Dentistry Section

Evaluation of Knowledge, Psychological, Social and Economic Aspects of Covid-19 Pandemic among Dental Professionals- A Cross-sectional Study

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ABSTRACT

Introduction: Medical as well as dental professionals are always at an increased risk of contracting infections in pandemics. The novel Coronavirus (nCoV), the causative agent of the COVID-19 pandemic is more contagious than other known members of Coronaviridae family.

Aim: This research aims to evaluate the knowledge, psychological, social, and economic aspects of COVID-19 pandemic among dental professionals using a closed-ended questionnaire study.

Materials and Methods: A cross-sectional study with close ended questionnaire was planned. The questionnaire form was prepared in the Google platform after receiving ethical clearance, with 39 questions under the headings of General Information, Knowledge, Psychological aspects, and Social and Economic aspects. The questionnaire link was circulated among dental professionals known to the research team through Email, WhatsApp, and Messenger. A total of 504 dental professionals participated in this study in five days. Knowledge score was calculated, and psychological stress was calculated using Likert scale. Economic aspect was measured using yes/no answers.

Data were entered in an excel sheet and the data obtained were statistically analysed using the SPSS software, version 11.5. Chi-square test was done to evaluate whether there is an association between knowledge score and demographic factors and p-value was obtained.

Results: There was almost equal gender distribution of respondents in the study. p-value obtained from chi-square test results correlating knowledge score with various demographic factors was not significant. A 59.9% of study participants were poorly informed on methods used to diagnose COVID-19 infection. A 44.4% of the respondents were psychologically stressed about infecting their family members and 72.22% were economically affected because of their profession. A 98.61% of the participants reported that they will wash their hands frequently, avoid crowded places and cancel travel plans in the near future.

Conclusion: The present study evaluated the knowledge, psychological, social and economic aspects of COVID-19 pandemic among dental professionals. We identified that there is an urgent need to intensify the knowledge on COVID-19 and also to give psychological, social and economic support to dental professionals.

Keywords: Economic status, Psychological impact, SARS-CoV-2, Social values, Stress

INTRODUCTION

On January 30, 2020, the World Health Organisation (WHO) declared the nCoV outbreak as a Public Health emergency of International concern, and on February 11 2020, WHO announced name for the new disease as COVID-19 for coronavirus disease, 2019 [1]. From the initial patient cluster in Wuhan city of China who developed "pneumonia of unknown aetiology" in December 2019, the infection has seen an explosive spread [1]. In a span of eight months, over 2,4854,140 people across the world have been affected, and almost over 838924 patients have succumbed to the disease. By August 2020, India had the third-largest number of confiirmed cases globally. The mortality rate of COVID-19 is estimated to be between 3-4% (WHO, 2020b); however, the mortality statistics are considered to be underestimated [2,3].

The basic reproduction number or R0 (R naught) that defines contagiousness of SARS-CoV2 is estimated to be between 1.4 to 2.5 [4]. It is predominantly spread through droplets, either through direct contact or indirectly from contaminated surfaces. The droplets remain suspended in air for prolonged period, and airborne transmission is also suspected. Possibility of contact transmission through oral, nasal, and eye secretions and probably through other body fluids needs more validation. The pathogen-dependent factor that contributes to the slightly higher R0, in comparison to other CoVs, is the prolonged prodromal period when the person remains contagious for a long period [4].

As recorded with earlier pandemics of SARS and Ebola, healthcare workers are more prone to infection risk, physical and mental exhaustion of a demanding workload that is often exacerbated by shortage of protective equipment and other resources that can check transmission from patients and vice versa [5]. The ubiquitous presence of aerosols and splatter in a dental clinic arising from routine dental procedures and instruments is a potential route for pathogen exposure and transmission [6]. Face-to-face communication, frequent exposure to saliva, nasopharyngeal secretions, blood, and contaminated instruments and surfaces put those in dental practice at a tremendous risk of exposure to oral and respiratory tract pathogens as well as to the SARS-CoV2 infection [6]. ACE2+ cells were reported to be abundantly present in the respiratory tract and epithelial cells of the salivary duct; apparently, the latter was also demonstrated as an early target for SARS-CoV infection [7]. During the SARS outbreak, the Centers for Disease Control (CDC), and the American Dental Association (ADA) had advised against using any aerosol-generating procedures in patients with active infection [6]. Psychological crisis prevention and intervention protocols should be developed by the government and health personnel. Mental organisations should be set up for future pandemics certainly by the government to manage psychological needs [8].

