


Emotional Health Status of Postgraduate Students of Periodontics in India During COVID Health Crisis—A Questionnaire-Based Study

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Abstract

Dental students, especially postgraduate students present a higher risk of getting infected because of their close contact with the patients during this pandemic. The objectives of the study include (a) the reasons for postgraduate students' altered emotional status during coronavirus (COVID-19) infection. (b) To assess the kind of infection protocols adopted. (c) To assess the impacts of postgraduate students' emotional status on treating patients with periodontal problems during the COVID-19 lockdown period from March 2020 to December 2020. The emotional status of postgraduate students was assessed in 2 phases that are at the initial phase of COVID infection and lockdown and the second phase when the lockdown was prolonged. Questionnaires were distributed to the Postgraduate students of periodontics all over India to assess their level of awareness of COVID infection, type of infection control measures followed during the pandemic period, as well as the outpatient turnout during the lockdown period. Results of this study stated that more than 80% of students addressed the decline in the number of patients to surgical clinics, 76.3% of postgraduates were worried about themselves and their families due to the pandemic situation. Surprisingly, 74.3% of them even worried about losing their expertise or skills due to a long lockdown period. Dental postgraduates all over India are willing to treat their patients during the period of a pandemic but in strict compliance with infection control guidelines. This study assessed the emotional responses of the postgraduates during the pandemic through the questionnaire and concluded that all the professionals are ready to resume their clinical activities with adequate guidelines provided.

Keywords

COVID 19, pandemic, emotional intelligence/psychological distress, periodontal diseases

Introduction

The alarmed and panic-stricken coronavirus infection (COVID-19) in China has affected every facet of life globally, and the World Health Organization (WHO) announced it as a sensible full-scale pandemic issue. Most health care services in almost all the nations were indeed put on hold at the peak of the pandemic, however, most clinical services are picking up in most nations including India (1,2)

Precisely, Periodontics department postgraduates perform treatment procedures related to aerosol splashing from the patient's oral cavity that makes them be in close contact with patients (3,4). Studies have shown that specialists from periodontics are at a higher risk of getting infected

from patients and presumably spreading it to their friends, families, and various patients (5).

Under these conditions, periodontal specialists ought to build up a worry of being contaminated by their patients. Fear and anxiety are the critical factors that influence the treatment outcome and performance of postgraduate students (6). Because of the rapid spread

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of COVID infection, the Dental Council of India (DCI) featured issued vital guidelines to be followed by dental specialists and the quality all-inclusive infection control precautionary measures before starting any treatment procedures.

Even though the DCI has uncovered preventive tips, the vast majority of the dental specialists are hesitant and feel afraid of treating patients, especially treating periodontal problems, by the postgraduate students.

The pandemic has variable emotional impacts on all the professions. It is essential to know its emotional implications for dental care professionals during and postpandemic, and the measures they have been taken to resume their practice (7).

That's why we've directed a survey-based investigation on the emotional status of postgraduates of periodontics, their knowledge and attitude on infection control measures, as well as measures to assess the impact on providing treatment procedures and the guidelines followed educate and motivate postgraduates to render clinical activities in India's dental institutions.

Methodology

A cross-sectional online questionnaire survey, conducted between 2020 March to 2020 December among the Periodontology departments postgraduates students in Indian dental schools.

The questionnaire consisting of questions related to the outpatient turnout and their emotional status assessed at the

initial stages of the COVID-19 pandemic. The other half of the questionnaire assessed their preparedness in resuming clinical work in the department of periodontics and the type of infection control measures followed at the resumption of clinical activities.

To assess the emotions of postgraduate students at the initial and late stages of lockdown where postgraduate students were worried for different reasons, we followed the modified Differential Emotions Scale given by Fredrickson with 0 to 4 scores (4 being the highest score for an emotional change). We assessed the emotions of postgraduates with 5 questions each in two stages. (Table 1) (8).

We followed the preparedness model provided for the provision of dental care during the COVID-19 pandemic by the WHO Information Network for Epidemics. With the help of the guidelines provided by the DCI and the university guidelines, most of the postgraduates up to 78% were ready and prepared for rendering periodontal care (9).

The questionnaire was based on information, awareness, communication on COVID-19, developing awareness and understanding of COVID-19, inferring risk perceptions about COVID-19, and performing oral hygiene care or treatments. (Table 1 and Table 2)

Validating questionnaire: Validation was done by 2 steps, 1. having the experts in the field evaluate the questionnaire and common errors, confusing and leading questions were eliminated from the questionnaire. 2. Doing a pilot study in a sample of 20 responders and evaluating the responses statistically.

