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Knowledge, attitude and anxiety among dental practitioner during COVID-19 outbreak in India: A cross-sectional survey

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Abstract
Background: COVID-19 a potentially fatal disease has become a global public health concern. As understanding of this novel disease is evolving, dentist and professionals should have an in- depth knowledge, understanding and should be updated with the practices that have to be adapted to identify a possible COVID-19 infection.
Aim and Objectives: Present study aimed to explore the knowledge, attitude and anxiety among dental practitioner during COVID-19 outbreak in India.
Material and Methods: A total of 745 dentists participated in this cross-sectional survey and finally 727 constituted the final sample size. A self-administered, multiple choice type questionnaire (verified by a specialist) was administered to obtain information from the subjects. The questionnaire was divided into four parts and included 26 questions on demographic data, knowledge, attitude and anxiety awareness regarding COVID-19. Statistical analysis was done using Kruskal Wallis tests and Mann–Whitney U test.
Results: The maximum numbers of respondents were general dentists. About 85.4% of respondents had obtained sufficient knowledge during lockdown. Percentage of subjects who answered correctly regarding main symptoms of COVID-19 was 98.5%. Overall 56.5% of respondents showed satisfactory knowledge. About 52.3% respondents followed complete instructions from government. Among the respondents, majority of dentists (33.2%) were practicing only emergency procedures. Half of the practicing dentists were using PPE in their practice. Minimal symptom like anxiety (According to GAF) was observed in 57.6% of respondents.
Conclusion: The findings of the present study showed that majority of dental practitioners had sufficient knowledge regarding COVID-19 during lockdown. They were able to deal with pandemic situation by following a standard protocol. Positive attitude towards the COVID-19 pandemic was shown by the dental practitioners by following the government's instruction in their clinical practice.

Keywords: COVID-19, infection, dentist, protective measures, knowledge, attitude and anxiety awareness

1. Introduction

The coronavirus disease 2019 (COVID-19) pandemic has become one of the central health crises of the present generation. The COVID-19 infection results in acute and severe respiratory syndrome in humans [1-2]. Subsequently, COVID-19 has spread rapidly to other countries via different ways such as international traveling and droplet transmission [3]. Low pathogenicity and high transmissibility [4] are the two unique features of this new virus that distinguish it from other members of the coronavirus family. Chains of transmission can be interrupted by the implementation of control measures [5]. Overall, more than 174 million cases of COVID-19, and more than 3 million deaths have been reported worldwide dated 06/06/2021 [6]. As of 23 May 2021, India has the second-highest number of confirmed cases in the world (after the United States) with 26 [7]. million reported cases of COVID-19 infection and the third-highest number of COVID-19 deaths (after the United States and Brazil) at 307,231 deceased subjects in worldwide.7-8 India has noted mortality rate of about 1.2% (dated 08/06/2021) [8]. Health care providers are the highest risk category with highest diffusion of the contagion hence becoming the potential carriers. More than twenty lakh health care providers got infected and about 1, 15, 000 of them lost their lives (World Health Organization) dated 24th May 2021.

According to Occupational Safety and Health Administration (OSHA), dental health care personnel's (DHCP) are at high risk category as dentists work in close proximity to the patient's oral cavity [8]. Other factors include aerosol production during dental procedures, exposure to saliva, blood during routine practice [1, 8, 10]. The spread of infection in close environments, including crowded work places, inappropriate precautionary measures can pose high risk for transmission chain. Hence there arises a need to assess the knowledge, attitudes and anxiety of the dentist towards the important and prevalent COVID-19 infectious diseases. Appropriate changes in dentist practice concerning to an outbreak can alter the progression of the infectious agent [9, 10]. The present study was designed to assess the knowledge, attitude and anxiety regarding COVID-19 infection among the dentist following pandemic the outbreak.