The present study was designed to assess the knowledge, psychological, social, and economic aspects affecting dental professionals in the wake of the COVID-19 pandemic.

MATERIALS AND METHODS

Study Design

The cross-sectional and closed ended questionnaire study protocol received ethical clearance from the Institutional Ethical Committee of Vinayaka Mission's Sankarachariyar Dental College (VMSDC/IEC/NO: 156). The data collection was done between March 29, 2020, and April 3, 2020. The recommended sample size for the study was 471 as calculated according to the formula: $n=z^2* p*(1-p)/e^2$ (where: z=2.17 for a confidence level (α) of 97%, p=proportion (expressed as a decimal), e=margin of error. z=2.17, p=0.5, e=0.05 $n=2.17^2 * 0.5 * (1-0.5)/0.05^2$, n=1.1772/0.0025=470.89, n≈471) [9]. Any dental professional in clinical practice/academics or both who gave consent to take part in this online survey were included in the study. Those dental professionals who were not interested in participation were excluded from the study.

Questionnaire

The closed ended questionnaire form was prepared in English with 39 questions, nine questions on General Information, 11 questions on Knowledge, four questions on Psychological aspects, and eight questions on Social and Economic aspects. There were seven more questions which were meant for only academicians. A pilot study was done in 10% of the sample size n=50 and Cronbach's α value was found to be 0.81, hence the internal consistency of the study was found to be reliable.

These questions were validated among ten dental professionals who had a teaching experience of more than ten years. The average value of relevancy, clarity, and simplicity were used as the total Content Validity Index (CVI) of Waltz and Basel [10]. Questions which obtained CVI above 0.8 were included.

Content Validity Ratio (CVR) was calculated based on the responses to the necessity of questions (Ne) with the formula of CVR=(Ne-N/2)/(N/2), where Ne is the number of experts indicating that item as "essential" and N is the total number of experts [11]. To determine the cut-off point for CVR, Lawshe's table was used [12]. According to Lawshe, for 10 professionals, minimum required CVR for each item is 0.62 and we received a CVR value of 0.71.

The research team consisted of a primary investigator; professor and Oral Pathologist from India, one dental specialist from Saudi Arabia who was also a former professor of a dental college in India and one academician who is Professor and Director, Academics of a university and was the former CEO of a dental college in Malaysia. The participants included friends and students of the investigators working in different parts of India and across the globe. The questionnaire link was prepared in google form and was circulated among dental professionals in India, Saudi Arabia, the United Arab Emirates, Malaysia, the United States, the United Kingdom, and Australia who were in the contact list of the research team via emails, WhatsApp, and Facebook Messenger. There were multiple choice questions with single answer and multiple answers. Social and economic aspect questions had closed ended answers whereas psychological aspects were scored using 5-point Likert scale [13].

Scoring Criteria

Knowledge scores were divided into three levels, namely well informed, moderately informed, and poorly informed. Individual questions were given knowledge scores from score zero to score four. Maximum Score used for knowledge aspect was 30. As in professional courses, where 50% score (15) are needed for pass percentage, in this study less than 50% (Below 15) was considered as poorly informed, 50-75% (15-22) was considered as moderately informed and 75% and above (22-30) was considered as well informed. The questions on psychological aspects had five closed-ended answers that were rated on a 5-point Likert scale based on

their level of stress, 1 as not worried at all, 2 being slightly worried, 3 being moderately worried, 4 being severely worried and 5 being extremely worried [13]. The questions on social and economic aspects were closed ended with yes/no answer.

