ASSESSING KNOWLEDGE, ATTITUDES AND PRACTICES OF DENTAL/MEDICAL PRACTITIONERS REGARDING THE COVID-19 PANDEMIC: A MULTI-CENTRIC STUDY

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Abstract

Background. Noval coronavirus Disease 2019 (COVID-19) has became global pandemic and affecting people across the globe.

Objectives. The aim of this study was to assess the Knowledge, Attitudes and Practices (KAP) of medical/dental practitioners regarding the Coronavirus Disease 2019 (COVID-2019) pandemic.

Material and methods. Questionnaire were distributed among medical/dental practitioners across the India using a combination of convenience and snowball sampling through social media. The questionnaire were divided into 4 sections: the 1st one contained personal information, whereas the 2nd, 3rd and 4thsections assessed knowledge (11 questions), attitudes (6 questions) and practices (7 questions) of the medical/dental practitioners. The data was subjected to the one-way analysis of variance (ANOVA), multivariate linear regression, and Pearson's correlation; 95% confidence interval (CI) was calculated and odds ratio (OR) was obtained. The analysis was done using IBM SPSS for Windows, v. 23.0**.**

Results. The total number of the responses received (483) was divided with regard to various continents (general practioners, working in medical college and having own clinic/hospital). The largest number were dental practioners and doctors working in medical college.. Good knowledge, attitude and practice scores were significantly associated with qualifications ($p = 0.001$) and years of practice ($p = 0.001$

Conclusions. The medical/dental practitioners were found to have good knowledge and practice scores, which is important to combat COVID-19.

INTRODUCTION

30th January, 2019, the World Health Organization (WHO) declared a global public health emergency against the outbreak of coronavirus disease, which is termed as Coronavirus Disease 2019 (COVID-19), and after this it has rapidly achieved a pandemic status. This disease was detected first in Wuhan, Hubei Province in China which had symptoms like a flu.[1]The causative organism responsible for this outbreak was the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). This belongs to the family Coronaviridae of the order Nidovirales. The symptoms includes fever, cough, myalgia or fatigue, abnormal chest computed tomography (CT) image, and severe respiratory distress, whereas less common symptoms include sputum production, headache, hemoptysis, and diarrhea.[2-4] In medical and dental setting, they require to examine patient very closely there is chance of acquiring infection from the micro-droplets. In the event of an outbreak, the doctors are the first person to come in contact with an infected person; they can either unknowingly get infected or became carrier or infect others. Doctors/dentist by following proper guidelines can prevent the possible spread of the disease and save the entire community from its disastrous consequences.

To combat an outbreak, doctors/dentists should be aware of recent developments, especially those related to public health, and by following apt guidelines (i.e., the WHO guidelines at https://www.who.int/emergencies/diseases/ novel-coronavirus-2019/technical-guidance) make efforts to prevent the transmission of such diseases. Hence, the present study was undertaken with the aim to assess the Knowledge, Attitudes and Practices (KAP) of medical/dental practitioners regarding the COVID-2019 pandemic.

MATERIAL AND METHODS

Sample size calculation: Sample size calculated by Raosoft was 377 assuming a response rate of 50%, confidence interval (CI) 95%, Z as 1.96, and margin of error d as 5%. Considering, an additional 10% (n=37) for any error in questionnaire filling, a final sample size of 414 will be required

Ethical approval

A cross-sectional observational study on assessing Knowledge, Attitudes and Practices included health care givers/practioners and dental practioners a multi-centric study, in India from June 15th 2020 to July 15[th]2020. The Institutional ethics committee approval was obtained for this study with reference number BLDE(DU)/IEC/450/2019-20.

Study participants

Questionnaires were sent to all the medical health care givers who were working in medical colleges, private practitioners, private and Govt Hospital. More than 1500 health care givers were sent invitation to participate in study through social media (whats-App) through Google form. They were requested by calling personally, putting personal massages and by other means. Total 630 health care givers actively involved in caring patients have responded to the study. The study questionnaire were written English comprised of demographic characteristics, Knowledge, Attitudes and Practices included health care givers/practioners and dental practioners and other relevant questions related to Covid 19 pandemic. The 1st section contained personal information (continent of residence, highest qualification, currently practicing as (an academician, clinician, or both), and years of practice), whereas the 2nd, 3rd and 4th sections assessed the knowledge (13 questions), attitudes (6 questions) and practices (7 questions) of the dentists regarding COVID-19

STATISTICAL ANALYSIS

Statistical analysis of the data was performed with SPSS 23.0. The chi-squared χ^2 test and ANOVA was used to compare the responses between gender, Profession, and place of work with KAP score.