2. Study design and data collection

The present cross-sectional study was conducted to assess the knowledge, attitude and anxiety in dental practice during COVID-19 pandemic outbreak. Online software (Google form) was used to design an electronic web-based questionnaire for collecting data over March 25, 2020 to April 10, 2020. The questionnaire was available to the participants through social media (WhatsApp, Face Book, e-mail and Instagram). The population under study consisted of participants included General Practitioners, Post graduate students, Specialists in dental practice.

The survey was a structured multiple-choice questionnaire divided into four sections. The questionnaire consisted of four parts: first section-regarding demographic profile such as age, gender, location of practice, background of work, specialty and year of experience (6 items). The second section included 8 questions regarding the knowledge of COVID-19. In the second section had three questions about knowledge regarding corona virus before COVID-19 infection and during lock down and four questions related to symptoms, origin of infection, source of transmission and mortality rate. The positive responses for above question were given a score 2 and negative responses were scored as 1 and "I don't know" answers were scored zero (open ended questions). The source of information was individually given one score each.

The third section consisted 6 questions related to assessment of awareness and attitude and the last section had 6 questions associated to assess the anxiety regarding COVID-19, changes in day today life, infection control measures and mental status.

2.1 Ethics, consent and permissions

The study was approved by the ethical committee of the KVG Dental College, Sullia, Karnataka. The questionnaires were anonymous to maintain the privacy and confidentiality of all information collected in the study. Moreover, participants were informed about intent and content of study and were ensured about confidentiality of data.

2.2 Statistical Analysis

Data analysis was done by using SPSS version 23. Descriptive statistics were described in terms of frequency and percentages. In order to show association between dependent and independent variables Chi -square test was employed. Statistical significance was set at less than 0.05 (p- value<0.05). Also, the inferential statistics (Kruskal Wallis tests and Mann–Whitney U test, $p < 0.05$) were utilized for assessing the significance between study variables.

3. Results

3.1 Demographic characteristics

Table 1: Demographic characteristics

Basic demography	Percentage
Male	35.8
Female	64.2
<30	43.8
31-50	43.8
>50	12.4
Urban	46.6
Semirural	36.6
Rural	16.8
General Practitioner	39.5
Post graduate student	38.6
Faculty	8.7
Faculty + specialty practice	13.2
General Dentist	27.1
Oral Medicine and Radiology	10.5
Oral Surgery	11.7
Oral Pathology	7.4
Prosthodontics	7.2
Endodontics	14.3
Periodontology	4.0
Pediatric Dentistry	7.6
Orthodontics	5.6
Public Health Dentistry	4.5
<5 years	41.6
>20 years	5.1
11-15 years	10.9
16-20 years	3.4
6-10 years	38.8

The questionnaire link was delivered to the 820 dental practitioners and 727 of them completed it via social media applications. To prevent the spread of the virus questionnaire was not handed over personally. With this sample size, the margin error at 95% and level of confidence was lower than 5%. The demographic information of the participants is presented in Table 1. Among the respondents, 64.25% were females 35.8% were males. The majority of participants were aged <50 (87%); 12.4% were over 50 years old. Study population consisted of 46.6% urban, 36.6% semirural and 16.8% of rural population. Among the respondents 39.5% were general dentists, 38.6% post graduate students of which 14.3% of population were from Conservative Dentistry and Endodontics. Major part of respondents had work experience of less than 5 years (41.6%), while 10.9 % had work experience for 11-15 years.

3.2 Knowledge/ Awareness level of subjects

About 63.4% of the respondents were aware the corona virus family before the COVID-19 outbreak. Among 63.4% respondents about 29.8% of them had sufficient knowledge about corona virus before the outbreak. Majority of respondents (85.4%) gained knowledge regarding COVID-19 during lockdown period. Figure 1 shows the percentage of different information resources about this COVID-19 infection. Social applications were the first resources (65.8%), followed by the Aarogya Setu (59.9%), then the

World Health Organization and CDC websites (53.6%) whereas family and friends were resource of information for 52.5% respondents.