STATISTICAL ANALYSIS

Data were presented as frequencies and percentages. Results obtained were entered in an excel data sheet for statistical analysis, which was done using SPSS software (Version 11.5, IBM Corporation, Armonk, New York, USA). Chi-square test was done correlating knowledge score with demographic factors (age, gender, specialty, country of residence, number of years of experience and number of patients seen) by the participants and p-value was obtained. Null hypothesis of the study stated that there was no difference between knowledge, psychological, social or economic aspects of dental professionals during the COVID-19 pandemic. The p-value less than 0.05 was considered as statistically significant.

RESULTS

Description of Demographic Variables of the Respondents

Questionnaire was sent to 800 participants of which only 504(63%) responded online. Out of the 504 respondents, 254 (50.40%) were males, and 250 (49.60%) were females.

About 466 (92.46%) respondents did not have COVID-19 positive contacts among friends and relatives.

Among 504 participants, 135 (26.78%) were trained to some extent, and 153 (30.36%) of the respondents were trained well and the rest were not trained at all to handle public health emergencies. Demographic details of respondents are given in [Table/Fig-1].

Sl No.			N	%
1.	Gender	Male	254	50.40
		Female	250	49.60
2.	Age	25-35	280	55.55
		36-45	118	23.41
		46-55	86	17.07
		56-65	16	3.18
		66+	4	0.79
3.	Specialty	Community dentistry	2	0.40
		Conservative dentistry	40	7.93
		General dentist	216	42.86
		Oral medicine and radiology	12	2.38
		Oral pathology	46	9.13
		Oral surgery	29	5.75
		Orthodontics	24	4.76
		Pediatric dentistry	86	17.06
		Periodontics	27	5.36
		Prosthodontics	22	4.37
4.	Country of residence	Australia	1	0.20
		India	457	90.67
		Malaysia	12	2.38
		Saudi Arabia	13	2.58
		UAE	7	1.39
		UK	3	0.60
		USA	11	2.18
5.	Home/Living arrangements	Live alone	33	6.55
		Live in shared accommodation	16	3.18
		Live with parents	218	43.25
		Live with partner	237	47.02

6.	Do you have any friends or relatives who tested positive for COVID-19	Don't know	29	5.75
		No	466	92.46
		Yes	9	1.79
7.	Number of years in academics/private practice	< 5 years	196	38.89
		5-10 years	106	21.03
		10-20 years	108	21.43
		> 20 years	94	18.65
8.	Number of patients visiting your clinic per day?	None	84	16.67
		<10	194	38.49
		10-20	159	31.55
		21-30	32	6.35
		>30	35	6.94
9.	Have you received any training on dealing with public health emergencies?	No	216	42.86
		To some extent	135	26.78
		Yes	153	30.36
	Total		504	100.00

[Table/Fig-1]: Demographic details of participants.

Knowledge Score Calculation

Knowledge score calculation with scores is given in detail in [Table/Fig-2].

SI No.	Questions and Answers	Scores
1.	**Corona Virus is a**	
	DNA virus	Score 0
	RNA virus	Score 1
	Don't know	Score 0
2.	**Common symptoms associated with COVID-19**	
	Cold	
	Cough	
	Fever	
	Respiratory distress	
	Any 1 Answer	Score 1
	Any 2 Answers	Score 2
	Any 3 Answers	Score 3
	All 4 Answers	Score 4
3.	**Are you aware of emergency symptoms in patients with COVID-19 infection that require medical care?**	
	Swelling on neck or rashes on face or both	Score 0
	Respiratory distress	Score 1
	Respiratory distress and symptoms like loss of smell	Score 2
	Respiratory distress and symptoms like loss of smell and loss of taste	Score 3
4.	**Incubation period of COVID-19?**	
	1-14 days	Score 1
	1 month	Score 0
	Don't know	Score 0
5.	**How does COVID-19 spread?**	
	Pets	Score 0
	Droplet contact/hand to face contact- any 1 answer	Score 1
	Droplet contact and hand to face contact	Score 2
	Faecal matter, droplet contact and hand to face contact	Score 3
6.	**Which of the following dental procedures can result in transmission of COVID-19?**	
	Extraction and surgical procedures	Score 1
	Extraction and surgical procedures, Crown cutting, Root canal treatment	Score 2
	Extraction and surgical procedures, Oral examination and X-ray, Crown cutting and Root canal treatment	Score 3

