



## Original Research Article

## Practice related concerns among private dental practitioners of Kerala during COVID 19 pandemic - A cross sectional study

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## ABSTRACT

**Background:** The sudden outbreak of Covid 19 resulted in serious financial challenges and implications among private dental practitioners. Even though dental practitioners are now trying to retrieve back to pre-Covid state, concerns persist since Covid cases are unpredictably peaking every now and then.

**Materials and Methods:** This cross-sectional questionnaire-based study was conducted among 497 private dental practitioners of Kerala to assess the clinical, psychological, and financial concerns during COVID-19 pandemic. Questionnaire was circulated through IDA official Whats App groups as online google forms. Data so obtained was entered and analysed using SPSS trial version 21. Qualitative variables were expressed in proportions. Association of domains with sociodemographic characteristics were assessed using Chi Square test.

**Results:** Main clinical concern reported by 52.3% of participants was transmission of infection to family members, main financial concern of 66.2% of participants was reduced income from practice, and 25.8% of the participants reported 'lot of stress'. It was found that practitioners with more than 10 years' experience had more clinical concerns, while those with less than 10 years' experience had more financial concerns.

**Conclusion:** Our survey highlighted the concerns of private dental practitioners of Kerala in their practice during the pandemic. It is expected that practitioners, enriched with the experience acquired during the recent outbreak will be able to efficiently redefine their scope of practice and adjust to new circumstances.

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### 1. Introduction

The sudden outbreak of Covid 19 had caused an emergency status in the health care community including dentistry. It resulted in serious financial challenges and implications among private dental practitioners. The virus mainly spreads through droplets while coughing, sneezing and salivary

contamination.<sup>1,2</sup> Dentists are at higher risk of contagion during their routine procedures due to the production of droplets and exposure to blood and saliva.<sup>3–6</sup> The risk of cross infection in dentistry is considerably high<sup>7</sup> since splatters and aerosols produced during routine dental treatments contribute to increased risk.<sup>8</sup> Use of hand gadgets and ultrasonic devices in dental clinics leads to formation of blood droplets and saliva<sup>9</sup> and this airborne material is supposed to spread at 18 inches from the operator site.<sup>10</sup> Due to the unpreparedness of dental sector, both

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in public and in private settings most of the dental clinics restricted their practice to emergency procedures alone during the early stages of outbreak to control the spread of the disease. Even though dental practitioners are now trying to retrieve back to pre-Covid state, concerns persist since Covid cases are unpredictably peaking every now and then. Hence this study is aimed to assess the practice related concerns among private dental practitioners of Kerala during COVID 19 pandemic.

## 2. Materials and Methods

This cross-sectional questionnaire-based study was conducted among private dental practitioners of Kerala who are members of Indian Dental Association (IDA) to assess the clinical, psychological, and financial concerns during COVID-19 pandemic. The questionnaire is in English language and consists of two parts. The first part of questionnaire focuses on sociodemographic details which includes age, gender, area of practice and work status, and the second part consist of three domains -financial, clinical, and psychological concerns. The response scale is multiple choice options and Likert scale along with a few open-ended questions. Subject experts validated the content of the questionnaire. Some questions were adapted from the study conducted by Ugo Consolo et al.<sup>11</sup> Ethical clearance was obtained from Institutional ethical committee (IEC No 16/IEC/GDCTSR/2021) and permission to conduct the study was obtained from IDA Secretary Kerala state. Questionnaire was circulated among private practitioners through google forms and IDA official Whats App groups and 497 participants across Kerala participated in the study. Informed consent was taken from each participant prior to data collection. Data was exported from Google spread sheet and statistical analysis was done using Statistical package of social sciences (SPSS) trial version 21. Descriptive statistics were expressed in terms of frequencies, and association of clinical financial and psychological concerns with sociodemographic characteristics were assessed using Chi Square test.