Descriptive statistics were used to present the data collected from the survey and included the mean, standard deviation (SD) of the data collected for all the sections. For categorical variable percentages were used. P-value of <0.05 was considered to be statistically significant.

RESULTS :

We collected data from July 1st to august 31st 2020. We received total of 483 responses from various health care givers during this pandemic. Socio-demographic profile (Table 1) of responded health care givers was as follows. Mean age was 39.75±12.8 with minimum 23 years and maximum 78 of years. 25% of them were males and 75% of them were females.

Highest academic qualification was MD/MS 224 & MDS 226. Among profession 240 were dental practitioners and 214 were working in medical/dental College and rest were general practitioners. More than 10 years of experience was present in 469 doctors.

Responses to the questionnaire and the source of information regarding COVID-19 The source of information regarding COVID-19 was primarily from all the resources (480), followed television (2), newspapers (1), and other (1.4%) .

Knowledge regarding COVID-19 Almost all (477) of the doctors heard about the coronavirus, whereas only 482 could name it correctly. A total of 483 of the doctors could identify the epicentre; 322%and 474 of the doctors, respectively, knew about vaccine availability and the method of diagnosing the disease. A total of 477 of the doctors believed that COVID-19 was fatal in nature and 478 reported that wearing mouth masks could prevent its transmission. Knowledge scores significantly differed across genders, degree, years of experience and profession. (P<0.001)

Attitudes regarding COVID-19 All doctors (100%) agreed that it was possible for dentists to spread awareness regarding COVID-19, and that hand hygiene and personal protective equipment (PPE) were highly effective in preventing infection. 477responded that it was a risk to their own health, whereas 483 believed that it was a risk to their patients' health. Non-vegetarian food was being avoided by 471 of the doctors. Attitude scores significantly differed across genders, degree, years of experience and profession. (P<0.001)

Practices regarding COVID-19 At the time of responding to the questionnaire, only 483 of the doctors had sensitized their staff as per the WHO guidelines for the prevention of COVID-19 in their workplace. Discussion regarding the risk of COVID-19 was reported by 480 doctors. A total of 479 used audio visual aids for education, oral 3 and visual 1. 479 took all the measures to prevent coronavirus outbreak. As many as 475 of the doctors admitted to including the travel history while recording the case history of the patient whereas 477 of them responded that COVID-19 had an effect on their social life (Table 2). Knowledge and practice scores of the participating doctors Based on the mean of the scores obtained, the cut-off points for the knowledge (maximum score 13) and practice (maximum score 7) scores were 8 and 4 respectively. Practice scores significantly differed across genders, degree, years of experience and profession. (P<0.001)

DISCUSSION

The COVID-19 easily gets transmitted to people who come in close contact with an infected individual. The risk is more among those who stay close or work near the patient, i.e., relatives and healthcare workers. Doctors need to work very close to them even to extent they may need touch and examine them. This puts the dentist/medical practiners at a higher risk of contacting COVID-19. Researchers across the globe are trying to assess their knowledge about disease among the healthcare worker to combat disease outbreak. In our study knowledge regarding COVID-19 was much higher compared to study by Fatiregun et al. Done swine influenza

