ORIGINAL RESEARCH

Knowledge, Attitude, and Practices among Patients Seeking Dental Care during COVID-19 Pandemic: A Questionnaire Survey

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Abstract

Aim: The study aimed to assess the knowledge, attitude, and practices (KAP) of patients seeking dental care during the coronavirus disease-2019 (COVID-19) pandemic among outpatients of Tamil Nadu Government Dental College and Hospital, Chennai, Tamil Nadu, India using a questionnaire survey.

Materials and methods: A short questionnaire survey, which consisted of 16 structured close-ended questions, was conducted among 350 dental patients from April 2021 to August 2021. Statistical analysis was performed using a statistical package for the social sciences (SPSS), version 22.0. All the associations were tested using the Chi-square test and the *p*-value was set at less than 0.05. Wilcoxon signed rank nonparametric test was used to compare dental anxiety before and during the pandemic.

Results: This survey showed that out of 350 patients examined, the overall knowledge of the participants regarding COVID–19 was 83.1; 63.5% displayed a positive attitude and 87.6% of participants demonstrated positive practice. Significance in KAP data was seen with respect to age, gender, education, and occupation with $p < 0.05$. There was a significant increase in dental anxiety during the pandemic (3.2 ± 3.4) when compared to the previous level (0.82 ± 1.78) with $p < 0.001$ evaluated by the numeric rating scale.

Conclusion: Keeping in view of the responses obtained from this study, the general and dental population can be encouraged to exhibit more positive behavior and knowledge through educational programs provided by the government or other organizations, which would help in winning the battle against COVID-19.

Clinical significance: Insufficiencies in knowledge, attitude, and practice regarding COVID-19 should be considered seriously and dealt with better through social media and various awareness programs. Analysis of dental anxiety before and during the pandemic gives an idea to the practitioner that the population must be encouraged to undergo treatment for all sorts of dental conditions by adhering to proper protocols.

Keywords: Attitude, Coronavirus disease-2019, Dental anxiety, Dental care, Knowledge, Questionnaire survey, Practice.

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Introduction

In late 2019, the world saw a viral outbreak of unrivaled scale that sent a major fraction of humankind into either quarantine or lockdown. Coronavirus disease-2019 (COVID-19) is a respiratory tract infection caused by the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) which was first recognized in Wuhan, China in December 2019;[1,2] COVID-19 was declared a global pandemic by the World Health Organization (WHO) in March 2020 which has created public health concerns and threatened the economy worldwide.[3] During the late 2020s, the emergence of variants that posed an increased risk to global public health promoted the characterization of specific variants of interest (VOIs) and variants of concern (VOCs) to prioritize global monitoring and research. Currently, there are two VOIs (Lambda, Mu) and four VOCs (alpha, beta, gamma, delta, and omicron) in the WHO.[4]

Considering COVID-19 its transmissibility and potential to progress to severe respiratory failure, can be a serious concern to healthcare providers and the public.[2] Interpersonal contact occurs through respiratory droplets and contact transmission. The key to controlling the spread of a virus depends on the individual's preventive measures and adherence to public guidance. Studies have indicated that public adherence to disease prevention is influenced majorly by their levels of knowledge, attitude, and practices (KAP).[5–7] The inherent characteristics of aerosol involvement in the dental setup could lead to a high risk of cross-infection between dental practitioners and patients.[8,9] The COVID-19 has challenged health professions and the general public and has evoked different reactions and responses around the world.[10]

The generation of splatter and aerosols during dental procedures has a greater risk of airborne respiratory infections.[7] Routine dental care has been deferred in countries experiencing COVID-19 disease during the period of pandemic.

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A plethora of information and myths prevail among the public in relation to a current pandemic, which may influence their decision to seek and undergo dental care. Several studies have evaluated the KAP of the general population regarding the COVID-19 outbreak.[1,2,5–8,11–18] The present study aims to evaluate the patient's knowledge and attitude regarding COVID-19 and its transmission, cross-infection in dental clinics, and their anxiety towards seeking dental care.

