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Impact of COVID-19 Pandemic on Anxiety Level, Lifestyle Modifications and Utilisation of Dental Services amongst Dentists and Non Dentists in India

Short title: Impact of COVID-19 Pandemic on Dentists and Non Dentists

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Abstract: ***Objective: COVID-19 outbreak has affected lives of millions, not only medically but also socially and economically. Knowledge of spread of the outbreak has led to development of anxiety in many which has in turn resulted in lifestyle modifications and also changes in utilisation of dental services. Method: A cross - sectional questionnaire was designed to carry out the study. Impact of COVID-19 on the anxiety level, lifestyle modification and utilisation of dental services was evaluated with the help of questionnaire. The level of anxiety was evaluated using General Anxiety Disorder scale based on the knowledge of the pandemic. Result: Anxiety levels were higher (OR=0.60) amongst the dentists as compared to the non - dentists and also higher amongst the female study subjects. Anxiety level amongst the study population was found to be on the higher side amongst the government employees as compared to private and semi - private sector employees. Anxious group were found to be more aware of protocols and were more adaptive towards lifestyle modifications to be followed during the pandemic. Individuals with anxiety were inclined to utilise the dental services only during dental emergencies and not routine procedures. Conclusion: This study demonstrated a significant correlation between the level of awareness about the COVID-19 pandemic, associated anxiety, changes in lifestyle and subsequent utilisation of dental services amongst the study population.***

Keywords: COVID-19, anxiety, dental services, lifestyle modifications

1. Introduction

In December 2019, numerous respiratory cases of unknown origin were reported in China. These cases spread worldwide and in Feb 2020, WHO declared this disease as COVID-19. [1] In a very short span of few months, COVID-19 cases surged exponentially worldwide and as a result, an increase in symptoms of depression and anxiety has been reported in all nations. [2] In May 2020, UN policy brief on COVID-19 emphasised on impact of COVID-19 on psychology of the general population. It was established that provision of mental health support to the general population was essential. As on 10 Sep 2020, this novel coronavirus has quickly spread across all nations, with around 28, 200, 000 cases and 910, 078 deaths worldwide. India is amongst the most severely affected nations with around 4, 560, 008 confirmed cases and 77, 000 deaths as on 10 Sep 2020.

Transmission of COVID-19 amongst humans have thought to be primarily via respiratory droplets, although the other routes of transmission are debatable. Individuals belonging to extreme age groups, having suppressed immunity and co morbidities have seem to be more susceptible. The provisional case fatality rate by WHO is around 2%, but some researchers estimate the rate to range from 0.3% to 0.6%. [3]

The rapid spread of COVID-19 along with no definitive treatment and increasing death rate has created mass hysteria. Many researches have shown that pandemics/ epidemics in the past had profound psychological effect on the individuals**.** [4, 5] Anxiety and fear are often observed amongst individuals due to the stigma of being isolated from the rest and conflicting data being introduced on daily basis. People with persistent severe anxiety are more likely to commit mistakes resulting in irrational decisions and erratic behaviour.

Dentists, being at high risk to COVID-19 infections, are also expected to develop fear and anxiety while treating patients. Keeping in mind the widespread infection, American Dental Association (ADA) has published numerous advisories highlighting the protocols to be followed while treating the patients. [6] Some of these include taking patient's recent travel history, evaluating vital signs, examining for any signs and symptoms, use of rubber damn and high volume suction to mention a few.

Many researches have shown that knowledge of outbreaks like these have significant impact on acceptance of lifestyle modifications and utilisation of dental services. [7, 8] Hence, this study aims at conducting survey to assess knowledge and psychological impact of COVID-19 on lifestyle

modifications and utilisation of dental services amongst dental patients (non - dentists) and dentists.

2. Material and Methods

Setting and Participants:
A cross - sectional and online anonymous questionnaire was adopted. The forms were designed using social media messaging services. The focus participants were general population including dentists and routine dental patients (non - dentists).

Survey development:
Previously used survey on psychological impact of disease and SARS episodes were referred. In addition to demographic data, impact of COVID-19 on modifications of lifestyle and utilisation of dental services was included in the development of survey questionnaire.