(H1N1) virus; 31% among Nigerian healthcare workers and Aung et al one Ebola virus; 54.7% nursing students in Myanmar, Shivlingesh et al on influenza A (H1N1) outbreak; 52.6% of the Indian population, and Singh et al on ZIKA Virus outbreak; 61.7% among the students of a dental institute.[5-7] An important aspect of our study was that responses were collected on a multisite, and such high knowledge scores are promising as far as the role of medical/dental practiners in combating the COVID-19 outbreak is concerned. In combating COVID-19 it's important to recording properly about the travel history of the patient prior to any treatment. In developing countries like India, purchasing PPE and the cost of sterilizing medical/dental instruments can impact practiners financially. Hence, collecting travel history can significantly reduce the transmission and burden of the disease. International travelling has contributing to traveller associated infections (especially respiratory infections).[8] In the present study, 98.3% of the medical/dental practiners reported including the travel history while recording the history of the patient and this was important in a timely diagnosis, which could prevent further propagation of infection. The major source of information among the medical/dental practiners was the combination of TV, internet, social media.[5] during this pandemic many information was updating on daily basis in trusted site like WHO/ICMR and there was not enough data available in textbooks, and hence, medical/dental practiners might access trusted sites like the ones of the Centers of Disease Control and Prevention (CDC), WHO or the websites of health ministries (ICMR) of their respective countries for information. The use of the Internet has taken over other information resources. But study by Fatiregun et al. reported television as the primary source of data (73.6%) among healthcare workers in Nigeria during the influenza A (H1N1) pandemic.[5] All medical/dental practiners agreed that they could help spread awareness regarding the disease, and that hand hygiene and PPE were effective in preventing COVID-19. The threat of any epidemic makes all healthcare providers alerted, as they are at a high risk of contracting infection and it is the nature of their work to selflessly treat their patients. As per the GeoSentinel surveillance survey, 11% of the respiratory tract infections were reported among the travelers returning to their country of residence, and PPE can provide protection as well as reduce the risk of any nosocomial infections and cross-transmission in the medical/dental setting.[9-10] Good thing about medical/dental practiners is that they reported that 100% their staff was sensitized as per the WHO guidelines for the prevention of COVID-19. Since the responses were collected when COVID-19 was spreading to other nations, little was known about the characteristics of the virus and there was less information regarding mode of transmission, preventive measure, treatment methods, participating medical/dental practiners might have assumed that COVID-19 had a high fatality ratio. The outbreak of COVID-19 has shown a drastic effect on one's social life, since all mass gatherings and social events are being banned to reduce the transmission rates. Apart from other preventive measures, significant differences are noticed between the continents regarding the number of people avoiding social gatherings. It was observed that the medical/dental practiners with higher qualifications (Mch/DM) reported better and significant knowledge scores as compared to graduates. Various authors have documented similar findings during the ZIKV and Ebola hemorrhagic fever pandemics[5,11,12] The possible explanation might be that postgraduate studies involve performing some kind of research (thesis) and updating the medical/dental practiners knowledge based on recent guidelines and evidence-based practice. Contrary to our findings, Harapan et al. reported that general practitioners had a higher OR of having a good knowledge as compared to specialist doctors.[13] This can be attributed to global disparities in medical/dental practiners curriculum and attitudes of the medical/dental practiners faculty authorities toward motivation, encouragement, involvement, and providing assistance to undergraduates in any kind of research projects.

Limitations: 1)Social desirability bias: In order to eliminate it, we did

not ask for any personal information and assured the participants as to the confidentiality of their data. 2) cross-sectional study and self-selection bias on the side of the respondents could have occurred.

Tables
Table 1: Demographic parameters

Background parameters	N	
Age: mean ±SD	39.75±12.850	
• Min	23	
• Max	78	
Sex		
• Male	120	25%
• Female	363	75%
Highest qualification		
MCh/DM	4	
MD/MS	224	
MDS	226	
MBBS	14	
BDS	14	
Others (specify	1	
Designation		
• General practitioners	29	
• Dental practitioner		
• working in medical college/dental college	240	
	214	
Currently I am at		
• My home place	472	
• outside my home place	11	
Current work place		
Private clinic/hospital	390	
Government Institution/Hospital	9	
Both	4	
Medical college and hospital	61	
Dental college	19	
Are you able to continue to work now		
Yes	473	
No	10	
If the answer is no to the above question than is it due to following factor		
Not able to concentrate	60	
Feeling tensed about future	20	
Scared of working due to Covid -19	26	
Just following other Colleagues advise	377	
Years of practice (in years		
0-2	2	
2-5	3	
5-10	9	
>10years	469	
Knowledge:		
Have you heard of coronavirus		
yes	477	
If yes, what was the primary source of information		
All	480	
Television	2	
Newspaper	1	
What is the name of the disease causing novel coronavirus outbreak		
COVID-19	482	
CDC-19	1	
Where was the first case of COVID-19 1st identified		
Wuhan	483	
COVID-19 affects		
Respiratory tract	479	
Circulatory system	4	

2019-nCoV is transmitted from		
Person to person	480	
Animal to person	1	
Plant to person	2	
What are the signs and symptoms of 2019-nCoV		
All of the above	477	
Fever and cough	2	
Pneumonia	2	
Breathing difficulty	2	
Is there a vaccine available for the COVID-19 outbreak		
Yes	322	
No	161	
COVID-19 can spread mainly via		
All of the above	481	
Respiratory droplets	2	
Can wearing mouth mask protect you from COVID-19		
Yes	478	
No	5	
If yes, who should be wearing it		
Both	481	
Infected person	1	
Healthy person	1	