Materials and Methods

Study Design and Population

A short questionnaire survey was conducted among 350 patients reporting to Tamil Nadu Government Dental College and Hospital, Chennai, Tamil Nadu, India. Sample size was selected in accordance with previous literature.[13] The selection criteria include patients of 18 years and above of both genders who consented to participate in the study. The participants were informed that their participation was voluntary and that the information provided by them would be confidential with only the principal investigator having access to the data. Ethical approval from the institutional ethical committee (IERB Reference No. 4/IERB/2021) was received in March 2021, and the purpose of the study was clarified. The questionnaire was pilot-tested among 20 participants in both languages (English and native language – Tamil) to ensure the practicability, validity, and interpretability of questions. Based on the pilot study, inappropriate and unrelated questions were modified or removed to make the survey more relevant.

Methodology

A questionnaire survey conducted to study the KAP among dental patients was conducted from April 2021 to August 2021 during the second wave of COVID-19 in India. Patients were selected at random and were interviewed in person with a validated questionnaire which consists of 16 structured close-ended questions pertaining to general and dental awareness, attitude, and practice in the current pandemic situation. The questionnaire comprised four sets of questions: The first set dealt with sociodemographic information of participants which included age, gender, educational background, and occupation, the second set, the knowledge of subjects regarding the COVID-19 outbreak; the third assessed the attitude of respondents; and the fourth involved the practices of participants regarding COVID-19. Demographic data was grouped according to the modified Kuppuswamy socioeconomic status scale which includes parameters such as education, occupation, and income.[19] The items of the KAP questionnaire were indexed based on the responses of the patients. Dental anxiety before and during the pandemic was evaluated using a simple numeric rating scale (NRS) of scores from 1 to 10.[20] Data were expressed as proportions and percentages (%).

Statistical Analysis

Statistical analyses were performed using SPSS version 22.0. All the associations were tested using the Chi-square test and the Wilcoxon signed rank nonparametric test was used to compare dental anxiety before and during the pandemic. The significance level was taken as $\alpha = 0.05$; therefore, a difference or association with *p*-value below 0.05 was considered statistically significant.

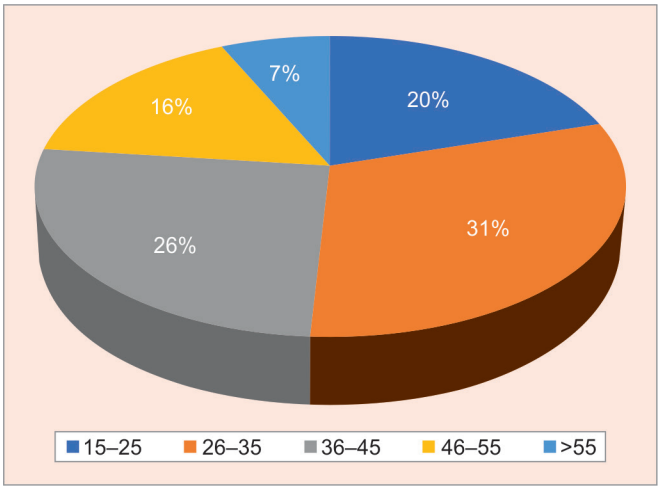

Fig. 1: Distribution of age of respondents, $N = 350$ (in percentage)

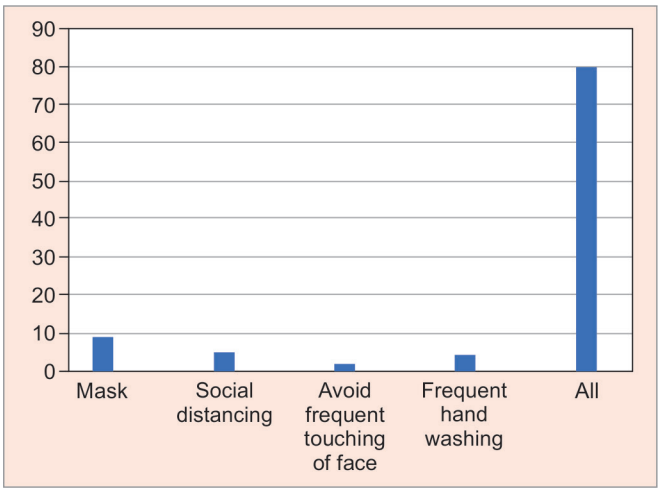

Fig. 2: Distribution of knowledge about measures advised to prevent the spread of infection among the participants (%)