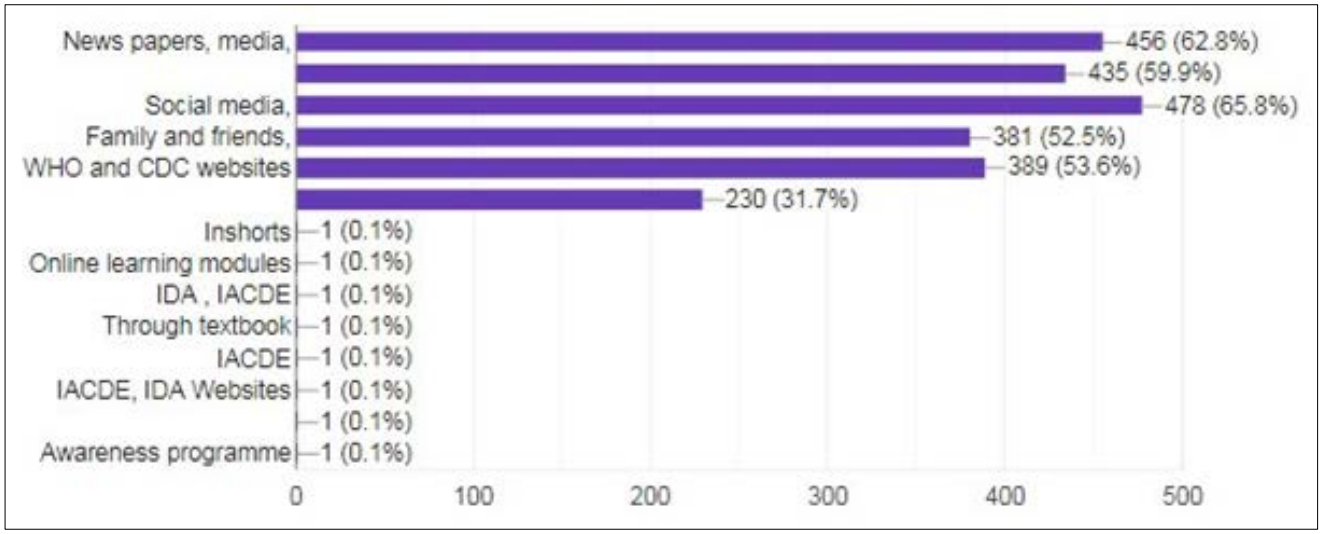

Fig 1: Resources of information.

The greater parts of the respondents (99.7%) were aware of the fact that COVID-19 was detected in China and about 89.8% respondents knew that COVID-19 is a pandemic. Knowledge regarding initial related symptoms such as fever, sore throat and dry cough (98.5%) was observed in 98.5% of the respondents. About 53.6% respondents knew advanced symptoms such as dyspnea, severe lung congestion, multi-organ failure may eventually result in the form of respiratory failure, shock, acute respiratory distress syndrome, arrhythmia, acute myocardial injury, acute liver injury and sepsis. Moreover, 98.5% of the dentists were aware of its mode of transmission and 98.5% were updated with the current CDC or WHO guidelines for cross-infection control, while 1.5% respondents did not knew about the various guidelines. Among all the respondents, 62.8% were aware that COVID-19 has 3.1% mortality rate in India (dated by- April 14, 2020). Assessment of knowledge revealed about 56.5% of the respondents had satisfactory knowledge and 43.5% had a knowledge score of lower than the mean score.

3.3 Assessment of Attitude

Results showed that 45.3% respondents were aware that dentists being infected by COVID-19. The complete instructions from government were followed by 52.3% respondents (figure 2). Seventy-four percent dentists had reported that COVID-19 outbreak changed their perspective about clinical practice (table 2). Findings regarding attitude and practice among the respondents showed 54.4% of dentists feel COVID-19 outbreak may affect financial sustainability and balance of the clinical practice. Few of the respondents (33.5%) had reported that COVID-19 outbreak may affect clinical practice financially but can be manageable by upcoming clinical practice. It was important to note that about 33.2% of dentists were practicing emergency procedures only; majority of respondents (about 38.6%) had completely stopped clinical practice (table 2). This study showed that 49.4% of practicing dentists were using personal protective equipment (PPE) and about 43.7% dentists were planning to use PPE (table 2) in their practice.