| **What is the method used for diagnosing COVID-19**	
RTPCR	**474**
Viral Antigen Detection	**4**
Viral RNA Detection	**6**
Dont Know	**1**
Is COVID-19 fatal?	
Yes	**477**
No	**6**
Attitude	
Are you avoiding non vegetarian food due to corona virus outbreak?	
Yes	**471**
No	**12**
Is it possible for dentist/medical practitioner to spread awareness about corona virus?	
Yes	**483**
No	**0**
Do you think hand hygiene and PPE can be effective in preventing infection?	
Yes	**482**
No	**1**
Do you think that the COVID -19 is a risk to your health?	
Yes	477
No	6
Do you think that the COVID -19 is a risk to your patient health?	
Yes	**483**
No	**0**
Practice	
Is your dental/medical staff sensitised about WHO preventive measures COVID -19?	
Yes	**483**
No	**0**
Have you added travel history in history taking of the patient?	
Yes	**475**
No	**8**
Have you ever discussed the risk of COVID -19 with your patient?	
Yes	**480**
No	**3**
Have you ever discussed COVID -19 preventable measures with your patient?	
Yes	478
No	5

Does it have any effect on your social life?	
Yes	477
No	6
How can you educate you spread awareness about corona virus?	
Audio-visual aids	479
Visual aids	1
Verbally	3

| What are the preventable measures against COVID -19 outbreaks?	
• All of the above	479
• Always or very often wearing surgical mask while contacting the patient	2
• Hand washing with soap after patient examination	2

Characteristic	N	Knowledge Mean ±SD	P value	ATTITUDE	P value	PRACTICE	P value
• Sex	118	12.8±0.6	<0.001	4.02±0.18	0.843	6.90±0.56	0.033
• Male	363	12.0±0.3		4.01±0.13		6.97±0.17	
• Female							
Occupation	64	12.30±0.8	0.001	4.05±0.2	0.003	6.7±0.7	<0.001
• Working in medical college/Hospital							
• Private clinic/Hospital		12.21±0.4		4.01±0.1		6.9±0.1	
• Dental College	390						
• Total							
	29	12.68±0.6					
				4.11±0.3		6.8±0.3	
	483	12.24±0.5					
				4.01±0.1		6.9±0.3	
Years of experience	34	11.0±1.7	<0.001	4.6±0.5	<0.001	4.6±2.3	<0.001
• 0-2	58	12.6±0.5		4.0±0.0		6.6±0.5	
• 2-5	96	12.6±1.0		4.1±0.3		7.0±0.0	
• 5-10	295	12.2±0.5		4.0±0.1		6.9±0.2	
• >10years	483	12.2±0.5		4.1±0.1		6.9±0.3	
• Total							
DEGREE	224226	12.17±0.43	<0.001	4.0±0.09	<0.001	6.97±0.23	<0.001
MD/MS	14	12.31±0.5		4.01±0.14		6.97±0.16	
MDS	4	12.21±1.1		4.29±0.46		6.64±0.49	
BDS	1	13.00±0.0		4.0±0.0		7.0±0.0	
Mch/DM	14	9.00±0.0		4.0±0.0		2.0±0.0	
OTHERS	483	12.8±0.53		4.0±0.0		7.0±0.0	
MBBS		12.25±0.54		4.01±0.15		6.95±0.31	
Total							

*. The mean difference is significant at the 0.05 level.

Highest qualification
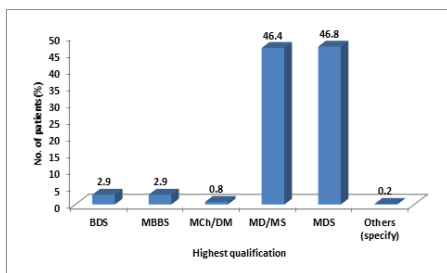
Profession
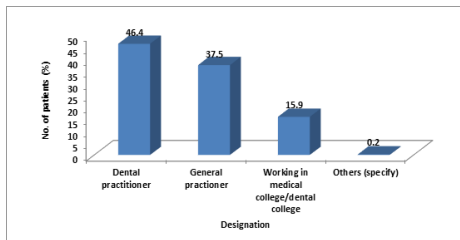
CONCLUSIONS

In the present study, medical/dental practioners were found to obtain good knowledge and practice scores, which is important to combat COVID-19. medical/dental practioners should appropriately use the social media to spread awareness among people, and in their clinical practice, they should screen, isolate and refer the potential cases having the symptoms of COVID-19. They are also advised to follow the CDC and WHO guidelines in their clinics, and sensitize their staff so that no stone is left unturned in defeating this pandemic

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