Table 1. Demonstrate Postgraduate's Emotional Status Levels and Impact on Out-patient Statistics.

Study characteristics	Impact on postgraduates in percentages
Response to the feedback	The 48% of postgraduates student's responded
Age	Between 22–41 years, with highest numbers between 25–27 years (70.1%).
Gender	The 120 were females (62.83%), and 71 (37.17%) were males.
Change in patients psychological conduct	The 87% of postgraduates observed a change in the patient's psychological conduct.
Change in behavior of patients towards nonemergency	The 85% of the patients did not show any interest in nonemergency treatments.
Postgraduates emotional status impact on treating patients	The 90% of postgraduates reacted that there will be a negative impact on treating patients during the pandemic.
Cause for the altered mental health status of postgraduates	The 51% without COVID confirmatory test, 29% without PPE, 20% handling cases with long exposure time
Emotional level and impact on family members	The 76% worried about them and their family and thus impeded in treating patients. 24% were not worried about treating patients even in the pandemic.
Cause for not performing surgeries during the lockdown	The 76% of postgraduates felt that performing surgeries during the pandemic was a risk/unsafe.
Impact of COVID on the outpatient department	The 56% reported a decline in the number of cases more than 50 percent of the regular OP (Outpatient), 31% reported a decrease but not more than 50 percent of the regular OP (Outpatient).
Impact on the number of surgical cases	The 89.5% observed an absolute decrease in surgical patients; 10.5% observed no reduction in surgical cases.
Impact on the surgical skills of postgraduates	The 74% worried about losing their surgical skills due to the long lockdown period, whereas 26% were not worried about losing their expertise.
Expected normalcy from the present pandemic?	The 46% expected normalcy in 6 months, 42% in one year, 12% more than a year.
Impact on the work quality after freeing from lockdown	The 74% reported that there would be an impact on work quality due to long lockdown period

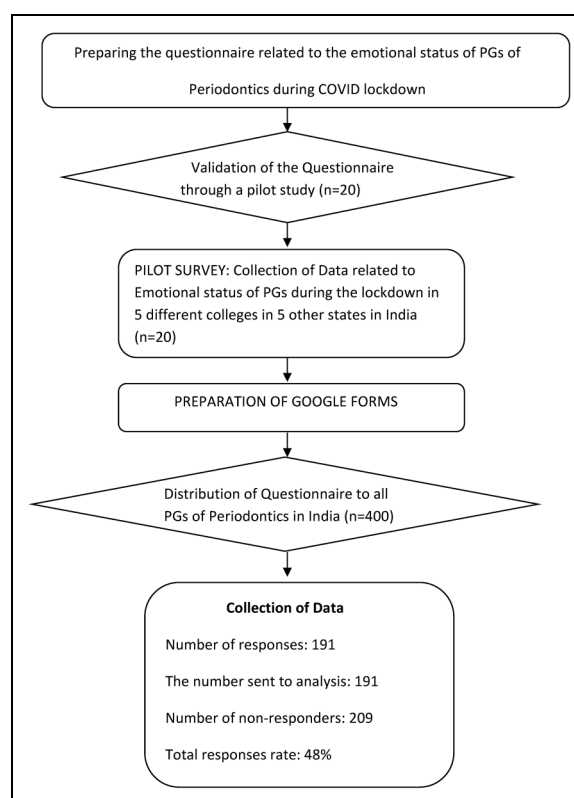
Table 2. Demonstrate Infection Control Measures Followed and the Characteristics of Resuming Treatment Procedures After Freeing From Lockdown.