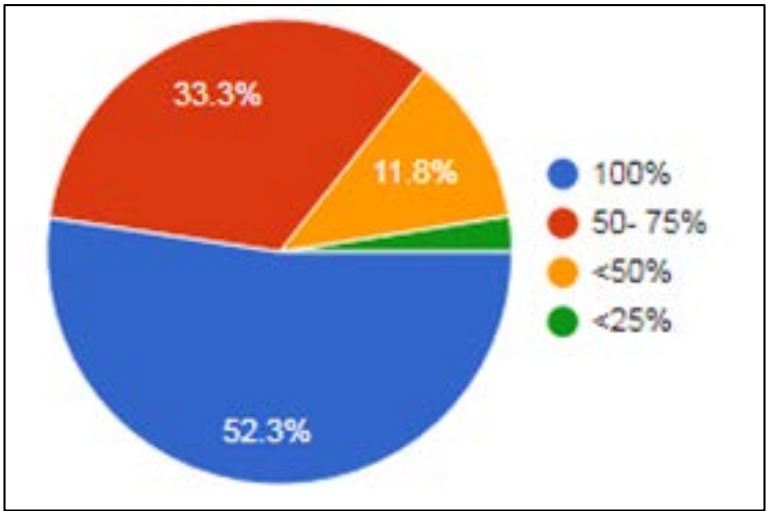

Fig 2: Percentage of instructions from government followed by the respondents

Table 2: Assessment of Attitude

Question	Responses	Valid Percent
Have COVID-19 changed your perspective about clinical practice?	Agree	74.7
	Disagree	13.5
	Neither agree or disagree	12.1
Do you feel COVID-19 outbreak may affect your clinical practice financially?	For some extent (manageable)	33.5
	I don't know	12.1
	It will affect	54.4
During COVID- 19 outbreaks are you treating patients?	No	38.6
	Only emergency procedures	33.2
	Yes	28.2
If yes Do you use Personal protective equipment (PPE)?	Yes	49.4
	Planning to use PPE	43.7
	No	6.8

3.4 Assessment of Anxiety: The present study results showed that 48.2% of respondents were anxious/ nervous regarding post COVID outbreak in the last two weeks (GAD Anxiety scale) (table 3).

Table 3: Assessment of Anxiety (GAD Anxiety scale)

Question (Table 3)	Responses	Valid Percent
How frequently were you anxious/ nervous regarding post COVID outbreak dental practice in the last two weeks? (GAD Anxiety scale)	More than half a day	24.2
	Nearly every day	18.2
	Not at all	9.4
	Several days	48.2

While reading/ watching news reports regarding COVID-19 outbreak 96.7% of respondents felt more insecure, nervous and anxious compared to usual. It found that about 74.8% of respondents had observed some changes in their day to day life during COVID-19 outbreak. This study results showed that about 60.6% of respondent would start regular dental practice (including aerosol treatment) by following guidelines and protocol from higher authority such as CDC and WHO, IDA, IACDE and other local authority (figure 4).

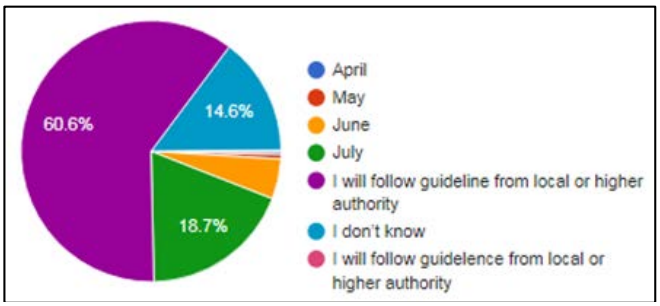

Fig 4: Responses regarding beginning regular dental practice during COVID-19 outbreak.

