



PATIENT'S PERCEPTION AND AWARENESS TOWARDS PROSTHODONTIC TREATMENT IN COVID-19 ERA: A CROSS SECTIONAL SURVEY STUDY

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ABSTRACT

Introduction- Prosthodontists are more prone to various risk factors such as copious amount of saliva in trays as well as dentures, exposure to blood during implant placement, pre-prosthetic surgeries & exposure to aerosols during tooth preparation for crown & bridge. Due to various co-morbidities, geriatric patients are highly prone to catch infections. Unlike other dental procedures, prosthodontic treatment plan demands multiple patient visits which throws a unique challenge to ensure safety for both the doctor as well as the patient.

Aim - The aim of this questionnaire based survey study is to assess the patient's awareness during this COVID era towards prosthodontic treatment while visiting in a dental college.

Materials & Method- A self-administered questionnaire, composed of 15 questions, was designed. The study population comprises of 400 randomly visiting patients in department of prosthodontics of subsequent dental colleges during covid times.

Result- The result showed lack of awareness in the population regarding the COVID-19 spread.

Conclusion- To summarize, the present study was able to provide a comprehensive analysis of the patients towards the dental treatment in COVID-19 era. The findings suggest that although patients generally have an acceptable level of knowledge on COVID-19 and tend to be positive in their outlook on overcoming the pandemic, innovative awareness and preventive measures are urgently needed.

KEYWORDS : Aerosol , COVID-19, Awareness

INTRODUCTION

In December 2019, an outbreak of novel corona virus causing acute respiratory disease (COVID-19) has spread throughout and received worldwide attention.¹ This outbreak had caused the highly pathogenic and large scale epidemic in the human population thus considered as the public health emergency of international concern. Several research studies have identified that SARS-CoV-2 belongs to β -coronavirus, with highly identical genome to bat corona virus, pointing to bat as the natural host. The COVID-19 uses the same receptor, angiotensin-converting enzyme 2 (ACE2) as that for SARS-CoV, and mainly spreads through the respiratory tract.² This virus is highly contagious and spread throughout the globe. The symptoms include the fever, cough, fatigue, loss of taste and smell and small population with gastrointestinal disorder. This virus alone is responsible for the global crisis and caused more than three millions death worldwide. The elderly and immuno-compromised individuals with underlying disease are more prone to the novel corona virus. Its mode of transmission is through person to person contact with respiratory droplets.^{3,4}

The spread through the asymptomatic carrier has been documented and it is one of the main causes for the fear and dilemma in the minds of dental practitioner and the patient. The close proximity to oral fluids, aerosols, long incubation period of the virus has placed the dental surgeons at the high risk.⁵ The ministry of health and family welfare (MOHFW),

India has issued several guidelines to limit the spread of the disease. Aerosol transmission is one of the main concern for the dental treatment. Routine dental procedures generates aerosol which possess potential risks to the dental care personnel and patients. This aerosol transmission can take place through different means. High speed turbines that requires coolant produces the aerosol, this aerosol contains the bodily fluids, such as blood and saliva thus, bio-aerosols are created.⁶ These bio-aerosols are contaminated with bacteria, virus and fungi and possess a high risk contamination for the dentist and the other individuals. There is a need to adopt several precautions in the dental setups to limit the spread of the disease. The dental teams are already trained for the sterilization protocols. There is a need to implement those protocols with the adjunct of the protective barriers.⁷

Many protocols have been issued for the dental treatment, these includes the use of proper protective barriers i.e. gloves, masks, face shield. The proper ventilation of the dental setup, extra oral suction have been advocated. The regular use of fumigation for the surface disinfection, povidine gargle regime for the patient has also been recommended.⁸ In spite of these precautions, there is a risk of transmission. The patients have also fear weather to opt for the dental treatment or not. Especially, the old age individuals who require the Prosthodontic treatment like the complete denture and other prosthesis. There is more distress for the dental treatment as

this group is generally systemically compromised. This survey study has been conducted to evaluate the patient's perception towards the Prosthodontic treatment during the COVID-19 era.

Methodology

As the period for data collection was restricted to the patients of the Department of Prosthodontics, non-probability convenience sampling method was used. This method allowed easy access to subjects & quick data collection. Ethical approval was obtained from the Institutional Review Board of Teerthanker Mahaveer Dental College and Research Centre, Moradabad. The sample size was obtained using a random sampling technique formula (Slovin's formula). A total of 400 patients, who visited the Prosthodontic department OPD, took part in the survey.