Study characteristics	Measures followed for infection control and types of treatments resumed after freeing from lockdown
Personal protection guidelines by organization	The 73% of students received cautious advances from their institute/organization
Impact of PPE on performing the treatment	The 69% raised difficulty in performing treatment with PPE
Restriction to nonsurgical therapies	The 84% restricted to nonsurgical periodontal therapies
Hand scaling or ultrasonic scaling?	The 64% of postgraduates were limited to hand scaling, and 36% performed ultrasonic scaling in pandemic
Opinion on long patients exposures during scaling	The 83.5% of postgraduates reported that long patients exposures during scaling were at more risk
Role of adjunctive therapies on plaque control during the lockdown	The 88% said that adjunctive use of mouthwashes is more useful for plaque control during the pandemic.
Readiness towards surgical procedures	The 78% of postgraduates were ready to perform surgical procedures by following infection control measures.
Was there any need for mucogingival surgeries	The 39% of postgraduates emphasized the need for mucogingival surgeries
Was there any need for convincing patients towards mucogingival procedures during a pandemic?	The 46% of postgraduates convinced the patients for esthetic mucogingival procedures

Permissions from the institutional review board were, obtained with IECVDC/20/F/PI/Q/08. "The human subjects ethics board approved this study and it was conducted per the Helsinki Declaration of 1975, as revised in 2013."

The data collected for the study purpose was on the postgraduate student's experiences and their difficulties during pandemic situations. The students' responses on their emotional status and the type of infection control measures followed while treating patients during COVID lockdown were assessed through Google forms. A questionnaire was forwarded to all the postgraduates of periodontics through Whatsapp groups, namely all India Perio PGs (Postgraduates) groups.

The responders could view the questions basically by entering the provided link for the Google forms and answering the questions. On the first page of the survey a brief overview of the purpose of the study, voluntary nature of participation, and statements of confidentiality and

**Figure 1.** Flow chart sequence of the methodology followed.

anonymity were explained before obtaining consent for participation. Duplicate responses were deleted to avoid bias. The steps followed to collect the data are explained through the flow chart diagram in Figure 1.

Statistical Analysis

Representative and convenience sampling was done to invite postgraduate students to participate in the survey. Based on the given target population of 400 periodontics specialty postgraduates, it was calculated that 197 participants would be required to achieve a 95% confidence interval and 5% of margin of error. Representative and convenience sampling was done to invite postgraduate students to participate in the survey.

The participants of the study responded to the survey anonymously, and the data was stored in the hosted online survey service. Descriptive data analyses were conducted using the data analysis tool provided in the online survey site. Statistical analysis was done using SPSS 22.0 software.

Results

A total of 191 postgraduates responded to the Google forms out of 400 questionnaires forwarded online to Whatsapp group members of All India Perio PGs (Postgraduates). The response rate was 48% and within the acceptable degree for

online survey responses, according to Funkhouser, Vellala, Baltuck, et al., 2016 (10). All the answers were based on the following variables: Demographics, student's emotional status, impact on outpatient statistics, infection control methods, the impact of postgraduate anxiety on performing periodontal treatments during the lockdown.

Participants Demographics

Out of 191 participants, 120 (62.83%) were females, and 71 (37.17%) were males from the department of periodontics all over India. All the postgraduates were between the age group of 22-41 years, with the highest numbers between 25-27 years (70.1%). All the participants were from 17 different states, with maximum responses from south Indian states up to 68.8%.

The Emotional State of Postgraduates of Periodontics

During the lockdown period, 87% of postgraduates observed a change in patient's attitudes, and it was shown through the 15% of patients attending clinics when there was an emergency. 85% of the patients did not show any interest in non-emergency treatments.

Out of all the participants, 76% of postgraduates worried about them and their families getting infected with COVID infection and thus impeded treating patients or rendering services during lockdown period. The main reasons behind not attending lockdown cases were due to the number of patients (51%) attending clinics for dental treatment without COVID confirmatory test, 29% due to the unavailability of PPE (Personal Protection Equipment), 20% handling surgical cases with long exposure time. 76% of postgraduates felt that performing surgeries during the pandemic was a risk/unsafe, and 90% of postgraduates reacted that there will be a negative impact on treating patients during the pandemic.

Impact on Out-patient Statistics & Treatment Procedures

Among all the participants, 56% of postgraduates reported a decline in the number of cases which was more than 50% of the regular outpatient turnout. Whereas 31% reported a decrease but not more than 50% of the regular outpatient turnout, and 13% said that there was no noticeable reduction. Among all, 89.5% of postgraduates observed an absolute reduction in surgical cases, 10.5% observed no reduction in surgical patients. Due to the long lockdown period, 74% of postgraduates were concerned about losing their surgical skills, whereas 26% were not worried about losing their expertise. Among all the postgraduates, 74% reported that there would be an impact on work quality due to the long lockdown period. However, 46% expected normalcy from the pandemic in 6 months, 42% in one year, 12% more than a year.