The result showed 86.7% of dentists followed additional infection control measures while practicing after COVID-19 outbreak. More than 57.6% of respondents had mental health scoring of 81 to 90 (minimal symptoms like anxiety) and 43.8% of respondents had mental health scoring of 91 to 100 (superior functioning with no symptoms) (according to Global Assessment of functioning-GAF).

4. Discussion

The COVID-19 outbreak is considered as global health emergency and dentists are prone to have an increased risk of infection. While there is no other investigation of the knowledge, anxiety, attitude of dentists towards the COVID-19 outbreak. This is the largest study to date on the awareness of COVID-19 infection in India among dental practitioner. This survey provides an insight on the assessment of knowledge, attitude and anxiety in dental practice among dental practitioners with a special emphasis on COVID-19 at the time of the outbreak in 2020.

A total of 726 dentists responded to this survey, the majority (64.3%) were females. Since the number of female dentists in India is rising than the number of male dentists, which is in contrast to findings of a study by Arora S *et al.* [11] Later study had evaluated knowledge and preparedness among Indian dentists during the current COVID-19 pandemic; in which male respondents were more as compared to female respondents. The highest level of participation in this survey was from the 25-50 years (43.9%) age group. This was similar report were shown study by Aroroa S *et al.* [11] in which major age group of respondents were <50 years. Among the respondents, greater portion of respondents were from urban area. This may be related to factor such as active participation of urban dentists in social media. Among the respondents The general dentists were more. Studies by Aroroa S *et al.* [11] and Gambhir *et al.* [12] also showed similar results; in which general dentists were major part of respondents. Consequently, most of them had work experience of less than 5 years.

The present study reported that the majority of the respondents were aware about the coronavirus family before the COVID-19 infection begins. The study result showed upgrading of knowledge regarding corona virus during lockdown. This shows dentist's interest to learn newer updates. The resources were social media, Aarogya Setu, The World Health Organization, followed by the CDC websites. Similar to our findings, other studies reported that participants usually obtained their information about infectious diseases through social media [13-16]. Among the respondents most of them were aware about the origin of COVID-19 pandemic. The similar results were found in a study by Kashid *et al.* [17] in which he had evaluated awareness of COVID- 19 amongst undergraduate dental students in India. Greater portion of respondents were aware of initial symptoms such as fever, sore throat and dry cough, and half of them knew advanced symptoms such as dyspnea

[1-3, 6]. The studies conducted by Kashid *et al.* [17] and Khader *et al.* [18] about COVID-19 among the dentist also showed similar results. Among the respondents majority of dentists knew that COVID-19 is a pandemic. Moreover, the dentists were aware of its mode of transmission, and also updated with the current CDC or WHO guidelines for cross-infection control. Javed *et al.* [19] reported similar results in his study done among Dental Faculty's to evaluate knowledge and Attitude regarding COVID-19 disease in, Saudi Arabia. Among all the respondents, 62.8% were aware that COVID-19 has 3.1% mortality rate in India (dated by- April 14, 2020), [7] which shows the upgrade in the level of knowledge. These results are in line with a study that revealed good knowledge and positive attitude among healthcare workers towards MERS [15]. Another study done by Alqahtani 20 to evaluate knowledge and attitude toward Middle East respiratory syndrome coronavirus showed similar results.

The current study showed that less than half of respondents were aware that dentists were being infected by COVID-19, due to already known fact that the primary route for transmission of corona virus is through droplets and aerosols. 20-21 This fact enhances the dentists and dental healthcare workers getting infected and further spreading the virus and amongst the healthcare professionals, highest chances of infectivity are reported for dental health professionals. This can have more serious implications in the routine dental practice. More than half of the respondent had followed 100% of instruction from the government. This shows positive attitude towards the COVID-19 infection. Most of dentists had opinion such as COVID- 19 changed their perspective about clinical practice, such as inclusion of more precautionary measures in the dental practice and also modification in clinical practice. The precautionary measures include installation of high vacuum suction devices, proper ventilation, preferring rubber dam in practice, use of antimicrobial mouth rinses before initiating treatment, maintaining social distance in clinic lounge, taking the consent from every patient etc. The greater portion of the respondent in the present study feel COVID-19 outbreak may affect clinical practice financially and also additional precautionary measures needs increased expenses than normal practice. During COVID-19 outbreak 33.2% of dentists were practicing only emergency procedures and about less than half of the respondents had completely stopped practicing. The study showed 49.4% of practicing dentists were using personal protective equipment (PPE); about half of dentists were planning to use PPE, thus shows awareness and positive attitude towards the COVID-19 outbreak.