A predesigned, self-administered questionnaire was given randomly to the patients. The survey had a total of 15 questions regarding the COVID -19 knowledge, perception, precautions and symptoms. Questions were given in written format both in English and Hindi language. There was voluntary participation of the subjects and confidentiality was maintained for the information provided. Participants were not forced to answer all the questions. The Likhert scale was used for scoring the questions.

Questionnaire assessment

The survey questionnaire comprises of 15 sets of questions. These questionnaires were analyzed on the basis of gender, demography and age group. Three groups were made 30-50, 50-70, 70+ respectively. Each question was analyzed for different variables that comprise gender and location and age. Data obtained was analyzed and the percentage response was calculated.

Statistical analysis

The data was scrutinized using IBM Statistical Package for the Social Sciences (SPSS) version 25 (IBM Corporation, New York, NY, USA). Data was acquired and a chi-square test was used to assess the relation between different variables. The significance level was kept at $p \leq 0.05$.

RESULTS

The gender distribution shows 70.50 % of male participation in the study (Table-1).

| Gender | Percentage |
|--------|------------|
| MALE | 70.50% |
| FEMALE | 29.50% |

Furthermore 65.75 % participants belong to rural population (Table-2).

| Area | Number of patients | % |
|-------|--------------------|--------|
| Rural | 263 | 65.75% |
| Urban | 137 | 34.25% |

In this study, patients with the age group 50- 70 years were dominating by 67 % (Table-3)

| Age group | Frequency | Percent |
|-------------|-----------|---------|
| 30-50 years | 36 | 9.0 |
| 50-70 years | 268 | 67.0 |
| 70+ Years | 96 | 24 |

Patient response was tabulated and analyzed (Table-4). All the participants were aware of the COVID-19 pandemic. Only 79.2% people were aware that tooth replacement procedure can also spread COVID-19. The set of questions regarding the patient's knowledge like mode of infection due to treatment was asked surprisingly, only 52.5% of the patients were aware that the tooth preparation increases the risk of spread of COVID-19. Only 19% of people considered tooth replacement

as an emergency. To stop the spread of COVID-19, importance of mask was suggested by 56.5% of participants. Although the use of PPE kit and long appointment gaps were favored by 92.2% and 86.8% respectively. The increase in treatment charges due to increased treatment cost was favored by 84% of patients. The COVID -19 vaccination is useful only for 73% of the patients. (Table – 4)

Table 4- Perception about COVID in patients undergoing Prosthodontic Treatment

| Questions | Yes | No/Don't Know |
|--|-------------|---------------|
| Q.1 Are you aware of COVID-19 pandemic guidelines? | 400 (100%) | 00 (00%) |
| Q.2 Are you aware that treatment for tooth replacement can spread COVID-19? | 317 (79.2%) | 83 (20.8%) |
| Q.3 Do you want to replace tooth even if not an emergency? | 77 (19.2%) | 323 (80.8%) |
| Q.4 Do you have negative COVID-19 test report? | 10 (2.5%) | 390 (97.5%) |
| Q.5 Do you know symptoms of COVID-19? | 386 (96.5%) | 14 (3.5%) |
| Q.6 Have you ever had difficulty in breathing or loss of taste sensation? | 23 (5.8%) | 377 (94.2%) |
| Q.7 Would you like to spend more time in clinic, knowing there is a risk for infection? | 00 (00%) | 400 (100%) |
| Q.8 For dental treatment, would you like to accompany with your family member/friends by knowing there is a risk for infection? | 177 (44.2%) | 223 (55.8%) |
| Q.9 According to you the risk of infection transmission while doing the tooth preparation is higher? | 210 (52.5%) | 190 (47.5%) |
| Q.10 For the safety of patient & doctor, should the charges of dental treatment be increased due to use of various barrier techniques? | 336 (84%) | 64 (16%) |
| Q.11 According to you, whether the COVID-19 vaccination is useful, if yes do you want to get vaccinated? | 292 (73%) | 108 (27%) |
| Q.12 Is it necessary to wear a PPE during tooth replacement procedure during this COVID-19 era? | 369 (92.2%) | 31 (7.8%) |
| Q.13 Do you think gap between the appointments can reduce spread of COVID-19 infection? | 347 (86.8%) | 53 (13.2%) |
| Q.14 Is it necessary to wear mask to prevent spread of COVID-19? | 226 (56.5%) | 174 (43.5%) |
| Q.15 Have you ever asked the family member to wear mask? | 196 (49%) | 204 (51%) |

