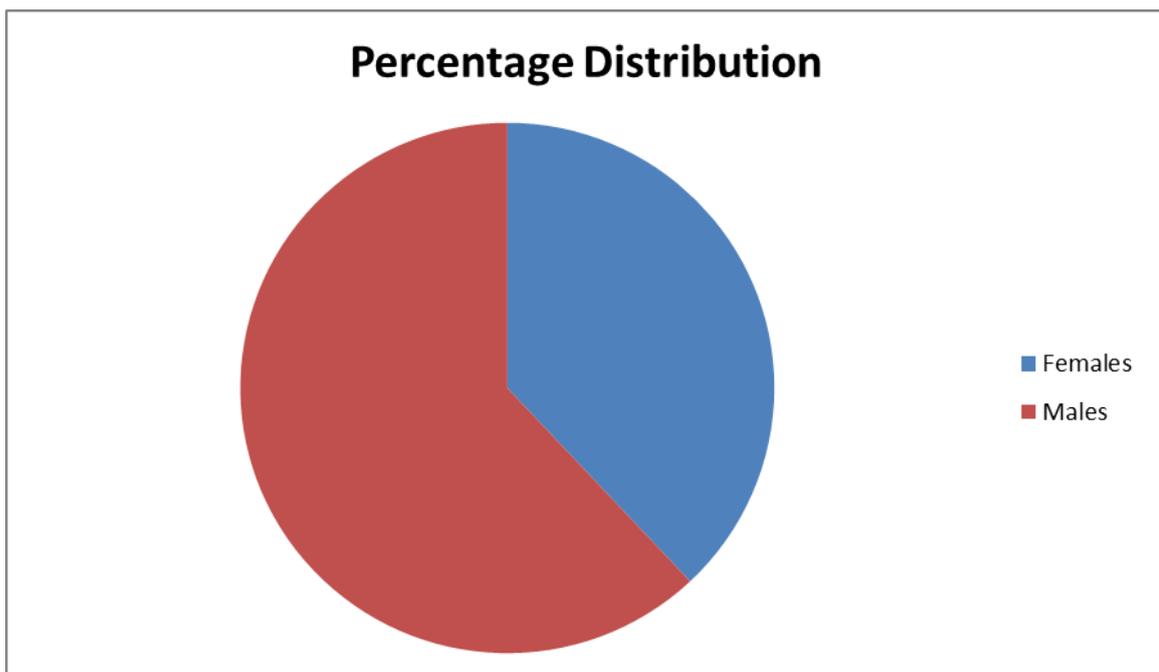


Figure 1 shows the distribution of study participants included in the study. It was found that 62% of males and 38% of females were included in the study.

Figure 2: Distribution of study participants included in the study residing in Chennai and Kottayam

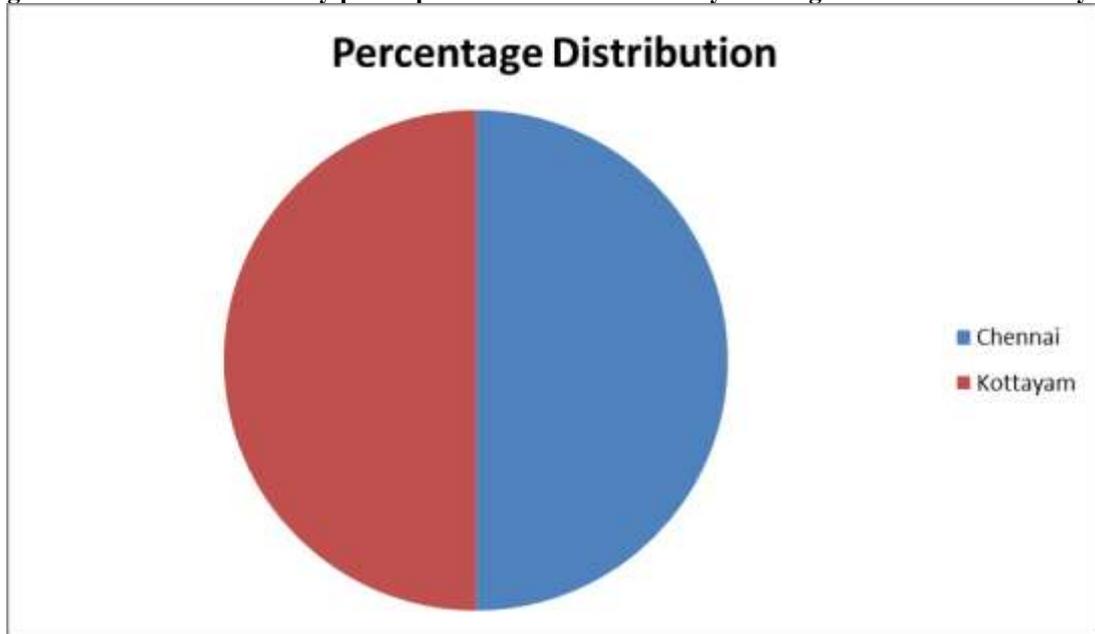


Figure 2 shows the distribution of study participants included in the study residing in Chennai and Kottayam.

