

Access this article online
Quick Response Code:

Website: www.jehp.net
DOI: 10.4103/jehp.jehp_786_20

Challenges for dental professionals during COVID-19 pandemic: Are we prepared?

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Received: 05-07-2020

Accepted: 29-07-2020

Published: 20-05-2021

Abstract:

BACKGROUND: With the emerging knowledge and understanding of novel coronavirus infection, dentists must be capable of resuming their practice with necessary precautions in near future; hence, the aim of the present study was to evaluate the knowledge, attitude, and practices along with felt challenges by the dentists concerning practicing dentistry during pandemic in India.

MATERIALS AND METHODS: An online cross-sectional questionnaire study was conducted on the dental practitioners of Uttarakhand, India. The dentists were approached by obtaining their E-mail address from the heads of dental institutions or dental association branches in the state. The knowledge, attitude, and practices along with apparent challenges of practicing during pandemic were assessed using closed-ended questionnaire. The relationship between the mean scores and demographic variables was determined using Student's unpaired t-test by keeping the significance level below 0.05.

RESULTS: Out of 759 respondents, a total of 458 respondents were male (60%), whereas 301 (40%) were female. The mean knowledge scores were higher in females (11.06 ± 2.12) compared to males (9.72 ± 4.53), which was statistically significant ($P < 0.05$). The mean practice score was lower in males (17.49 ± 6.47) compared to females (19.26 ± 6.69) and likewise lower scores were seen in graduates compared to specialists and these differences were again statistically significant ($P < 0.05$). Majority of the study participants felt that following various safety guidelines were not feasible (96.97%) and too expensive (96.44%) and considered them as a challenge.

CONCLUSION: It is imperative that dentists should be fully prepared before resuming their services and reach the right kind of awareness to limit the spread of the disease.

Keywords:

COVID-19, dental practice, pandemic, readiness

Introduction

The COVID-19 is a viral disease affecting the lungs, which might be serious and deadly and has emerged as an exigent calamity for public health across the world.^[1] It has been designated as a pandemic by the World Health Organization (WHO) on 11 March 2020.^[2] Apart from the health consequences by the disease itself, this pandemic has even altered the society worldwide, with obligatory lockdowns and social distancing almost

globally, leading to devastating economic effects for various industries and resulted in shutting of factories, stores, and offices.^[1]

In India also from the time when lockdown measures were announced in March 2020, dental offices have been closed. This has resulted in no income in dental offices from some time and situation for dental practice is still unclear^[3]

In delivering a dental service, the foremost significant concern is the spread of novel

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How to cite this article: Kumar M, Sonone TP, Shukla AK, Singh KT, Kishore J, Harsha M. Challenges for dental professionals during COVID-19 pandemic: Are we prepared? J Edu Health Promot 2021;10:128.

corona virus through aerosol and droplets since it is nearly impossible to have no production of droplet and aerosol during dental treatment procedures regardless of all of the precautions engaged.^[4] In addition to aerosol production, when providing dental care services, there is also proximity of caregiver to the oropharyngeal region.^[5] Therefore, dentists are at higher risk of getting infected from COVID-19 and if sufficient protection methods are not employed, viral transmission can happen from dental settings to their kith and kin, other personnel and patients at the clinic.^[6-8]

According to the response plan for COVID-19 by US Government published on 13 March 2020, it might take more than 18 months for this ongoing pandemic to end. Closing the dental clinics will surely limit the viral spread, but will intensify the pain and suffering of those who require urgent dental care^[3] and cannot be continued all through the pandemic and is more of a temporary step.

Therefore, the health-care regulatory bodies are reacting to distinctive circumstances in their communities as the pandemic keeps on evolving. The Centers for Disease Control and Prevention has stated that dentists should also start providing nonemergency dental treatment. They should balance the necessity to give essential services and at the same time should minimize the risk to patients and clinic staff.^[9]

The Dental Council of India in April 2020 gave recommendations urging only emergency dental services in the close future.^[3] On May 19, 2020, the Ministry of Health and Family Welfare released advisory in which the guidelines are according to different zones based on the disease load in the country.^[10]

With the emerging knowledge and understanding of this new ailment, dental professionals should be in superior position regarding the identification of probable COVID-19 infection, and must be able to refer the suspected, confirmed, and known patients of COVID-19 infection to appropriate treatment centers.^[7] Furthermore, with the easing lockdown processes, dentists must be capable of resuming their practice with necessary precautions. Thus, the present study was conducted to evaluate the knowledge, attitude, and practices along with felt challenges by the dentist concerning practicing dentistry during pandemic in India.