When comparing the results obtained with male category to female category, most of the results were insignificant. 39.4% males want to accompany their friend / relative as compare to 55.9% females. This difference was statistically significant. This difference shows the lack of awareness among the population regarding the COVID -19 spread. In contrary only 13.6 % females want to replace tooth when not an emergency as compare to 21.6 % males. (Table – 5)

| Questions | Yes | No/Don't Know | P value |
|-----------|-----|---------------|---------|
|-----------|-----|---------------|---------|

| | | | | |
|--------|--|-------------|-------------|-------------|
| Male | Q.1 Are you aware of COVID-19 pandemic guidelines? | 282 (100%) | 00 (00%) | 1.000 (NS) |
| Female | | 118 (100%) | 00 (00%) | |
| Male | Q.2 Are you aware that treatment for tooth replacement can spread COVID-19? | 224 (79.4%) | 58 (20.6%) | 0.484 (NS) |
| Female | | 93 (78.8%) | 25 (21.2%) | |
| Male | Q.3 Do you want to replace tooth even if not an emergency? | 61 (21.6%) | 221 (78.4%) | 0.039 (Sig) |
| Female | | 16 (13.6%) | 102 (86.4%) | |
| Male | Q.4 Do you have negative COVID-19 test report? | 07 (2.5%) | 275 (97.5%) | 0.606 (NS) |
| Female | | 03 (2.5%) | 115 (97.5%) | |
| Male | Q.5 Do you know symptoms of COVID-19? | 273 (96.8%) | 09 (3.2%) | 0.389 (NS) |
| Female | | 113 (95.8%) | 05 (4.2%) | |
| Male | Q.6 Have you ever had difficulty in breathing or loss of taste sensation? | 16 (5.7%) | 266 (94.3%) | 0.542 (NS) |
| Female | | 07 (5.9%) | 111 (94.1%) | |
| Male | Q.7 Would you like to spend more time in clinic, knowing there is risk for infection? | 00 (00%) | 282 (100%) | 1.00 (NS) |
| Female | | 00 (00%) | 118 (100%) | |
| Male | Q.8 For dental treatment, would you like to accompany with any family member/friends by knowing there is a risk for infection? | 111 (39.4%) | 171 (60.6%) | 0.002 (Sig) |
| Female | | 66 (55.9%) | 52 (44.1%) | |
| Male | Q.9 According to you the risk of infection transmission while doing the tooth preparation is higher? | 137 (48.6%) | 145 (51.4%) | 0.457 (NS) |
| Female | | 53 (44.9%) | 65 (55.1%) | |
| Male | Q.10 For the safety of patient & doctor, should the charges of dental treatment be increased due to use of various barrier techniques? | 236 (83.7%) | 46 (16.3%) | 0.463 (NS) |
| Female | | 100 (84.7%) | 18 (15.3%) | |
| Male | Q.11 According to you, whether the COVID vaccination is useful. If yes do u want 2 get vaccinated? | 207 (73.4%) | 75 (26.6%) | 0.434 (NS) |
| Female | | 85 (72.0%) | 33 (28.0%) | |
| Male | Q.12 Is it necessary to wear a PPE during tooth replacement procedure during this COVID era? | 259 (91.8%) | 23 (8.2%) | 0.405 (NS) |
| Female | | 110 (93.2%) | 8 (6.8%) | |
| Male | Q.13 Do you think gap between the appointments can reduce spread of COVID infection? | 248 (87.9%) | 34 (12.1%) | 0.176 (NS) |
| Female | | 99 (83.9%) | 19 (16.1%) | |
| Male | Q.14 Is it necessary to wear mask to prevent spread of COVID-19? | 158 (56.0%) | 124 (44.0%) | 0.438 (NS) |
| Female | | 68 (57.6%) | 50 (42.4%) | |
| Male | Q.15 Have you ever asked your family member to wear mask? | 133 (47.2%) | 149 (52.8%) | 0.152 (NS) |
| Female | | 63 (53.4%) | 55 (46.6%) | |