## 3. Results

Out of the 497 respondents 53.7 % were males. The age of the participants range between 24 to 75 years. Two hundred and forty-five respondents were BDS graduates while 252 respondents had at least one higher degree added to BDS. 45.5% of the respondents' spouse were dentists. 41.9% of the respondents had professional experience of more than 15 years, while 16.5% had clinical experience of less than 5 years.

334 (67.2 %) participants had their own clinic. Amongst 334, 100 (47.1%) participants also went for consultation/ salaried job in a hospital/ worked as a faculty in private colleges. Only 37(7.4%) participants were working as

visiting consultants. 61.6% of the participants were from urban areas and remaining from rural areas. 369(74.3%) participants work in multispecialty dental clinics with more than one dental chair. Only 99(19.9%) participants work in single chair clinics alone while the remaining participants work in both single chair and multiple chair clinics. More than five staff were employed in 85(17.1%) dental clinics of our study participants. 13.9% of the study participants had at least some medical history that puts them at increased risk for infection while 81.5% of the participants provided emergency dental care during lock down.

### 3.1. Financial issues faced by the study participants during COVID-19

378 (76.1%) participants did not receive any financial support during lockdown while 48 (9.7%) participants had the privilege to defer the payment of existing loans for a few months. Five (1%) participants reported that they were provided with a reduction in interest rates for the loans. Six (1.2%) participants got waiver of loans and 88(17.7%) participants were provided with rent discounts by the building owners. 84.3% of the participants depended on clinical income for their daily bread and butter. 69% faced financial difficulty to meet clinical expenses.

The various help provided by professional bodies like IDA according to 340 participants are as follows: IDA supplied materials such as PPE kits, face mask and sanitizer when there was an acute shortage, put forth COVID related protocol and guidelines for practice and coordinated with state government for smooth dental practice, waived the annual membership renewal fee for the year 2021 and took care of providing COVID insurance to dentists. Only 157(31.6%) participants reported that professional bodies did not give any significant assistance during COVID-19. Other than financial support, IDA also conducted several webinars to create COVID related awareness in maintaining quality dental practice. A few local branches provided free sanitization of clinics during the first wave of pandemic. Also, IDA helped in ensuring vaccination of dental health care workers. Majority of participants (53%) reported that IDA helped them in increasing their COVID related knowledge and provided more mental and emotional support than financial support.

### 3.2. Clinical practice modifications by the study participants during COVID-19

413 (83.1%) participants implemented measuring patients' body temperature, hand sanitization, social distancing, wearing mask in waiting area, spaced appointments, proper ventilation, periodic disinfection of the waiting area, telephonic screening for symptoms and recording recent travel and contact history as a part of their routine practice. Only body temperature measurement, hand sanitization,

social distancing and wearing mask in waiting area was implemented by 31(6.2%) participants. Three (0.6%) participants implemented only telephonic screening for symptoms and recording recent travel and contact history.

The protective measures used during the pandemic and the modifications in clinical practice during COVID-19 are represented in Figures 1 and 2.

3.3. Clinical, financial, and psychological concerns faced by dental professionals

Main clinical concern reported by 52.3% of the participants were regarding transmission of infection to family members and main financial concern of 66.2% of the participants was reduced income from clinic/practice. 13.5% were concerned about job insecurity. 25.8% of the participants are feeling a lot of stress due to Covid and its effect on dental practice. The response of the participants to various psychological concerns are represented in Figure 3.

Association of the domains (clinical, financial, psychological) with gender, years of experience and qualification were assessed. When we assessed the association of clinical concerns with years of clinical practice, it was found that dentists with more than 10 years of experience had more clinical concerns regarding contracting Covid 19 infection, transmitting infection to family members and unable to provide adequate dental care as compared to their less experienced colleagues and this difference was found to be statistically significant with a p value of less than 0.05 (Table 1) but no statistical significance was noted between clinical concern with gender and qualification.