According to GAD Anxiety scale majority (48.2%) of respondents were anxious / nervous regarding post COVID outbreaks in last two weeks. About 96.7% respondents reported more insecure, nervous, feeling excitability; irritability, anxiety and fear that COVID-19 might infect their family as compared to usual while reading/ watching news reports regarding COVID-19 outbreak. Few respondents were interested to collect new information regarding COVID-19 every day and they preferred only government sources and website for information. Few started avoiding watching COVID-19 news by which they were able to maintain their mental health. The present study found that about 74.8% of respondents had observed some changes in their day to day life during COVID-19 outbreak. Signs of psychological distress, improper sleep, lack of interest in daily routine and uncomfortable feeling to communicate with strangers without any precautionary measures. This study results showed that about more than half of the respondent would start regular dental practice (including aerosol treatment) by following guidelines from local or higher authority.

The majority of dentists followed additional infection control measures while practicing after COVID-19 outbreak. More than half of respondents had mental health status was reported as minimal symptoms like anxiety (according to Global Assessment of functioning-GAF). This shows imbalance in mental health due to COVID-19 outbreak. In a study Haung and Zhao concluded that COVID-19 outbreak in China found high levels of anxiety among healthcare workers compared to others [22]. In another study, a high level of anxiety about MERS infectious disease was shown in medical students of Saudi Arabia [23]. The probable reasons for almost high anxiety may be the fear about being infected, the difficulty in the control of the pandemic, and the shortage of medical facilities across the country.

5. Conclusion

In spite of having high standards of knowledge and practices, 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 effect on humanity. Currently, the effects of COVID-19 around the world are worsening gradually. Several dental practitioners have either modified their services according to recommended guidelines to emergency treatment only or closed down practices for an uncertain period. It is essential that in the present scenario, priority is given to dental procedures labeled as emergencies by the WHO and all dental treatments are deferred until the time outbreak goes into recession. This would be an appropriate step in attempts to reframe the further spread of COVID-19. This Pandemic is going to bring major changes in the routine dental practice.

6. References

1. Du Toit A. Outbreak of a novel coronavirus. Nature Reviews Microbiology 2020;18(3):123.
2. Zhou P, Yang X, Wang XG, HU B, Zhang W, Si Hr, *et al*. A pneumonia outbreak associated with a new coronavirus of probable bat origin. Nature 2020;579:270-3.
3. Worldometers. COVID-19 coronavirus outbreak. 2020, [cited 2020 Mar5]. Available from: https://www.worldometers.info/coronavirus/.
4. Jiang S, Shi Z, Shu Y, Song J, Gao GF, Tan W. Lancet 2020;20:30419-0. Doi: 10.1016. S0140- 6736.
5. Al-Mohaissen M. Awareness among a Saudi Arabian university community of Middle East respiratory syndrome coronavirus following an outbreak. EMHJ-Eastern Mediterranean Health Journal 2017;23(5):351-60.
6. https://covid19.who.int/.
7. #IndiaFightsCorona COVID-19". MyGov.in. Govt of India. Retrieved 2 January 2021.
8. https://coronavirus.jhu.edu/data/mortality
9. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for