Materials and Methods

An online cross-sectional questionnaire study was conducted from May 15, 2020, to May 31, 2020, on the dental practitioners in the state of Uttarakhand. Google Form was utilized for the development of the

questionnaire. The inclusion criteria were dentists working in private/government clinics or working in both academics and clinics. Dental students, dentists working only in academics, and paramedical staff were excluded. List of the Indian Dental Association branches and dental institutes in the state were obtained and their heads were contacted. After explaining the purpose of the study, they were requested to share the online survey link with dentists or to share their E-mail address through which investigators sent the survey link themselves. Following this, a reminder mail was sent to the nonrespondents after 5 days and next reminder was sent after 3 days and again after 3 days a last reminder was mailed and subsequently data collection was closed on May 26, 2020.

Ethical approval was taken from the institutional review board before commencing the study. A close-ended questionnaire was developed by the researchers in English using expert opinion and previous research.^[11] The knowledge, attitude, and practices along with apparent challenges of the participating dentists about readiness for practicing dentistry during were enquired.

A total of 15 questions assessed the knowledge like route of transmission of COVID-19 infection, proper way to wear N-90 mask/personal protective equipment (PPE), appropriate method of doffing PPE, appropriate way of disposing single use mask and whom to contact or report in case of COVID-19 patient. Each correct response was scored as 1 and un-attempted and wrong answers were scored as 0.

For evaluating attitude, 8 items on 5-point Likert scale ranging from strongly agree to strongly disagree were asked. They comprised opinions on importance of maintaining infection control, role of dentist involvement in identifying COVID-19 cases, significance of wearing N-90 mask when providing dental care, and need for training programs pertaining to tenets of dental practice during pandemic. Scores ranged from 5 (strongly agree) to 1 (strongly disagree).

Similarly, for assessing practices also total 8 items on 5-point Likert scale ranging from Always (scored as 5) to never (scored as 1) were posed such as frequency of use of rubber dam isolation, high-volume suction, Universal Precautions for infection control, follow hand hygiene prior and after treatment.

Information on demographic such as gender, age, and qualification along with apparent challenges felt to provide dental care in pandemic times was also enquired.

The questionnaire was pretested on 30 dentists by a pilot study and subsequently changed for the better understanding of the participants and had Cronbach's

alpha and split-half reliability values as 0.84 and 0.81 for knowledge, 0.82 and 0.79 for attitude, and 0.84 and 0.78 for practice, respectively.

Statistical analysis

After entering data into Microsoft Excel version 12.0 (Microsoft, Redmond, Washington USA), it was analyzed using Statistical Package for the Social Sciences version 16.0 (IBM, Armonk, New York, USA). Unpaired *t*-test was applied for comparing the mean scores between demographic variables. Descriptive analysis was employed to show the frequency distribution of apparent challenges felt by dentists for practicing dentistry during after pandemic.

Results

A total of 793 dentists, out of the sample of 1000 dentists, eventually returned the questionnaire, (79.3% response rate) and among these 34 questionnaires were returned incomplete; which were subsequently excluded, leaving 759 questionnaires for further analysis.

Out of 759 respondents, a total of 458 respondents were male (60%), whereas 301 (40%) were female and 491 (64.7%) were having specialization and 268 (35.3%) were just graduates [Table 1].

Table 2 shows that mean knowledge scores were higher in females (11.06 ± 2.12) compared to males (9.72 ± 4.53),

Table 1: Demographic distribution of respondents

Demographic variables	n (%)
Gender	
Male	458 (60.34)
Female	301 (39.66)
Age group (years)	
<40	532 (70.09)
≥40	227 (29.91)
Specialist	
Yes	491 (64.69)
No	268 (35.31)

Table 2: Demographics of respondents and relationship between mean KAP score

Demographic variables	Knowledge		Attitude		Practices	
	Mean±SD	P	Mean±SD	P	Mean±SD	P
Gender						
Male	9.72±4.53	0.01*	32.52±4.18	0.437	17.49±6.47	0.024*
Female	11.06±2.12		33.46±4.76		19.26±6.69	
Age group (in years)						
<40	10.94±3.2	0.031*	33.51±5.03	0.625	18.92±6.71	0.053
>40	9.84±3.45		32.48±4.62		18.32±6.45	
Specialist						
Yes	10.88±2.81	0.039*	33.63±4.81	0.83	19.57±6.33	0.041*
No	9.9±3.83		32.35±4.26		17.18±6.82	
Total	10.39±3.32	-	32.99±4.47	-	18.37±6.58	-

* $P \leq 0.05$. SD=Standard deviation, KAP=Knowledge, Attitude and Behaviour

and this difference was statistically significant ($P < 0.05$). Similarly, higher scores for knowledge were observed in participants of <40 years and with specialization. No significant difference in attitude was found in terms of demographics characteristics. However, the mean practice score was lower in males (17.49 ± 6.47) compared to females (19.26 ± 6.69) and likewise lower score were seen in graduates compared to specialists and these differences were statistically significant ($P < 0.05$).