Results

Demographics

In the survey, the maximum respondents were in the age group 26–35 years (31%) (Fig. 1), females were relatively more than males (59.5 vs 40.5%), 36% were graduates and 52.3% were unemployed.

Knowledge about COVID-19

The overall knowledge score (correct answers) of the participants in the survey was 83.1% according to the knowledge-based section of the questionnaire. Of the 350 participants surveyed, 346 (99.1%) knew the disease was caused by a novel coronavirus (SARS-CoV-2); whereas 0.9% were not sure about it. Similarly, nearly 61.5% were aware of COVID-19 symptoms—fever, dry cough, body ache, loss of taste and smell, and respiratory disorders in severe conditions. Based on the responses of participants, 89.5% of them believe that the disease could be spread by coughing or sneezing. Nearly 80% of respondents were aware of the measures advised to prevent the spread of the virus as shown in Figure 2. A very low percentage of participants (24.5%) were aware that certain dental treatments

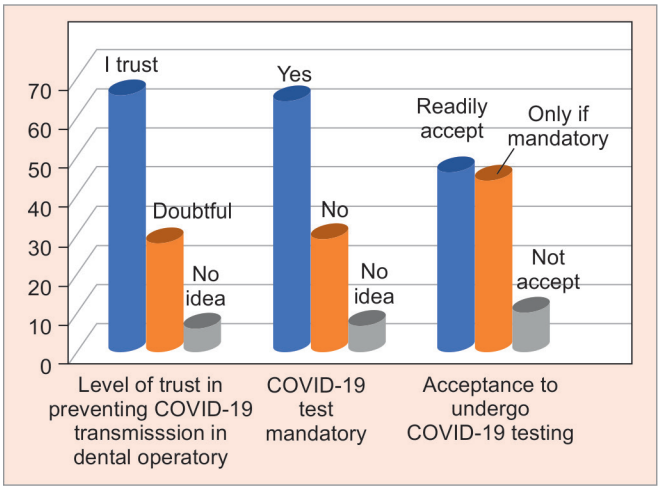

Fig. 3: Distribution of responses with regard to general awareness and acceptance of the participants (%)

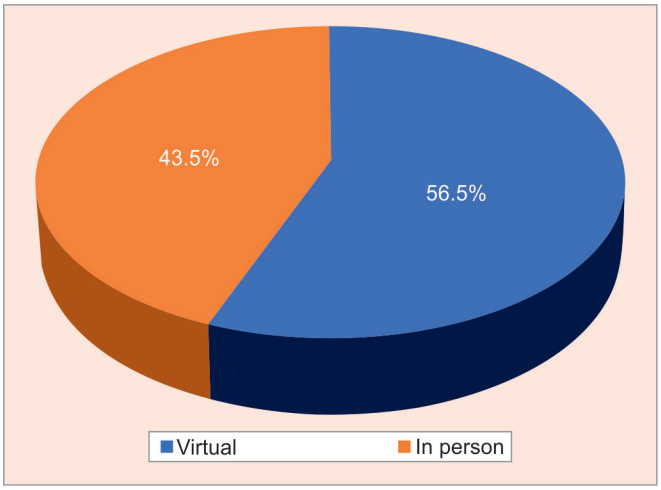

Fig 4: Distribution of respondents of participants in favor of teleconsultation (%)

involve aerosol generations and the respiratory diseases such as COVID-19 could be transmitted through aerosol.