Basic demographic data included: gender, job description and educational qualification. Knowledge level on COVID-19 was developed keeping in mind the latest patterns of spread of infection and guidelines to be adhered to. In addition, hand hygiene, current guidelines of social distancing, wearing of masks, general hygiene manners and utilisation of dental services were also used in survey questionnaire.

Psychological assessment was developed using the General Anxiety Disorder - 7 Scale questionnaire. The questionnaire was developed using the current environment of COVID-19 spread and risks involved. These categories of questionnaire was made in general terms applicable to both the dentist and non - dentists.

The sample size for the survey was calculated using National Mental Health Survey 2015 - 16 data, prevalence of anxiety as 3.1% was used to calculate the sample size. Sample size came out to be 248 by taking prevalence of General anxiety as per NMHS 2015 - 16, power of the study as 90%, acceptable level of significance as 1% and acceptable absolute error of margin of 0.05. A total of 323 people were sent questionnaire forms by email to achieve a considerable sample size.

The surveyed population was organised and analysed using SPSS 23.0 software. The population was divided into Dentists and Non Dentists groups and evaluated for anxiety using the GAD scale standard. The measurement of data was subdivided into No anxiety, Mild Anxiety, Moderate Anxiety and Severe Anxiety. The data was expressed as mean and standard deviation. Data was counted based on percentage of population. The data was analysed using Pearson Chi - square tests.

3. Results

Anxiety level amongst the study population was found to be on the higher side amongst the government employees as compared to private and semi - private sector employees. Anxiety level amongst the female study subjects were higher (OR=0.60). The anxiety level amongst dentists was found to be higher compared to that among the non - dentists (Table 1).

Over 2/3rd of the study population were anxious and expressed its effect over modification of lifestyle. The habit of washing hands after coughing or sneezing was more often practiced by those who were anxious (p value<0.001), however the mild and moderately anxious were also significantly practicing the necessary preventive measures. Likewise, the habit of wearing masks even in the absence of symptoms and using sanitisers or washing hands with soap and water after meeting someone was significant amongst the anxious subjects in the study population (p value<0.001) (Table 2).

The less anxious study population showed least concern regarding contacting infection from the dental clinic or other patients or carrying infection back home and infecting their families (p value<0.001). However, the anxious people were somewhat likely to utilise the dental services for all dental complaints including dental pain, swelling and trauma (Table 3).

The comparison between dentists and non - dentists showed predominantly more anxiousness amongst the dentist. This anxiety level corresponded with increase in the awareness of the current protocols to prevent spread of the disease, isolation and quarantine protocols amongst the dentists (Table 4). The heightened anxiety levels showed significant apprehension amongst dentists to undertake routine dental procedures and implementation of the several hygiene protocols (Table 5 and 6).

4. Discussion

This study can play a significant role in understanding the impact of COVID-19 on mental health status of individuals and thus helping in formulating protocols to control the spread of fear and anxiety amongst the individuals. [9] Anxiety is a common psychological phenomenon in any pandemic outbreak that can pose to be an obstacle to medical and mental health interventions. [10, 11]

Anxiety and fear amongst population can be controlled by the combined efforts of the government and media. Health care providers can also play an important role in controlling fear and anxiety amongst the individuals. They need to determine high risk groups that would be majorly impacted by the outbreak psychologically. Early psychological interventions such as cognitive behaviour therapy and providing accurate information about COVID-19 can play significant role in controlling the anxiety in people. Also, media can play extremely important role in providing information in diagrammatic or visual format in order to reach to even those with no formal education.

The significance of psychosocial skills for COVID-19 responders was highlighted by WHO on 01 Jun 2020. WHO emphasised on taking care of one's own mental health, demonstrating empathy and helping people suffering from stress or severe distress. Basic psychosocial skill - a guide for essential workers was introduced by a collaboration of

UN agencies, national and international NGOs and international agencies.

Accurate knowledge regarding the COVID-19 is often associated with less anxiety amongst the individuals. [12, 13] It becomes imperative to create awareness amongst the population not only regarding the complications and mortality of the disease but also regarding positive aspects in relation to the outbreak. [14, 15] Scientists and doctors are in constant search of accurate data of the virus resulting in frequent changes in protocols and guidelines set by the government and scientific organisations. This further necessitates the need of updating the knowledge of this disease amongst the population.