Again, equal distribution was found among the Chennai and Kottayam resident.

Table 1: Descriptive statistics on the utilization of dental services among the study participants residing in Chennai

| S. No. | QUESTIONNAIRE | OPTIONS | Study participants residing in Chennai (n-50) | | Study participant residing in Kottayam (n-50) |
|--------|--|---------------------------|---|----------------|---|
| | | | Frequency (n) | Percentage (%) | Frequency (n) |
| 1. | How many years have you been practising dentistry | 1-5 years | 10 | 20.0 | 12 |
| | | 6-10 years | 23 | 46.0 | 25 |
| | | 11-15 years | 2 | 4.0 | 2 |
| | | More than 15 years | 15 | 30.0 | 15 |
| 2. | How many dental clinics do you have | One | 38 | 76.0 | 40 |
| | | Two | 7 | 14.0 | 6 |
| | | Three | 4 | 8.0 | 3 |
| | | More than three | 1 | 2.0 | 1 |
| 3. | Average patient flow per month before COVID | Less than 25 | 6 | 12.0 | 10 |
| | | 25-50 | 32 | 64.0 | 15 |
| | | 51-75 | 7 | 14.0 | 20 |
| | | More than 75 | 5 | 10.0 | 5 |
| 4. | Average patient flow per month during COVID | Less than 25 | 36 | 72.0 | 8 |
| | | 25-50 | 10 | 20.0 | 15 |
| | | 51-75 | 2 | 4.0 | 22 |
| | | More than 75 | 2 | 4.0 | 5 |
| 5. | Total number of appointments given per day before COVID 19 | Less than 5 | 22 | 44.0 | 15 |
| | | 5-10 | 23 | 46.0 | 30 |



| | | | | | |
|-----|---|----------------------------|----|------|----|
| | | 11-20 | 4 | 8.0 | 4 |
| | | More than 20 | 1 | 2.0 | 1 |
| 6. | Total number of appointments given per day during COVID 19 | Less than 5 | 20 | 40.0 | 12 |
| | | 5-10 | 21 | 42.0 | 32 |
| | | 11-20 | 8 | 16.0 | 5 |
| | | More than 20 | 1 | 2.0 | 1 |
| 7. | Did you experience any financial burden or construction? rent, material cost and supply) due to the current COVID situation? if yes, kindly mention | Yes | 40 | 80.0 | 40 |
| | | No | 10 | 20.0 | 10 |
| 8. | Patient Response to the Treatment and Appointment | Positive | 42 | 84.0 | 43 |
| | | Negative | 8 | 16.0 | 7 |
| 9. | Type of patient drape you use | Disposable | 39 | 78.0 | 36 |
| | | Reusable | 7 | 14.0 | 10 |
| | | Both of the above | 4 | 8.0 | 4 |
| 10. | If disposable, please mention the cost per piece | Less than 4 rupees | 29 | 58.0 | 24 |
| | | 5-10 rupees | 16 | 32.0 | 18 |
| | | 11-20 rupees | 4 | 8.0 | 6 |
| | | More than 20 rupees | 1 | 2.0 | 1 |
| 11. | If reusable, please mention the cost per piece | Less than 100 | 27 | 54.0 | 24 |
| | | 100-200 | 16 | 32.0 | 18 |
| | | >200-500 | 5 | 10.0 | 6 |
| | | More than 500 | 2 | 4.0 | 2 |
| 12. | Number of glove boxes per month Before COVID 19 | Below 3 | 40 | 80.0 | 36 |
| | | 3-5 | 6 | 12.0 | 8 |
| | | More than 5 | 4 | 8.0 | 6 |
| 13. | Number of glove boxes per month during COVID 19 | Below 3 | 17 | 34.0 | 34 |
| | | 3-5 | 30 | 60.0 | 7 |
| | | More than 5 | 3 | 6.0 | 9 |
| 14. | How often did you sterilize the dental clinic (pre-COVID) | Once a day | 12 | 24.0 | 12 |
| | | Alternative day | 26 | 52.0 | 28 |
| | | One a week | 10 | 20.0 | 8 |
| | | Twice a week | 2 | 4.0 | 2 |
| 15. | How often do you have to sterilize the dental clinic during COVID | Once a day | 12 | 24.0 | 32 |
| | | Alternative day | 26 | 52.0 | 10 |
| | | One a week | 10 | 20.0 | 4 |
| | | Twice a week | 2 | 4.0 | 4 |
| 16. | Patient consultation fee (pre-COVID) | 100 | 12 | 24.0 | 10 |
| | | 100-200 | 27 | 54.0 | 29 |
| | | 200-300 | 11 | 22.0 | 11 |
| | | More than 300 | 0 | 0 | 0 |
| 17. | Any increase in the consultation fees during Covid 19? (If yes, please mention the amount) | 200 | 9 | 18.0 | 7 |
| | | 200-300 | 41 | 82.0 | 43 |
| | | 300-400 | 0 | 0 | 0 |
| | | More than 400 | 0 | 0 | 0 |
| 18. | Number of sanitisers \ sterilium bottles used per week | Less than 1 | 3 | 6.0 | 3 |
| | | 2 bottles | 26 | 52.0 | 26 |
| | | 2-4 bottles | 16 | 32.0 | 12 |
| | | More than 4 bottles | 5 | 10.0 | 9 |
| 19. | PPE kit cost per piece by Your | Less than 30 | 4 | 8.0 | 3 |