SI No.	Questions and Answers	Scores
7.	**Which of the following chemicals are used for effective disinfection of COVID-19?**	
	Dettol or Soap solution or both	Score 1
	Dettol, Soap, 70% Alcohol	Score 2
	Dettol, Soap, 0.5 % Sodium hypochlorite and 70% alcohol	Score 3
8.	**Which of the following methods are used to diagnose COVID-19?**	
	Complete blood count, Culture in urine	Score 1
	Antibody test in serum, Real time PCR throat/Nasal swab	Score 2
	Antibody test in serum, Real time PCR throat/Nasal swab, Real time PCR blood	Score 3
9.	**Which of the following drugs are used for the treatment of COVID-19 infection currently?**	
	Vaccine	Score 0
	Antipyretics and analgesics	Score 1
	Antipyretics and analgesics, antibiotics	Score 2
	Analgesics, antipyretics, antibiotics, antivirals	Score 3
10.	**Choose best methods to protect a person from COVID-19 infection ?**	
	Hand hygiene, Social distancing	Score 1
	Hand hygiene, Social distancing, Avoiding touching the face	Score 2
	Hand hygiene, Social distancing, Avoiding touching the face, Facial mask	Score 3
11.	**Present WHO guidelines, for dental treatment in patients suspected with COVID-19 infection**	
	Pre-operative povidone mouth wash, Extra oral radiograph	Score 1
	Pre-operative povidone mouth wash, Extra oral radiograph, Rubber dam and high volume saliva ejectors	Score 2
	Pre-operative povidone mouth wash, Extra oral radiograph, Rubber dam and high volume saliva ejectors, Respirator N95 masks	Score 3
	Maximum marks	Score 30

[Table/Fig-2]: Knowledge score calculation.

I. Knowledge on COVID-19

Knowledge aspects on COVID-19 are shown in [Table/Fig-3]. The analysis showed that the majority of the respondents had score one for the questions numbered 1, 4,5,7,8,9 and 11 and score 2 for question number 3 and score 3 for question numbers 2, 6 and 10.

Ia. Gender of respondents compared with Knowledge Score on COVID-19

The Knowledge score on COVID-19 was statistically compared with some of the demographic factors of the respondents. Male respondents had better knowledge score compared to females as shown in [Table/Fig-4].

Ib. Age of the respondents compared with Knowledge Score on COVID-19

Respondents who were above the age of 66 were moderately informed and ages 46-55 were well informed about COVID-19, as shown in [Table/Fig-5].

Ic. Specialty of the respondents compared with Knowledge Score on COVID-19

[Table/Fig-6] depicts that dental specialty of Prosthodontics showed that they were well informed compared to others while conservative Dentistry Orthodontics and Periodontics were moderately informed.

Id. Country of Residence compared with Knowledge Score on COVID-19

Respondents from countries like UK and Australia (respondents were very less) were well informed compared to those from Malaysia, USA, Saudi Arabia and UAE who were moderately informed as shown in [Table/Fig-7].

Ie. Number of years in academics/private practice of respondents compared with Knowledge Score on COVID-19

[Table/Fig-8] shows that respondents who had an experience of more than 20 years were well informed whereas respondents with 5-10 years were moderately informed.

Sl No.		Knowledge score										Total
		Score 0		Score 1		Score 2		Score 3		Score 4		
		N	%	N	%	N	%	N	%	N	%	
1.	Coronavirus is a DNA/RNA virus	106	21.03	398	78.97							
2.	Common symptoms associated with COVID-19			146	28.97	135	26.79	223	44.25			
3.	Aware of emergency symptoms in patients with COVID-19 infection that require medical care?					399	79.17	105	20.83			
4.	The incubation period of COVID-19?	3	0.60	501	99.40							
5.	How does COVID-19 spread?			213	42.26	211	41.87	80	15.87			
6.	Can dental procedures result in the transmission of COVID-19?			114	22.62	120	23.81	270	53.57			504
7.	Chemicals used for effective disinfection of COVID-19?			235	46.63	95	18.85	174	34.52			
8.	Methods are used to diagnose COVID-19?			302	59.92	140	27.78	62	12.30			
9.	Drugs are used for the treatment of COVID-19 infection currently?			210	41.67	111	22.02	183	36.31			
10.	Best methods to protect a person from COVID-19 infection?			18	3.57	9	1.79	477	94.64			
11.	Present WHO guidelines, for dental treatment in patients suspected with COVID-19 infection			260	51.69	46	9.13	198	39.29			