The association of financial concern with years of clinical practice showed that dentists with less than 10 years’ experience had more financial concerns, in terms of job insecurity while more than 10 years experience were concerned about modification of clinic and reduced income from practice and it was found to be statistically significant with a p value less than 0.05. The association of financial concerns with gender was also found to be statistically significant.

Females were more concerned about job insecurity while males were more concerned about modification of clinics and reduced income from practice. (Tables 2 and 3)

The psychological concerns of the study participants showed no statistical significant association with gender, qualification, and years of experience.

4. Discussion

Our study provides an insight into the impact of financial, clinical, and psychological concerns of private practitioners of Kerala during Covid 19. Data collection was done from October 2021 to December 2021, after the second wave of

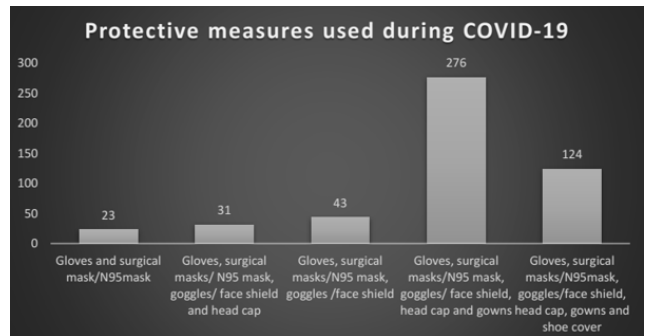


Fig. 1: Protective measures used during pandemic



Fig. 2: Modifications in clinical practice during the pandemic

Covid-19 pandemic in the country.

Covid 19 pandemic had a significant financial impact on dentistry. The main financial concern of 66% participants was reduced income from practice and this is applicable to the state of Kerala since participants from all branches of IDA were included in the study. A pandemic usually brings economic recession, which can be challenging and the financial impact this pandemic has imposed on dental practice will be experienced in both short and long term. It is important to note that 14 % of the total respondents and 67% of respondents with less than 10 years experience reported apprehension about job insecurity while it is 90% in the study among dental practitioners in Northern Italy.<sup>11</sup>

**Table 1:** Association of clinical concerns with years of clinical experience using Chi-square test

Clinical concerns	Clinical Practice Experience			P value
	> 10 years	< 10 years	Total	
Contracting Covid 19 infection	68 70.8%	28 29.2%	96 100.0%	0.00*
Difficulty in wearing PPE	13 56.5%	10 43.5%	23 100.0%	
Difficulty to implement the protocol	21 38.9%	33 61.1%	54 100.0%	
Transmitting infection to family members	133 51.2%	127 48.8%	260 100.0%	
Unable to provide adequate dental care	44 68.8%	20 31.3%	64 100.0%	

**Table 2:** Association of financial concerns with years of clinical experience using Chi-square test

Financial concerns	Clinical Practice Experience			p value
	> 10 years	< 10 years	Total	
Additional expense for PPE	26 47.3%	29 52.7%	55 100.0%	0.000*
Job insecurity	22 32.8%	45 67.2%	67 100.0%	
Need to modify clinic and practice	33 71.7%	13 28.3%	46 100.0%	
Reduced income from clinic/practice	198 60.2%	131 39.8%	329 100.0%	

**Table 3:** Association of financial concerns with gender using Chi-square test

Financial concerns	Female	Male	Total	p value
Additional expense for PPE	27 49.1%	28 50.9%	55 100.0%	0.012*
Job insecurity	43 64.2%	24 35.8%	67 100.0%	
Need to modify clinic and practice	18 39.1%	28 60.9%	46 100.0%	
Reduced income from clinic/practice	142 43.2%	187 56.8%	329 100.0%	