| | | | | | |
|-----|--|-----------------------|----|------|----|
| | supplier | 31-50 | 16 | 32.0 | 29 |
| | | 51-60 | 13 | 26.0 | 9 |
| | | More than 60 | 17 | 34.0 | 9 |
| 20. | Average electricity bill (Pre Covid) | Less than 1500 | 10 | 20.0 | 20 |
| | | 1500-3000 | 20 | 40.0 | 13 |
| | | 3000-6000 | 18 | 36.0 | 15 |
| | | More than 6000 | 2 | 4.0 | 2 |
| 21. | Electricity bill average during COVID | Less than 1500 | 7 | 14.0 | 10 |
| | | 1500-3000 | 21 | 42.0 | 19 |
| | | 3000-6000 | 19 | 38.0 | 19 |
| | | More than 6000 | 3 | 6.0 | 2 |
| 22. | Do you sanitize the clinic by any enterprise | Yes | 47 | 94.0 | 44 |
| | | No | 3 | 6.0 | 6 |

Table 1 shows descriptive statistics on the utilization of dental services among the study participants residing in Chennai. The years of practising experience were maximum with 6-10 years (46%), and a greater number of dentists (76%) had one clinic. It was found that during the covid time, the patient flow was more went compared to pre-covid time. The electricity bill was found to be more during the covid time. The years of practising experience

were maximum with 6-10 years (40%), and a greater number of dentists (80%) had one clinic in Kottayam. It was found that during the covid time, the patient flow was more went compared to pre-covid time residing in Kottayam. The electricity bill was higher during the covid time in Kottayam.

Table 2: Chi-square test was performed on utilization of dental services among the Chennai and Kottayam

| S.no | QUESTIONNAIRE | P-value |
|------|--|---------|
| 1. | How many years have you been practising dentistry | >0.05 |
| 2. | How many dental clinics do you have | >0.05 |
| 3. | Average patient flow per month before COVID | <0.05* |
| 4. | Average patient flow per month during COVID | <0.05* |
| 5. | Total number of appointments given per day before COVID 19 | <0.05* |
| 6. | Total number of appointments given per day during COVID 19 | <0.05* |
| 7. | Did you experience any financial burden or constraints (rent, material cost and supply) due to the current COVID situation? if yes, kindly mention | >0.05 |
| 8. | Patient Response to the Treatment and Appointment | >0.05 |
| 9. | Type of patient drape you use | >0.05 |
| 10. | If disposable, please mention the cost per piece | >0.05 |
| 11. | If reusable, please mention the cost per piece | >0.05 |
| 12. | Number of glove boxes per month Before COVID 19 | >0.05 |
| 13. | Number of glove boxes per month during COVID 19 | >0.05 |
| 14. | How often did you sterilize the dental clinic (pre-Covid) | >0.05 |
| 15. | How often did you sterilize the dental clinic during Covid | >0.05 |



| | | |
|-----|---|--------|
| 16. | Patient consultation fee (pre-Covid) | >0.05 |
| 17. | Patient consultation fee during Covid | >0.05 |
| 18. | Number of sanitizers \ steriliium bottles used per week | >0.05 |
| 19. | PPE kit cost per piece by Your supplier | >0.05 |
| 20. | Average electricity bill (Pre Covid) | <0.05* |
| 21. | Average electricity bill during COVID | <0.05* |
| 22. | Do you sanitize the clinic by any enterprise | >0.05 |

Table 2 shows the Chi-square test was performed on the utilization of dental services in Chennai and Kottayam. The P-value <0.05 was considered to be statistically significant.