Infection Control Measures & Treatment Procedures Performed After Lifting Lockdown

All the Indian dental institutes followed the guidelines published to date by the WHO, the Center for Disease Control and Prevention (CDC), and India's Government on the COVID-19 pandemic. Among all the study participants, 73% of students received cautious advances from their institute/organization, and there was strict adherence to all the guidelines after resuming the clinical activities.

However, 69% raised difficulty in performing treatment procedures initially with PPE (Personal Protection Equipment). In the initial stages of lockdown, 84% of postgraduate students were restricted to nonsurgical periodontal therapies, and only 16% proceeded with surgical treatment.

Out of 191 students, nearly, 78% of postgraduates were ready to perform procedures by following infection control measures. And 46% of postgraduates convinced the patients for esthetic mucogingival procedures after the exit from lockdown. All the study characteristics with their impact in percentages are tabulated in the following Tables 1 and 2.

Discussion

Emotion is an integral part of human existence which plays an important role in everyday life. Research on the emotions field has increased significantly over the last years especially during COVID that affects mental health.

COVID-19 is the ongoing outbreak of respiratory disease which created panic in the entire world, had slowly groveled, and is spreading at a faster pace in our country. This pandemic affected all the professions, with no exception to the dental field. Dental professionals are at a high-risk of exposure to this viral infection. Hence, there is anxiety in almost all the students and faculty/clinicians all over the country (1,2).

The emotional status of postgraduate students was different in two phases for different reasons. One among the two was the assessment of the emotional status of postgraduates towards the COVID infection and the reasons for avoiding periodontal care, especially surgical care during the pandemic. The emotional status of postgraduates was altered in the second phase and it was due to the fear of losing their academic year, losing their surgical skills, and also worried about timely finishing of their quota of surgical and nonsurgical cases according to the curriculum.

During the lockdown period, 87% of postgraduates observed a change in patient's psychological conduct and 85% of the patients did not show any interest in non-emergency treatments. 76% of postgraduates felt that performing surgeries during the pandemic was a risk/unsafe, and 90% of postgraduates reacted that there will be a negative impact on treating patients during the pandemic.

Out of all the participants, 89.5% of postgraduates observed an absolute reduction in surgical cases, 10.5% observed no reduction in surgical patients. Due to the long

lockdown period, 74% of postgraduates worried about losing their surgical skills, whereas 26% were not worried about losing their expertise. Though 73% of students received cautious advances from their institute/organization, and they followed all the instructions with caution, 69% raised difficulty in performing treatment procedures initially with PPE (Personal Protection Equipment).

The first and foremost important response in Indian dentists during the pandemic was fear and sense of contact with the virus as they were in close contact with the patient's oral cavity and airborne droplet infection is the primary source of viral transmission. This fear of close contact has become more concern for all the postgraduate students of periodontics working during the pandemic situation. These measures are on per Ibrahim et al., 2017 and Mehtar et al., 2007 (11,12).

This questionnaire-based survey provided an insight into Indian postgraduate students' attitude of periodontics on infection control during the COVID-19 outbreak in 2020. All the postgraduate students were worried about the practice initially during the lockdown period due to the dental profession's high-risk expectancy. WHO, the CDC, and India's government have provided certain protocols to be followed for the sustained transmission and the spread of this infection. Use of various personal protective equipment, social distancing norms, in-office guidelines, and at-home remedies provided by these organizations. Various studies conducted all over the country related to the pandemic and emotional status of clinicians. Of all the research studies, this study is unique, where Postgraduates of Periodontics specialty all over the country was taken into consideration. Almost all the postgraduates were ready to work in the pandemic and the response frequencies of this study results conform with Baseer et al., 2016 (13).

The 56% of postgraduates reported a decline in the number of cases, more than 50% of regular outpatient statistics, 31% reported decline but not more than 50% of regular outpatient statistics. 89.5% of postgraduates observed an absolute decrease in surgical cases during the pandemic alert. These results are per (American Dental Association) ADA recommending dentists postpone elective procedures in 2020 (14).

Most of the postgraduate students were restricted to nonsurgical periodontal therapies, with only a few surgical therapy procedures. More than half of the postgraduates working during the pandemic were limited to hand scaling and mouth-washes for plaque control during the pandemic. Interestingly, all the patients delayed nonemergency treatments in the entire period of lockdown, and these results are per Checchi et al., 2020 and Hanie Ahmadi et al., 2020 (15,16).