65.75% of participants were having rural background in the survey study. 50.4% of urban population think that wearing of mask can reduce the spread of the COVID-19 in comparison to the 59.7% of rural populations. 89% of rural population understands that in between appointment gap can reduce the risk of transmission as compared to 82.5 % of urban population. (Table –6)

Table 6- Location wise patient response

| | Question | Yes | No/Don't Know | P value |
|-------|--|-------------|---------------|-------------|
| Rural | Q.1 Are you aware of COVID-19 pandemic guidelines? | 263 (100%) | 00 (00%) | 1.000 (NS) |
| Urban | | 137 (100%) | 00 (00%) | |
| Rural | Q.2 Are you aware that treatment for tooth replacement can spread COVID-19? | 211 (80.2%) | 52 (19.8%) | 0.283 (NS) |
| Urban | | 106 (77.4%) | 31 (22.6%) | |
| Rural | Q.3 Do you want to replace tooth even if not an emergency? | 54 (20.5%) | 209 (79.5%) | 0.222 (NS) |
| Urban | | 23 (16.8%) | 114 (83.2%) | |
| Rural | Q.4 Do you have negative COVID-19 test report? | 8 (3.0%) | 255 (97.0%) | 0.275 (NS) |
| Urban | | 2 (1.5%) | 135 (98.5%) | |
| Rural | Q.5 Do you know symptoms of COVID-19? | 254 (96.6%) | 9(3.4%) | 0.556 (NS) |
| Urban | | 132 (96.4%) | 5(3.6%) | |
| Rural | Q.6 Have you ever had difficulty in breathing or loss of taste sensation? | 18 (6.8%) | 24 (93.2%) | 0.140 (NS) |
| Urban | | 5(3.6%) | 132 (96.4%) | |
| Rural | Q.7 Would you like to spend more time in clinic, knowing there is risk for infection? | 00 (00%) | 263 (100%) | 1.000 (NS) |
| Urban | | 00 (00%) | 137 (100%) | |
| Rural | Q.8 For dental treatment, would you like to accompany wd any family member/friends by knowing there is a risk for infection? | 110 (41.8%) | 153 (58.2%) | 0.106 (NS) |
| Urban | | 67 (48.9%) | 70(51.1%) | |
| Rural | Q.9 According to you the risk of infection transmission while doing tooth preparation is Higher? | 117 (44.5%) | 146 (55.5%) | 0.066 (NS) |
| Urban | | 73 (53.3%) | 64 (46.7%) | |
| Rural | Q.10 For the safety of patient & doctor, should the charges of dental treatment be increased due to use of various barrier techniques? | 222 (84.4%) | 41 (15.6%) | 0.430 (NS) |
| Urban | | 114 (83.2%) | 23 (16.8%) | |
| Rural | Q.11 According to you, whether the COVID vaccination is useful. If yes do you want to get vaccinated? | 194 (73.8%) | 69(26.2%) | 0.358 (NS) |
| Urban | | 98 (71.5%) | 39(28.5%) | |
| Rural | Q.12 Is it necessary to wear a PPE during tooth replacement procedure during this COVID era? | 243 (92.4%) | 20 (7.6%) | 0.511 (NS) |
| Urban | | 126 (92%) | 11 (8%) | |
| Rural | Q.13 Do you think gap between the appointments can reduce spread of COVID infection? | 234 (89%) | 29 (11%) | 0.039 (Sig) |
| Urban | | 113 (82.5%) | 24 (17.5%) | |

| | | | | |
|-------|--|-------------|-------------|-------------|
| Rural | Q.14 Is it necessary to wear mask to prevent spread of COVID-19? | 157 (59.7%) | 106 (40.3%) | 0.042 (Sig) |
| Urban | | 69 (50.4%) | 68 (49.6%) | |
| Rural | Q.15 Have you ever asked your family member to wear mask? | 138 (52.5%) | 125 (47.5%) | 0.064 (NS) |
| Urban | | 58 (42.3%) | 79 (57.7%) | |

There was no significant difference found for patient perception, knowledge and awareness when age was compared. (Table – 7)