General Awareness and Acceptance Towards COVID-19

When asked about awareness and acceptance to undergo dental treatment 35% were not aware of the chance of COVID-19 spreading through dental treatment. Also, 49% of participants believe that the risk of contracting COVID-19 through dental hospitals is less than that of public places owing to the sanitary conditions during a pandemic. The majority of the population (63%) trust that proper protocols are being undertaken to prevent the transmission of infection in the dental operatory as shown in Figure 3.

Attitude of COVID-19 Pandemic

It was found from the survey that 56.5% believe that covid testing is mandatory before dental treatment whereas only 37.5% of participants were readily willing to undergo it as shown in Figure 3. When asked about their preference to undergo dental treatment 55% were willing to undergo it for emergency as well as painful conditions whereas 6% were willing to take over-the-counter painkillers and wait till the current situation becomes normal. Nearly 56.5% were in favor of virtual consultation through teledentistry as shown in Figure 4.

Practice Towards COVID-19 Pandemic

Even though a large portion of participants (80%) were aware of the measures advised to prevent the spread of the virus only 34% followed them which included wearing masks, social distancing, avoiding frequent touching of the face in public places and frequent hand washing. The majority of the respondents (67%) were in favor of using cloth mask and only 24% followed social distancing of 6 feet.

Analyzing Dental Anxiety before and during Pandemic

After evaluating anxiety levels before and during a pandemic, it was found that there was a significant increase in anxiety levels during COVID-19 pandemic with respect to age, education, and occupation as shown in Table 1. The mean dental anxiety before the pandemic was 0.82 ± 1.78 and there was a significant increase during the pandemic 3.2 ± 3.4 with $p < 0.001$.

Table 1: Comparison of dental anxiety before and during the pandemic measured using the numeric rating scale

Dental anxiety	*Mean ± SD*	*Median (IQR)*	*p-value*
Before pandemic	0.77 ± 1.68	0 (0)	<0.001
During pandemic	3.63 ± 3.54	4 (6)	

IQR, interquartile range; SD, standard deviation

Significant Association between Knowledge, Attitude, and Practices Scores and Demographic Data

Significance in KAP data was seen with respect to age, gender, education, and occupation. In the age group between 26 and 35 years 96.2% gave correct responses regarding spread of coronavirus ($p = 0.003$), 74.2% were aware of symptoms associated with COVID-19 ($p = 0.001$), 95.3% were aware of measures advised to prevent the spread of infection ($p = 0.002$) whereas only 46.8% followed them; 38.7% do not think that there is chance of COVID-19 spread through dental procedure. With respect to gender 86.7% of females compared to 70% of males were aware of all measures advised to prevent COVID-19 spread ($p = 0.001$); 41.7% females compared to 22.5% of males follow all measures advised to prevent COVID-19 spread ($p = 0.004$). 36% of males compared to 23% of females were willing to undergo all sorts of dental treatment, both emergency as well elective procedures ($p = 0.001$). The participants with higher education had higher COVID–19–related knowledge. With respect to education, 96.2% of postgraduation-completed population were aware of the spread of the coronavirus through coughing/sneezing with $p < 0.004$; 77.4% of undergraduation-completed population were aware of measures advised to prevent the spread of COVID-19, whereas only 38.9% follow them; 66.7% of the high-school-completed population prefers to wear cloth masks, with $p < 0.001$. Also, 62.9% prefer to undergo treatment for emergency as well as painful conditions.

Discussion

Pandemics and epidemics are periodic phenomena, and the communities of the affected regions face various challenges during the current period. Lack of knowledge and awareness generally