Though the COVID-19 pandemic created panic and worries for Periodontology, postgraduate students are ready to perform all the clinical procedures by following the WHO, CDC, and Government of India on the COVID-19 control. These responses of postgraduates are per Nibali et al., 2020 (17).

Mohd Fadhli Mohd Fauzi et al. in 2020 conducted a study to estimate the level of doctors' fatigue, recovery, depression,

anxiety, and stress, and exploring their association with work demands and recovery experiences in 1050 doctors. Participants reported a higher acute fatigue level. The majority of them had no depression (69.0%), no anxiety (70.3%), and no stress (76.5%). Emotional demands were positively associated with acute fatigue, chronic fatigue, depression, anxiety, and stress, while relaxation experiences were negatively associated with acute fatigue, chronic fatigue, depression, anxiety. Emotional level and impact on postgraduates in this study showed contradicting results with 76% worried about them and their family and thus impeded in treating patients. Only 24% were not worried about treating patients even in the pandemic (18).

The study conducted among 1,085 Israeli adults (aged 18-96) reported high levels of emotional reactions to COVID-19. Most respondents were worried (77.4%), afraid (62.8%), or stressed (55.3%). Emotional reaction scores were higher among women than among men. In the regression model, emotional reactions were higher for older participants, those who rated their subjective health status as poorer, and those who were employed, with the final model explaining 11.6% of the variance in emotional reactions. The responses of this study are in conformation with 76% worried, and afraid postgraduates about them and their family and thus impeded in treating patients (19).

Mijiritsky et al. conducted a cross-sectional study to explore the relationship between psychological distress and subjective overload among dental staff from various countries where they found that the positive association between subjective overload and psychological distress was different among countries, suggesting a higher association in Italy in comparison to China, India, and Israel. In this present study, 87% of postgraduates observed a change in the patient's psychological conduct and 85% of the patients did not show any interest in nonemergency treatments (20).

The COVID-19 pandemic has driven significant changes to occur in the routine of periodontists in both Brazil and the United States. The main factors associated with the perception of periodontists of the impact of the COVID-19 pandemic on clinical practice were the financial effect of the pandemic and the intensification of hand-washing habits. Such consequences were more impactful among periodontists working in the public sector and academic institutions. The same factors also have an impact on Indian periodontists and the effect of the factors is per the study done by Rocha Gomes G in 2021 (21)

Despite having a high standard of knowledge and practice, dental practitioners around the globe are in a state of anxiety and fear while working in their respective fields due to the COVID-19 pandemic impact on humanity. Several dental practices have either modified their services according to the recommended guidelines to emergency treatment only or closed down practices for an uncertain period (22).

The majority of oral health workers felt concerned about their risk of exposure to infection and falling ill from exposure and infecting friends/family. There is a need for training

of infection control and PPE and minimizing fear and psychological impact on health workers should be the priority in any preparedness and planning for combating COVID-19. The guidelines introduced by the organizations are per the study done by Chaudhary et al., in 2020 (23).

In the light of COVID-19, dentistry is facing unprecedented challenges. The closure of clinics has impacted dental health professionals (DHPs) not only financially but also psychologically. Teledentistry is expected to play a very strong role henceforth in practicing safe and efficient dentistry. The dental institutions must focus on developing pandemic-management skills in the future DHPs so that they are ready to deal with adverse situations themselves, while also supporting their fellow medical professionals. The teledentistry approach which has been started and practicing at the same pace by the dental clinicians in India would help to overcome the problems of patients (24).

Implications of the Study

Though this study focused on only the descriptive characteristics of dental postgraduates during a pandemic, these have become of utmost importance in the present scenario because of the increase in the number of COVID cases in India. This study will theoretically help all the budding dental clinicians to follow the proper organizational guidelines to render treatment services. The study responses proved that all the post-graduate studies resumed their clinical duties even during COVID lockdown and unlock periods, with proper infection control measures. Furthermore, longitudinal studies are required to prove the correlation and effects of COVID infection on the emotional status and general health status of doctors.

Conclusion

COVID-19 created a panic and several challenges among all the dental clinicians. There was no exception to the profession of periodontics and implantology. The questionnaire used in this study assessed the professional responses towards periodontal practice by following infection control measures provided by the DCI and concluded that all the professionals are ready to resume their work after lockdown with no fear as we stepped into the “new normal.”

Declaration of Conflicting Interests

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