[Table/Fig-3]: Knowledge aspects of COVID-19.

Gender	Knowledge score on COVID-19						Total	Chi-square test
	Poorly informed less than 15		Moderately informed 15-22		Well informed 22-30			
	N	%	N	%	N	%		
Male	50	19.69	148	58.27	56	22.04	254	χ^2 value 0.56 p-value 0.756
Female	56	22.40	141	56.40	53	21.20	250	
Total	106	21.03	289	57.34	109	21.63	504	

[Table/Fig-4]: Gender of respondents compared with Knowledge Score on COVID-19.
p-value >0.05 and it was concluded that there was no statistical difference between the gender of the respondents and the Knowledge Score on COVID-19

Age	Knowledge score on COVID-19						Total	Chi-square test
	Poorly informed less than 15		Moderately informed 15-22		Well informed 22-30			
	N	%	N	%	N	%		
25-35	63	22.50	154	55.00	63	22.50	280	χ^2 value 6.85 p-value 0.553
36-45	25	21.19	75	63.56	18	15.25	118	
46-55	16	18.61	47	54.65	23	26.74	86	
56-65	2	12.50	10	62.50	4	25.00	16	
66+			3	75.00	1	25.00	4	
Total	106	21.03	289	57.34	109	21.63	504	

[Table/Fig-5]: Age of the respondents compared with knowledge Score on COVID-19.
p-value >0.05 and it was concluded that there was no significant statistical association between the age of the respondents and the knowledge score on COVID-19

If. Number of patients visiting your dental clinic per day compared with Knowledge score on COVID-19

[Table/Fig-9] shows that the well informed respondents treated more than 30 patients in a day whereas the moderately informed dentists treated less than ten patients per day.

II. Psychological Aspects

The analysis showed that majority of the respondents were not worried at all for question number 13, moderately worried for question number 12, and extremely worried about the question numbers 14 and 15. Psychological aspects of COVID-19 are shown in [Table/Fig-10].

III. Social and Economic Aspects

A 98.61% of the respondents stated that after the COVID-19 outbreak, they washed their hands frequently, avoided crowded places, and cancelled social events and travel plans. A 92.06% reported restricted mobility from one city to another during this COVID-19 outbreak.

Specialty	Knowledge score on COVID-19						Total	Chi-square test
	Poorly informed less than 15		Moderately informed 15-22		Well informed 22-30			
	N	%	N	%	N	%		
Community dentistry	1	50.00	1	50.00			2	χ^2 value 10.94 p-value 0.897
Conservative dentistry	6	15.00	28	70.00	6	15.00	40	
General dentist	46	21.30	124	57.40	46	21.30	216	
Oral medicine and radiology	3	25.00	7	58.33	2	16.67	12	
Oral pathology	13	28.26	21	45.65	12	26.09	46	
Oral surgery	6	20.69	15	51.72	8	27.59	29	
Orthodontics	4	16.67	16	66.66	4	16.67	24	
Pediatric dentistry	18	20.93	49	56.98	19	22.09	86	
Periodontics	4	14.81	18	66.67	5	18.52	27	
Prosthodontics	5	22.73	10	45.45	7	31.82	22	
Total	106	21.03	289	57.34	109	21.63	504	

[Table/Fig-6]: Specialty of the respondents compared with Knowledge Score on COVID-19.
p-value >0.05 and it was concluded that there was no significant statistical association between the Specialty of the respondents and the knowledge score on COVID-19