Table 7- Age wise patient response

| | Questions | Yes | No/Don't Know | P value |
|---------------|--|-------------|---------------|------------|
| 30 – 50 years | Q.1 Are you aware of covid-19 pandemic guidelines? | 36 (100%) | 00 (00%) | 1.000 (NS) |
| 50-70 years | | 268 (100%) | 00 (00%) | |
| 70 + years | | 96 (100%) | 00 (00%) | |
| 30 – 50 years | Q.2 Are you aware that treatment for tooth replacement can spread COVID-19? | 25 (69.4%) | 11(30.6%) | 0.157 (NS) |
| 50-70 years | | 219 (81.7%) | 49 (18.9%) | |
| 70 + years | | 73 (76) | 23 (24%) | |
| 30 – 50 years | Q.3 Do you want to replace tooth even if not an emergency? | 11 (30.6%) | 25 (69.4%) | 0.151 (NS) |
| 50-70 years | | 51 (19.0%) | 217 (81.0%) | |
| 70 + years | | 15 (15.7%) | 81 (84.3%) | |
| 30 – 50 years | Q.4 Do you have negative COVID-19 test report? | 01 (2.8%) | 35 (97.2%) | 0.575 (NS) |
| 50-70 years | | 08 (3.0%) | 260 (97%) | |
| 70 + years | | 01 (1.0%) | 95 (99%) | |
| 30 – 50 years | Q.5 Do you know symptoms of COVID-19? | 35 (97.2%) | 01 (2.8%) | 0.934 (NS) |
| 50-70 years | | 258 (96.3%) | 10 (3.7%) | |
| 70 + years | | 93 (96.9%) | 03 (3.1%) | |
| 30 – 50 years | Q.6 Have you ever had difficulty in breathing or loss of taste sensation? | 03 (8.3%) | 33 (91.7%) | 0.674 (NS) |
| 50-70 years | | 16 (6%) | 252 (94%) | |
| 70 + years | | 04 (4.2%) | 92 (95.8%) | |
| 30 – 50 years | Q.7 Would you like to spend more time in clinic, knowing there is risk for infection? | 00 (00%) | 36 (100%) | 1.000 (NS) |
| 50-70 years | | 00 (00%) | 268 (100%) | |
| 70 + years | | 00 (00%) | 96 (100%) | |
| 30 – 50 years | Q.8 For dental treatment, would you like to accompany with any family member/friends by knowing there is a risk for infection? | 16 (44.4%) | 20 (55.6%) | 0.861 (NS) |
| 50-70 years | | 124 (46.3%) | 144 (53.7%) | |
| 70 + years | | 37 (38.5%) | 59 (61.5%) | |
| 30 – 50 years | Q.9 According to you the risk of infection transmission while doing the tooth preparation is Higher? | 13 (36.1%) | 23 (63.9%) | 0.364 (NS) |
| 50-70 years | | 131 (48.9%) | 137 (51.1%) | |
| 70 + years | | 46 (47.9%) | 50 (52.1%) | |
| 30 – 50 years | Q.10 For the safety of patient & doctor, | 30 (83.3%) | 06 (16.7%) | 0.482 (NS) |

| | | | | |
|---------------|---|--|-------------|------------|
| 50-70 years | should the charges of dental treatment be increased due to use of various barrier techniques? | 221 (82.5%) | 47 (17.5%) | |
| 70 + years | | 85 (88.5%) | 11 (11.5%) | |
| 30 – 50 years | | Q.11 According to you, whether the COVID-19 vaccination is useful? If yes do you want to get vaccinated? | 26 (72.2%) | 10 (27.8%) |
| 50-70 years | 193 (72%) | | 75 (28.0%) | |
| 70 + years | 73 (76%) | | 23 (24%) | |
| 30 – 50 years | Q.12 Is it necessary to wear personal protection equipment during tooth replacement procedure during this COVID-19 era? | 36 (100%) | 00 (00%) | 0.484 (NS) |
| 50-70 years | | 250 (93.3%) | 18 (6.7%) | |
| 70 + years | | 83 (86.5%) | 13 (13.5%) | |
| 30 – 50 years | Q.13 Do you think gap between the appointments can reduce spread of COVID-19 infection? | 32 (88.9%) | 04 (11.1%) | 0.555 (NS) |
| 50-70 years | | 231 (86.2%) | 37 (13.8%) | |
| 70 + years | | 84 (87.5%) | 12 (12.5%) | |
| 30 – 50 years | Q.14 Is it necessary to wear mask to prevent spread of COVID-19? | 19 (52.8%) | 17 (47.2%) | 0.134 (NS) |
| 50-70 years | | 148 (55.2%) | 120 (44.8%) | |
| 70 + years | | 59 (61.5%) | 37 (38.5%) | |
| 30 – 50 years | Q.15 Have you ever asked the family member to wear mask? | 17 (47.2%) | 19 (52.8%) | 0.532 (NS) |
| 50-70 years | | 130 (48.5%) | 138 (51.5%) | |
| 70 + years | | 49 (51.0%) | 47 (49%) | |