Table 3 shows that the majority of study participants felt that following various safety guidelines were not feasible (96.97%) and too expensive (96.44%).

Discussion

The changing lockdown measures with each passing day had made it necessary for us all to be ready to recommence the routines with sufficient precautions. Therefore, the present study was done to evaluate whether the dental professionals are set to regain their services and what challenges they feel for doing the same.

During the gender-wise comparison, better scores for all the three parameters, i.e., knowledge, attitude, and practices, were observed in females compared to males. This was in contrast to previous study conducted by Desta *et al.*, which reported that male health-care workers were likely to be more knowledgeable about infection prevention when compared with females.^[12] These differences in the results could be due to different socioeconomic background of the population.

Age-wise comparison also revealed slightly better scores in dentists belonging to <40 years age. This could be because younger dentists were taught about universal precautions in their educational years. Moreover, the younger people are more open to the changes and hence adapt to the changing scenarios.^[13] Furthermore, the training for the preventive measures are being conducted on the virtual platform during the pandemic, which is more comfortable to the younger generation than the older dentists.^[14]

Table 3: Perceived barriers for practicing dentistry during pandemic

Barriers	Total (%)
Contracting COVID-19 from a patient and co-worker	685 (90.25)
Fear of family members getting infected from you	654 (86.17)
Following all guidelines is too expensive	732 (96.44)
Dissidence of patient to pay for expenditure of safety precautions	718 (94.60)
Following all guidelines is time consuming	726 (95.65)
Following all guidelines are not feasible	736 (96.97)

In terms of specialization also, all parameters were found better in dentists who had done postgraduation compared to dentist who were just graduates. This might be attributed to the fact that less student: mentor ratio in postgraduation helps in more vigilant following of instructions and infection control protocols by dentists which they later continue for their life.

The overall mean knowledge and practice scores in the present study were not satisfactory which indicates that awareness and application of the safety protocols and guidelines is not up to the mark. Non-compliance of infection control measures routinely in the developing countries might have contributed to such findings.^[15] As health workers especially dentists have been considered having higher risk of getting COVID-19 infection, before resuming full services dentists ought to be completely prepared.^[16] This hints the pressing call for taking essential courses on strategies issued by the competent authorities. The high attitude scores can be regarded as an optimistic sign, indicating that the respondents will be more receptive about such trainings.

Maximum participating dentists perceived that following various safety guidelines were not feasible (96.97%) and too expensive (96.44%). Dentists also felt that the patients might dissent toward bearing the cost of dental services. Previous research in India has reported that participants in India chose dental services based on expenditure and prefer less expensive treatments.^[17] The recent economic setback, along with already existing poor economic background and negligible oral health awareness of the nation makes it nearly impossible to increase the cost of dental treatment. Merely imposing the rules is not going to be the solution in these difficult times and the necessary aids and a favorable environment should be provided to the dentists so that they can overcome the challenges and practice for the betterment of the society. If these measures are not taken at the appropriate time, dentists might fail to follow standard clinical practices, which might lead to further outburst of the disease.

At present, there is no general action plan existing for practicing dentistry during the phase of some national or global disaster, epidemic, and pandemic. This has

resulted in sudden stopping of the dental care or only limited services. However, the with each passing day the world has realized that this virus is going to stay for a long time and as health services cannot be stopped for so long, one must learn to continue practice with special measures. The regulatory authorities should tailor the area-specific guidelines to control the spread of COVID-19 and should keep a thorough vigilance on the practicing dentists and must take strict action against those who are found violating it.

Limitations: Data collection from a single state might limit the generalizability of the findings. The questionnaire might not always be able to depict the actual awareness and practices of the participants. Furthermore, the cross-sectional nature of the research restricts to draw just conclusion just by this and necessities further longitudinal studies.

Conclusions

Worldwide, the aftermath of COVID-19 is getting worse day-by-day and many dental office practices have accepted their services only on the basis of the approved strategy by the established authorities on infection control for the emergency treatment or have closed their offices indefinitely. However, as now the authorities have claimed that the novel corona virus will remain in the world for some time, it is imperative that dentists must be fully prepared before resuming their services and reach the right kind of awareness to limit the spread of the disease.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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