Country of residence	Knowledge level on COVID 19						Total	Chi-square test
	Poorly informed less than 15		Moderately informed 15-22		Well informed 22-30			
	N	%	N	%	N	%		
Australia			1	100.00			1	χ^2 value 18.75 p-value 0.095
India	102	22.32	257	56.24	98	21.44	457	
Malaysia	2	16.67	9	75.00	1	8.33	12	
Saudi Arabia	1	7.69	9	69.23	3	23.08	13	
UAE	1	14.29	5	71.42	1	14.29	7	
UK					3	100.00	3	
USA			8	72.73	3	27.27	11	
Total	106	21.03	289	57.34	109	21.63	504	

[Table/Fig-7]: Country of Residence compared with Knowledge Score on COVID-19.
p-value >0.05 and it was concluded that there was no significant statistical association between the Country of residence and the Knowledge score on COVID-19

Social and Economic aspects of COVID-19 are shown in [Table/Fig-11].

Number of years in academics/ private practice	Knowledge score on COVID-19						Total	Chi-square test
	Poorly informed less than 15		Moderately informed 15-22		Well informed 22-30			
	N	%	N	%	N	%		
<5 years	51	26.02	106	54.08	39	19.90	196	χ² value 8.17 p-value 0.226
5-10 years	16	15.09	69	65.09	21	19.82	106	
10-20 years	24	22.22	59	54.63	25	23.15	108	
>20 years	15	15.96	55	58.51	24	25.53	94	
Total	106	21.03	289	57.34	109	21.63	504	

[Table/Fig-8]: Number of years in academics/private practice of respondents compared with knowledge Score on COVID-19.
p-value >0.05 and hence it was concluded that there was no significant statistical association between the number of years in academics/private practice of the respondents and the Knowledge Score on COVID-19

Number of patients visiting your clinic per day	Knowledge score on COVID-19						Total	Chi-square test
	Poorly informed less than 15		Moderately informed 15-22		Well informed 22-30			
	N	%	N	%	N	%		
None	19	22.62	47	55.95	18	21.43	84	χ² value 10.32 p-value 0.242
<10	48	24.74	114	58.77	32	16.49	194	
10-20	26	16.35	93	58.49	40	25.16	159	
21-30	8	25.00	17	53.12	7	21.88	32	
>30	5	14.29	18	51.43	12	34.28	35	
Total	19	22.62	47	55.95	18	21.43	84	

[Table/Fig-9]: Number of patients visiting your dental clinic per day compared with knowledge score on COVID-19.
p-value >0.05 and it was concluded that there was no significant statistical association between the number of patients seen by the respondents and the Knowledge Score on COVID-19

SI No.	Questions	Not worried at all Likert scale 1		Slightly worried Likert scale 2		Moderately worried Likert scale 3		Severely worried Likert scale 4		Extremely worried Likert scale 5		Total
		N	%	N	%	N	%	N	%	N	%	
12.	Are you worried about the spread of COVID-19 and other pandemic related information from various media sources/social media?	31	6.15	65	12.90	148	29.37	116	23.01	144	28.57	
13	Does this spread of COVID-19 affect your normal and continuous sleep?	183	36.31	133	26.39	101	20.04	54	10.71	33	6.55	504
14.	Are you worried about getting infected with COVID-19 at the workplace?	68	13.49	72	14.29	117	23.21	104	20.64	143	28.37	
15.	Are you worried about your loved ones or others getting infected with COVID-19 because of you?	46	9.13	58	11.51	77	15.28	99	19.64	224	44.44	

[Table/Fig-10]: Psychological aspects of COVID-19.

SI No.	Social and Economic aspect — Questions	No		Yes		Total
		N	%	N	%	
16.	Do you think about serving as a volunteer in case of an emergency during COVID-19 outbreak?	289	57.3	215	42.7	
17.	Do you have restricted mobility from one city to another during this COVID-19 outbreak?	40	7.94	464	92.06	
18.	Do you feel that you have restricted mobility for traveling abroad during the COVID-19 outbreak?	95	18.85	409	81.15	
19.	Are you feeling that restricted mobility is affecting your sports and social activities during the COVID-19 outbreak?	197	39.09	307	60.91	504
20.	Did you miss scientific events important to your career during the COVID-19 outbreak?	237	47.02	267	52.98	
21.	Do you have difficulty in getting groceries and personal items during the lockdown?	266	52.78	238	47.22	
22.	Did the lockdown affect you economically?	140	27.78	364	72.22	
23.	After the COVID-19 outbreak, I wash my hands frequently, avoid crowded places, canceled social	7	1.39	497	98.61	

[Table/Fig-11]: Social and Economic aspect.