public?gclid=CjwKCAjwkJj6BRAEiwA0ZVPVjUnSpCFOvmyMiL6PNR7h0ZY1vPk2Zodzw_2cKsXAHA9pRJxF5ZKjBoCUoQQAvD_BwE
10. Bizzoca ME, Campisi G, Muzio LL. COVID-19 Pandemic: What Changes for Dentists and Oral Medicine Experts? A Narrative Review and Novel Approaches to Infection Containment. International Journal of Environmental Research and Public Health 2020;17(11):3793.
11. Arora S, Saquib SA, Attar N, Pimpale S, Zafar KS, Saluja P. Evaluation of knowledge and preparedness among indian dentists during the current COVID-19 pandemic: A cross-sectional study. Journal of Multidisciplinary Healthcare 2020;13:841.
12. Gambhir RS, Dhaliwal JS, Aggarwal A, Anana S, Anana V, Bhangu K. COVID-19: A survey on knowledge, awareness and hygiene practices among dental health professionals in an Indian scenario. Roczniki Państwowego Zakładu Higieny 2020;71(2).
13. Tork HM, Mersal FA. Middle East Respiratory Syndrome-Corona virus: Knowledge and attitude of Qassim University students, KSA. Global Adv Res J Med Med Sci. 2018;**7**(4):90-7.
14. Kim JS, Choi JS. Middle East respiratory syndrome-related knowledge, preventive behaviours and risk perception among nursing students during outbreak. J Clin Nurs. 2016;25(17-18):2542-9. Doi: 10.1111/jocn.13295. [PubMed: 27273475].
15. Chang SC. Raising clinical awareness for better dengue fever outbreak control. J Formos Med Assoc. 2015;114(11):1025-6. Doi: 10.1016/j.jfma.2015.10.006. [PubMed: 26585886].
16. Nemati M, Ebrahimi B, Nemati F. Assessment of Iranian nurses' knowledge and anxiety toward COVID-19 during the current outbreak in Iran. Archives of Clinical Infectious Diseases (COVID-19), 2020, 15.
17. Khan MU, Shah S, Ahmad A, Fatokun O. Knowledge and attitude of healthcare workers about Middle East Respiratory Syndrome in multispecialty hospitals of Qassim, Saudi Arabia. BMC Public Health 2014;14:1281. Doi: 10.1186/1471-2458-14-1281. [PubMed: 25510239]. [PubMed Central: PMC4300996].
18. Kashid RV, Shidhore AA, Kazi MM, Patil S. Awareness of COVID-19 amongst undergraduate dental students in India: A questionnaire based cross-sectional study.
19. Khader YS, Nsour MA, Al-Batayneh OB, Saadeh R, Basheir H, Alfaqih M. Dentists' awareness, perception, and attitude regarding COVID-19 and infection control: A cross-sectional study among Jordanian dentists. JMIR Public Health Surveill 2020;6:e18798.
20. Khan AM, Nawabi S, Javed MQ. Dental faculty's knowledge and attitude regarding COVID- 19 disease in Qassim, Saudi Arabia.
21. Alqahtani AS. Knowledge and attitude toward Middle East respiratory syndrome coronavirus among heath colleges' students in Najran, Saudi Arabia. Int J Commun Med Public Health. 2017;4(8):2641. Doi: 10.18203/2394-6040.ijcmph20173153.
22. Ge Z, Yang L, Xia J, Fu X, Zhang Y. Possible aerosol transmission of COVID-19 and special precautions in dentistry. J Zhejiang Univ. B 2020, 1-8. [CrossRef]
23. Huang Y, Zhao N. Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 epidemic in China: A web-based cross-sectional survey. Med Rxiv. 2020. Doi: 10.1101/2020.02.19.20025395.
24. Al-Rabiaah A, Temsah MH, Al-Eyadhy AA, Hasan GM, Al-Zamil F, Al-Subaie S, *et al*. Middle East Respiratory Syndrome-Corona Virus (MERS-CoV) associated stress among medical students at a university teaching hospital in Saudi Arabia. J Infect Public Health 2020. Doi:10.1016/j.jiph.2020.01.005. [PubMed: 32001194].