leads to indifferent attitudes and inappropriate practices.[11,13] So, the present study was carried out to assess the KAP of the dental population reporting to Tamil Nadu Government Dental College and Hospital, through a questionnaire survey. The analysis showed that knowledge and general awareness were significantly higher in the following groups: Females (76%), the age group 26–35 years (81%), postgraduates (84.4%), and professionals (85.5%). In comparison to this survey, a study by Erfani et al. delineated total knowledge scores as 90% and were significantly associated with age, occupation, gender, marital status, cohabitating or living solo, and education level.[14] Another study by Asraf et al. showed knowledge scores in the range of 60–98.7% in a survey among the Nepalese population.[15] In an another study in the Chinese language by Zhong et al. among the general population, overall knowledge (90%) exhibited a strong correlation with gender, marital status, age, place of residence, and educational level.[5] Ranjan R, Ranjan GK found an overall knowledge score about COVID-19 prevention was 95.1% in selected areas of India.[16] A satisfactory score of knowledge (83.1) in the dental population of Tamil Nadu Government Dental College could be the result of awareness through media, government, and different organizations. Another major reason for a relatively high knowledge level could be the active participation of a well-educated population, by acquiring knowledge from authentic resources. When comparing knowledge among the population on the basis of education qualification, 100% of postgraduates gave correct responses with respect to a few questions regarding knowledge and general awareness. Previous studies of Erfani et al.[14] and Zhong et al.[5] also established a positive correlation of COVID–19–related knowledge with educational level.

The overall score of COVID-19 related to positive attitudes in the study population was obtained as 63.5%. Also, this analysis showed that general awareness and maximum positive attitude were higher in females (65.4%) compared to males (56.2%) and were significantly correlated with other sociodemographic attributes. However, compared with the Chinese study, positive attitude scores were lower. The Chinese population exhibited attitude scores of more than 90%. In the study by Zhong et al., most of the participants (90.8%) reported having confidence that their government had successfully controlled the spread of COVID-19 and would be able to win the battle against it.[5]

The majority of participants (87.6%) demonstrated positive practice; nearly all, that is, 99% of participants reported that they preferred to maintain social distancing to avoid infection from COVID-19. Among most of them preferred to maintain a distance of 3 feet (56%) and a smaller percentage (22%) preferred to maintain 6 feet. Most of the respondents preferred to wear a mask when leaving home (96.8%), with cloth masks being most used (76%). Nearly 67% followed all measures to prevent the spread of infection which included frequent hand washing and refrain from touching the face in public places. These positive practices and measures were significantly related to demographic factors. However, 3.2% of participants reported not using masks in public places, Positive practices observed in our survey were similar to Iranian population (89%), as reported by Erfani et al.[14] and study by Zhong et al.[5] which reported that 98.0% of participants were wearing masks when going outside and 96.4% had not gone to any crowded area. The positive practices in populations could be primarily the result of strict measurements by the government in the form of lockdowns and prohibitions on people gathering.

Dental fear and anxiety are significant problems that affect the general population and create challenges in dental management. Considering that the COVID-19 pandemic, along with its associated sanitary regime which includes social distancing measures and nationwide quarantines, can induce public fear especially in children. Hence, it is necessary to explore whether this situation can potentially affect the emotional state of dental outpatients facing a need for emergency and elective dental intervention.[21,22] The present study assessed the dental anxiety of patients before and during the pandemic. The NRS of scores 1–10 was adopted, as it was a simple, less time-consuming and reliable tool.[20] The mean increase in dental anxiety during the pandemic as obtained in the current study can preferably be attributed to fear of COVID-19 transmission during dental procedures.

Conclusion

Based on our assessment of the structure and content of the KAP questionnaire, this tool has an acceptable structure and format for evaluating the knowledge and attitude of patients seeking dental care during COVID-19 pandemic. Keeping in view of the response obtained from this study, the general and dental population can be encouraged to exhibit more positive behavior and knowledge through educational programs provided by the government or other organizations. To the best of our knowledge, this is the first study in South India to investigate the KAP towards COVID-19 amongst the patients seeking dental care during this pandemic situation. In this survey, only 29.5% of the population are willing to undergo elective procedures which highlights that the population must be encouraged to undergo treatment for all sorts of dental conditions by adhering to proper protocols. After evaluating anxiety levels before and during the pandemic it was found that there was a significant increase in anxiety level during COVID-19 pandemic. Thus, there is a need for the motivation of the population to a better extent to follow the safety precautions to break the chain in effective manner. This underscores the fact that we have the additional responsibility to alleviate the patient's anxiety while rendering treatment in the current pandemic. There is an immense need to create awareness among the population on teledentistry as the future lies in technological advancement.

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