IV Responses Given by Academicians

Out of 504 respondents, only 197 (39.1%) of respondents were academicians.

Information given by Academicians during COVID-19 pandemic is given in [Table/Fig-12].

SI No.	Questions to academicians	Yes/No/No answer	Fre-quency	%
24.	Number of courses you co-ordinate			
	One		80	15.87
	Two		56	11.11
	Three		39	7.74
	Four		8	1.59
	Above 4		14	2.78
			197	
25.	Number of students you deal with per year			
	<50		67	34.01
	50-100		56	28.43
	100-200		27	13.71
	>200		32	16.24
		No answer	15	7.61
26.	Number of students mentored by you			
	<5		59	29.95
	5-10		64	32.49
	10-15		50	25.38
		No answer	24	20.17
27.	Do students approach for Psychological support during the lock down?	No	99	50.25
		Yes	77	39.09
		No answer	21	10.66
28.	Assigned with any academic responsibilities by the college during lock down?	No	81	41.12
		Yes	96	48.73
		No answer	20	10.15
29.	Using the lock down time for preparing for any publications?	No	74	37.56
		Yes	107	54.32
		No answer	16	8.12
30.	Utilising the lock down period for doing any online course?	No	96	48.74
		Yes	99	50.25
		No answer	2	1.01

[Table/Fig-12]: Academicians during COVID-19 pandemic.

DISCUSSION

The mode of transmission of SARS-CoV2 virus puts the dental professionals under serious risk of infection. The aerosol cloud and splatter generated from specific dental procedures are very likely to carry oral and respiratory tract pathogens Contact transmission through body fluids, contaminated surfaces and instruments has also been reported [14]. As many emergency patients continue to avail health care services from dental clinics and hospitals even in the time of quarantine and social distancing, it is important for dental practitioners to be factually aware of COVID-19 infection to help contain the spread. Dissemination of health information should create more awareness regarding pandemics and steps should be taken to provide information that increases community health awareness on personal hygiene and safety measures and reduces fear of the spread of disease [15].

During the Ebola outbreak in North West Ethiopia in 2015, Abebe TB et al., reported poor knowledge, negative and incorrect beliefs among doctors and allied health professionals. The team reported that there is a need for intensive training for all Health care Professionals to reduce Ebola virus disease risk [16].

Alfaki MM et al., reported that more in-service training for health care professionals will help them increase their knowledge [17]. Another study reported that medical universities and dental schools need to act fast to prepare Hungary's students and junior doctors for an inevitable influx of Ebola virus infected patients as there was a lack of awareness among dental students [18]. In present study, some of the areas where the dental professionals lacked knowledge were the most important ways of spread, drugs used for treatment, chemicals used for disinfection, WHO guidelines for dental treatment and methods to diagnose COVID-19, but there was no statistical significance on knowledge score with the demographic details of the respondents.

Another study on flu pandemic had contradictory reports that health care professionals had better awareness in terms of symptoms, casualties, progression of disease, and methods of controls. Better awareness and a positive attitude during pandemics led to lesser levels of anxiety [19]. Some of the participants (9 or 1.79%) in present study had COVID-19 positive contacts. As the present study commenced when the pandemic started in India, further information regarding the positive contacts of participants were not obtained.

A study by Gambhir RS et al., in India on H1N1 virus infection reported that knowledge gaps existed among dental professionals and highlighted the need for continuous education programs regarding infectious diseases [20]. Gambhir RS et al., reported from India that one-third of the participants were not aware that Personal Protective Equipment (PPE) should be used while rendering dental treatment [21]. The present study also highlighted the importance of increasing the knowledge of dental professionals.