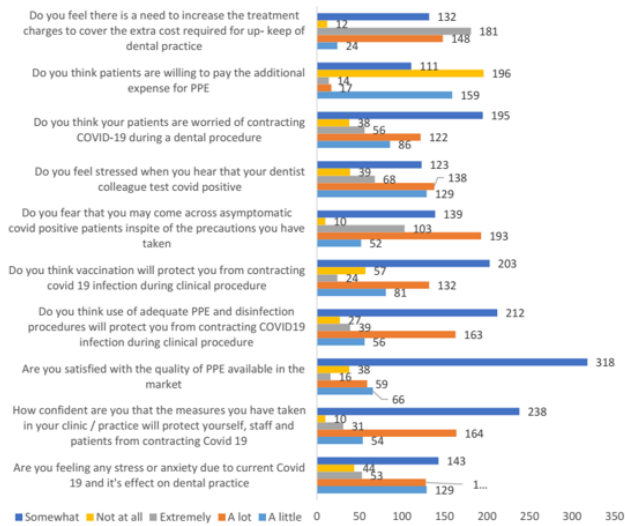
\*- Statistically significant

About 10% of the total respondents were concerned about difficulty to implement the protocol and imparting adequate dental care while 33% of the respondents with more than 10 years of clinical experience expressed concerns about the need to buy new equipment and adopt new clinical protocols to cope up with the pandemic which reflects the dedication of these senior professionals. This is in par with the study by Natalia et al.<sup>12</sup> that assessed the economic impact among private practitioners in Brazil in 2021.

It is surprising to note that even though 85% of the participants have no other source of income other than dentistry only about 66% of the participants faced a significant reduction in income from practice. This is compared to a study conducted by Hafeez et al in 2022 among dentists of private clinic in Lahore<sup>13</sup> where 96 % faced a significant decrease in income and depended on

some other source of income. In a study by Ugo et al.<sup>11</sup> about 90% respondents were concerned about professional future. This high rate of concern can be attributed to the conduct of the study in the early phase of the outbreak where many dental clinics did not function globally. Further considering the mode of practice in our study only 47% of the participants are seen to be depending on their clinic alone for income without additional consultation or salaried job.

It is noted that only 17% of the participants used gloves, surgical mask, googles, gowns and head cap before pandemic while 56% are now regularly using the same personal protective measures for clinical procedures and about 10% of the respondents were concerned about the need to modify practice which reflects the additional expense for clinical procedures which further emphasize on the greater financial investment by dentists for biosafety



**Fig. 3:** Response of participants to various psychological concerns

measures. As a result, they are forced to increase the treatment charges thus shedding light on the monetary implications in dental practices. This can be compared to the study conducted by Natalia et al.<sup>12</sup> Cavalcanti et al.<sup>13</sup> and Farooq<sup>14</sup> to assess the economic impact of new biosafety recommendations for dental practice.

In the present study very few participants (5%) found difficulty to wear PPE while less than 15% were concerned about additional expense for PPE. In Ugoetal study<sup>11</sup> 77% of the participants had to increase the use of PPE, and in another study by Hafeez et al.<sup>15</sup> among dental sectors of Lahore 97% suffered the high-cost burden of PPE, and 86% experienced scarcity of PPE. This high proportion can be attributed to the smaller sample size in Hafeez study (78 responses out of 156 study participants) and in Ugo et al.<sup>11</sup> study in Italy (356 responses out of 874 participants). Further, Northern Italy was one of the most involved areas and the survey was conducted during the most critical period of the pandemic.

Out of the total respondents 67% with less than 10 years' experience were concerned about their professional future which reflects the apprehension among younger practitioners. This is in accordance with the study conducted in 2021 by Natalia et al in Brazil<sup>12</sup> to assess the economic impact among private dental clinics.

72% of the participants with more than 10 years of experience were concerned about modification of clinics in addition to the reduced income from practice which again reflects their financial burden which is in par with the Brazilian study.<sup>12</sup> Most of these practitioners may have loans to repay which adds the financial crisis. This finding can be a bias since majority (56%) of the participants in the present study were with more than 10 years of experience. Regarding gender, females were more concerned about their professional security during this outbreak compared to

males. In Kerala females are seen working as junior dentists in most of the private clinics and this can be compared to the increased proportion of female dental students studying in dental colleges.<sup>16</sup> Also most of the clinics cut short the staff due to reduced income from practice.