DISCUSSION

The novel COVID-19 virus has resulted in an unprecedented and complex crisis within the short time since it was first detected in December 2019. Considering the novelty of the disease and the uncertainties associated with its pathogenesis, it is crucial to actively engage the population for managing the rapid spread. To date, there has been limited published data on patient's perception towards dental treatment in COVID-19 era. Understanding the perception is valuable considering the various amounts of exposure risks that exists in a hospital during their treatment visit.

The present study, which was done at the time of first wave of COVID-19 upsurge, assessed the level of general knowledge, protection measures, and viewpoint related to the COVID-19 among the patients toward the prosthodontic treatment. There was 70.5% male participation out of which 65.75% belonging to rural area. In general, the knowledge level was not satisfactory among the patients towards the dental treatment. All the participants were not comprehensively aware of the guidelines. As 50.5% of participants believe wearing mask can limit the spread of the COVID-19 infection. Therefore, it is advised to increase the awareness level for preventing measures the spread of disease. Only 2.5% of subjects had negative COVID-19 report which shows less realization towards spread of COVID-19 infection.

This finding suggests that educational measures should be considered in order to improve the knowledge of patients towards dental treatment. It is highly recommended to increase dentists and dental staff efforts to educate the patients. The use of short videos, charts, posters can help the dental clinics to convey the new measures of protection of the patients.⁹ Influence of social media in delivering the information plays an important role. Information delivered through these sources may not necessarily be accurate, resulting in misinformation about COVID-19 being spread among the public. Information spread through social media could be misleading which may create social paranoia.¹⁰ In this perspective, information obtained from scientific health authorities and health organizations should be relied and recommended as a main information source.

Only 79.5% of the participants believe that the dental treatment can be the mode of transmission. This shows the lack of knowledge regarding the COVID-19 spread. Among all the participants there were 19.1% of patients who wanted a tooth replacement even when there is no emergency hence the patients must be guided about the treatments that are considered as absolute necessary. 96.5% of the patients were aware about the COVID-19 symptoms however, 5.8% of the participants have experienced difficulty in breathing and loss of taste sensations. This is important in identifying the patients who are infected and controlling the spread of the disease. This finding is consistent with findings from previous studies about COVID-19. The most reported symptoms in this study were fever, cough, and shortness of breath.

In order to prevent the spread of suspected or diagnosed cases of COV-2, N-95 or equivalent or higher-level respirator is recommended along with the other preventive measures like social distancing, hand washing, surgical masks, face shields, gowns, and gloves.^{11,12} It is challenging to accurately assess patient behaviors as they are subject to the individual's perspective on proper use. As discussed by Feng et al¹³ among people wearing masks, improper use, and neglecting to change disposable masks could actually jeopardize the protective effect and even increase the risk of infection. Consequently, patients who reported wearing masks may not be doing so in an optimally hygienic nature, thus the high practice scores in our study may not accurately represent the expected public health benefit if improper use was common. In light of these limitations, future studies can be aimed at focusing more on objective assessments to audit practice patterns of the patients, offering a more multidimensional measure of the success of awareness and education efforts.

As we are going through second wave of the outbreak, this information can be useful in terms of further precautionary measures to contain the spread of the infection.

CONCLUSION

To summarize, the present study was able to provide a comprehensive analysis of the patients towards the dental treatment in COVID-19 era. The findings suggest that although patients generally have an acceptable level of knowledge on COVID-19 and tend to be positive in their outlook on overcoming the pandemic, innovative awareness and preventive measures are urgently needed considering the high number of illiterate and elderly people in our study requiring prosthodontic treatment. Considering the possibility of a prolonged pandemic situation and associated secondary infections like mucormycosis or black fungus, possible third wave, consistent reinforcement of preventive guidelines from the government health authorities is essential to maintain strict adherence by the general public.

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