COVID-19 diagnosis can be made by using nasopharyngeal and oropharyngeal swabs. It has been demonstrated previously that saliva also has an equally important role in the detection of Coronavirus, like other viruses affecting the respiratory tract [22].

A recent study on undergraduate and postgraduate health professionals revealed their moderate awareness level regarding the symptoms, spread, and control of COVID-19. The study reported that the educated and health care people were sensitised, and the participants frequently used hand wash, masks, and sanitisers. They had agreed to social distancing, avoided travel, and would go into self-quarantine if needed [23]. In the present study, more than half of the participants reported that they had missed scientific events during COVID-19 pandemic. 98.61% of the respondents reported that they have improved attitudes in self-hygiene and social distancing after the pandemic.

In the present study, we identified that the respondents faced difficulty in procuring daily essentials and while traveling from one place to another. In a recent study, people went for panic buying, which led to the exhaustion of resources for others [24]. Incorrect reports about shortage of food, other resources, and essential things resulted in more panic buying [23]. In this study, almost 42% of the respondents were ready to volunteer if needed during the COVID-19 pandemic. This highlights their social responsibility and commitment. A 72% of the participants were affected economically due to the pandemic in present study.

In this present study, respondents had reported maximum psychological stress reading the news in social media, and there was fear of contracting the disease from the workplace and about passing it to their close contacts. Equal proportions of participants had responded 3, 4 and 5 in Likert scale about the fear from social media about COVID-19. The psychological stress can be resolved via tele-psychological consultations and spread of awareness regarding these consultations. In a recent study including medical professionals, inappropriate behaviors were reported by participants due to anger, restlessness, and worry about COVID-19 [23].

In the present study, more than 72% respondents were affected economically because of the pandemic. The present study showed the lack of knowledge of 42.8% of dental professionals in public health emergencies. The present study showed that different roles of academicians were academic teaching, research, mentoring, and preparing online courses during the lockdown period. The academicians of the present study coordinated undergraduates, postgraduates and Doctorate students in dentistry. Most of the academic activities were carried out online by the participants. The regulatory bodies should manage education-related challenges for medical and dental schools, as many countries managed this during SARS and other infectious disease periods. UNESCO has reported the response of different countries in the conduct of important examinations during the pandemic [25]. A recent report suggested that research teams should be focused on developing rapid chairside tests for the detection of COVID-19, which will help to develop successful strategies for its prevention, especially for dentists and healthcare professionals who perform aerosol-generating procedures [22]. There was a significant adverse impact of COVID-19 pandemic on high-contact industries, including dentistry. As strict social distancing guidelines were imposed by many states, dental clinics and general practice physician offices remained closed.

To keep dentists and patients safe from the adverse health effects of COVID-19 and to conserve PPE, the ADA issued on March 16, 2020 a guidance that "dental practitioner should postpone elective procedures and should only provide emergency or urgent care. ADA recommended dentists to postpone radiographs, oral examinations, aesthetic dental procedures, routine cleaning and preventive therapies, and orthodontic procedures that don't involve pain management. Urgent dental care includes extensive dental caries involving pain, uncontrolled oral bleeding, facial trauma, dental trauma, tooth fractures and biopsies of abnormal tissues. It is estimated that demand in high-contact industries will decline by 51 percent and that their gross output will fall by 47 percent [26].

The strength of the present study is that more than 500 dental practitioners were covered, the majority of them being from India during the early stage of the COVID-19 outbreak with almost equal representation of male and female participants. Thus, the present study gives a good representation of dental professionals; more questions exploring the effects of COVID-19 can be incorporated in the future.

Limitation(s)

The limitation of the present study was that most of the dental professionals were from India and thus the study doesn't give a global representation.

CONCLUSION(S)

Based on the results obtained from the study the following conclusions were drawn. Awareness should be provided to dental professionals to manage dental emergencies so as to prevent the spread of the disease. Psychological, social and economic support should be rendered to the dental professionals by experts. Dental teaching curriculum in instituitions should also include public health emergencies.

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