Males were more concerned about modification of the clinics and reduced income from practice. This difference noted may be due to the higher proportion of males in the study population.

Regarding clinical concerns less than 20% of the respondents in the present study expressed fear of contracting Covid 19 during clinical activity while it is 85% among dental practitioners of Italy.<sup>11</sup> This can be attributed to the geographic area (where the third highest number of Covid cases in the world were reported) and the time period of study.

In our study more than half of the participants (52.3%) were concerned about transmitting infection to family members. This is in contrast to the study by Ahmed et al.<sup>17</sup> and Duruk et al.<sup>18</sup> where more than 90% were concerned about carrying infection to families. This can be attributed to the increased confidence of the participants in our study since majority of the population had taken at least one dose of vaccination when the study was conducted.

About 70% of the participants with more than 10 years of experience were concerned about contracting Covid during clinical procedure and more than 50% were concerned about transmitting infection to family members which is comparable to the study among dental practitioners of Northern Italy.<sup>11</sup> This can also be attributed to the awareness and perception of health among the experienced practitioners. Moreover, many of them are in their forties and are having health issues. About the same proportion (70%) of the participants were also concerned about providing inadequate dental care which reflects the dedication of these senior professionals towards society. About 60% of the participants with less than 10 years of experience were concerned about the implementation of Covid protocol which reflects the lack of experience among younger generation dentists.

In the present study about 19% of the respondents are worried of contracting the disease during clinical practice which is in accordance with the study conducted in Italy where as 20% were extremely concerned about contracting the disease. Nearly 8 % of our study participants were not at all worried of contracting the disease during clinical procedure whereas it is 16% in Italian study. This difference can be attributed to the subjects of the state of Kerala in general where the level of psychological stress is high.<sup>19,20</sup>

Our survey also focussed on positive perception of professional improvement; like the changes that may happen because of this pandemic as in the case of AIDS pandemic. Prior to AIDS, dentists did not commonly wear gloves, masks or eye protection and it was in late 1980 and

early 1990s CDC proposed guidelines to decrease exposure to blood borne pathogens like HIV and hepatitis. Dentistry accepted the guidelines and started using standard protective measures which are even used nowadays. Likewise, some modification in practices must be implemented like preventive measures, communication skill improvement, slowing down of work schedule etc. The way the patients are treated in the dental office is modified as well since majority of the participants (56%) are using gloves, surgical masks, goggles head cap and gowns. Commercial air purifier and air exchange devices may become a normal standard in dental clinics a few years from now.

## 5. Conclusion

Covid 19 is a matter of concern, raising doubts about the time needed to eradicate the disease and the efficacy of the therapies. The biggest fear is the fear of the unknown, the fear of asymptomatic patients who can act as carrier and also serve as a reservoir for re-emergence of infection. Our survey expresses the concerns of private dental practitioners of Kerala and the effects of pandemic on profession. Dentistry is undergoing a phase where there is a need to modify the way of practice not only to give relief to suffering patients but also to avoid becoming a source of Covid 19 transmission. It is important to implement sound preventive measures in dental clinics and optimise their clinical practices to the changing trends to ensure safe and risk free practice. A sudden decrease in the number of performed dental procedures and implementation of new infection control protocols has created financial crisis for many dental practitioners. It is expected that practitioners, enriched with the experience acquired during the recent outbreak, will be able to efficiently redefine their scope of practice and adjust to new circumstances.

## 6. Author Statement

All authors read and approved the manuscript.

## 7. Source of Funding

None.

## 8. Conflict of Interest


The authors declare that they have no known competing financial interest or personal relationships that could have appeared to influence the work reported in this paper.


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