DISCUSSION

Covid 19 is a zoonotic virus reported to be originated from animals. The rapid spread of the virus has led to drastic changes in the daily lifestyle of the regular crowd, people working in various other sectors and especially the health workers. COVID 19 pandemic has become a real-life threatening issue for health care workers around the globe and has caused serious consequences for dental practitioners. As regular dental care has been put to a stop in the country due to this pandemic, only the urgent cases are being considered by the dental team with the required personal protective equipment making it a little difficult to manage yet effective and providing safe delivery of dental treatment. The study was an attempt conducted to know the expenditure analysis for practising dentistry in Covid-19 by the dentists residing and practising in Kottayam and Chennai and found that the overall value by chi-square analysis the P-value <0.05 was considered to be statistically significant. It was found that 62% of males and 38% of females were included in the study. When the comparative analysis was done between the dentist in Kottayam and Chennai, it was found that in the case of Chennai, about 46 % of the dentist are practising dentistry for the past 6-10 years, and the average patient flow before covid was maximum of about 64 % that was the average.

The questionnaire study included a set of questions regarding the expense related to the material cost, supply, and basic equipment. It was found that the total number of appointments in a range of less than 5 dropped from 44 to 40%, 5-10 patients per day reduced from 46 – 42%. Almost 80% of the dental clinics in Chennai faced a financial crisis that included the building rent, supply of materials and the increase in the material cost that may have hampered the total expense. Also, before covid-19, 80% of the clinics used glove boxes in the range of less than three; that increased to 3-5 boxes by 60% of the clinics, indicating the increase in usage of the gloves

as the increase in the expense was also reflected when the study covered the data of consultation fees charged by the clinics, which indicated that about 54% were charging between the range of 100 to 200 range before the covid 19, which increased by 82% in the range of 200-300.

According to the research done on “Modeling the Impact of COVID-19 on dental Insurance and Utilization⁸”, more than 20.5 million jobs have been lost over the past two months due to the sudden strike of the pandemic in 2019, raising the United States unemployment rate to 14.7% as of April 2020, also accompanied by uncertainties and severe financial losses associated with loss of employment, employees losing their employer-sponsored dental insurance.

According to the research done on the “Impact on dental Economics and dental healthcare utilization⁹” in covid 19 covers about the employment for the dental practitioners the economic impact of covid 19 can jointly affect the dentist., as it has caused a reduction in the dental service utilization, the consumer of dental services avoid dental visits to prevent getting effected from the Covid-19 Infection, also the fee for the dental service, the most of it comes from employer-based dental insurance and the pocket, in such situation the utilization of the service is highly based on employment rates that naturally generates disposable income. Furthermore, the research also covers the impact the dental education as they were temporarily suspended for a while, and the teaching part was completed virtually.

This has made a large negative impact on the teaching-learning experience in dental schools. Similarly, as we can observe in my research, the expenditure has increased due to the extra protective measures in the dental treatment, but the patient count has decreased.

“Modeling the impact of Covid -19 on U.S. Dental spending -June 2020¹⁰ updates about the guidelines proposed by the American Dental Association {ADA} issued on march 16,2020 guidance that only to give attention and provide services to the emergency cases and on April 1, 2020, ADA extended these guidelines and suggested to postpone the cases that include radiographs, oral examination aesthetic dentistry, routine cleaning etc., this reflects the limitations experienced by the patient as well as the dentist due to the pandemic, urgent care was given as the first and foremost priority that included uncontrolled bleeding, facial trauma, tooth fractures and biopsies of abnormal tissues[1]. Similarly, as as observed in my study, the appointments given during the covid 19 pandemic have risen. This may be due to giving priority to emergency cases first and then the remaining regular dental procedures. As far as unemployment is concerned in April, according to the Congressional budget office (CBO) the unemployment peaked at 14.7 percent before declining to 13.3 per cent in May, which also reflects the negative impact of the pandemic in the U.S.



CONCLUSION

The research shows various aspects of the pandemic, causing drastic changes in the field of dentistry and also as how the uninvited guest has increased the quality as well as methods and priority of treatment, starting from the basic to most complex procedure to increase in precaution and safety protocols against the virus for the operator as well as the patient has increased exponentially.

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