Our study also demonstrated that anxious individuals were more inclined to follow lifestyle modifications and preventive guidelines. Preventive measures such as frequent washing of hands, use of sanitisers, wearing of N 95 masks was seen to be followed more by moderate to severely anxious people. This could be attributed to the fact that moderately anxious people are prone to paranoia about getting infected and hence follow guidelines and preventive measures more stringently. While those with no to mild anxiety levels tend to have casual attitude towards following the guidelines, the ones with severe anxiety levels tend to be over cautious and hence more than often end up creating hysteria.

Health care workers are at maximum risk of being infected due to frequent exposure. Gianrico Spagnuolo et al emphasised on excessive aerosol production during the treatment in dentistry as one of the key reasons for increasing risk of getting infected. [16]

Our study demonstrated that individuals with moderate to severe anxiety tend to utilise dental services only during emergency while those with mild to no anxiety levels tend to utilise dental services more often during COVID-19 pandemic. It is seen that due to the outbreak, the utilisation of dental services has reduced. This is due to concern about getting infected in the dental clinic. [17]

Also, our study demonstrated that dentists had the fear of transmitting the infection from the dental clinic to their family and also getting themselves infected due to increased exposure, hence affecting the availability of dental services to the public. [18] Although, with passage of time, awareness about protocols while treating the patients has eased down the dentist's fear, patients still prefer delaying dental treatment during this pandemic. [19]

5. Conclusion

This study within its limitations has demonstrated that COVID-19 has affected people not only physically but also psychologically. Both dentists and non - dentists have shown to be affected due to this pandemic. Inaccurate and incomplete knowledge has resulted in increase in anxiety which has further influenced utilisation of dental services and lifestyle modifications in daily routine. [20, 21, 22] Hence, it becomes extremely vital to create awareness and provide psychological support to the population at individual and national level during this pandemic.

Source: N/A

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Conflict Of Interest: Nil;

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Tables

Table 1: Demographic Descriptive data of anxiety based GAD - 7 scale

Demographic Data	Percentage Anxious	Significance (p value)	Anxiety Grade (GAD - 7 scale) (No of Persons)				Significance (p value)
			Nil	Mild	Moderate	Severe	
Gender							
Female	71.4%	0.039	54	59	62	14	0.088
Male	60.4%		53	44	31	6	
Marital Status							
Married	67.2%	0.822	77	74	70	14	0.930
Single	65.9%		30	29	23	6	
Employment							
Government	67.1%	0.063	23	11	33	3	0.000
Semi - Private	89.3%		3	11	14	0	
Private	63.3%		55	57	23	15	
Unemployed	65.3%		26	24	23	2	
Educational Qualification							
Graduate	72.2%	0.134	42	52	43	14	0.203
Post Graduate	60.8%		49	37	36	3	
Undergraduate	66%		16	14	14	3	
Source of information regarding COVID-19							
Internet	67.8%	0.160	46	48	41	8	0.483
Print Media	41.7%		7	3	2	0	
Social Community	76.3%		9	10	16	3	
Television	65.4%		45	42	34	9	
Radio	0		0	0	0	0	
Comparison of level of stress between Dentists and Non - dentists							
Non - dentists (177)	65%	0.424	62	59	51	5	0.049
Dentists (146)	69.2%		45	44	42	15	

Table 2: Association of Lifestyle modification due to COVID-19 and Stress Level

Likely hood of Population (No of Persons)	Percentage Anxious	Significance (p value)	Anxiety Grade (GAD - 7 scale) (No of Persons)				Significance (p value)
			Nil	Mild	Moderate	Severe	
How often do you wear N - 95 masks?							
Always (52)	80.8%	<0.001	10	14	25	3	<0.001
Mostly (111)	82%		20	43	34	14	
Sometimes (66)	57.6%		28	27	11	0	
Never (94)	47.9%		49	19	23	3	
How often do you cover your mouth while coughing or sneezing?							

Always (249)	63.9%	0.067	90	78	64	17	<0.001
Mostly (35)	71.4%		10	18	7	0	
Sometimes (39)	82.1%		7	7	22	3	
Never (0)	0		0	0	0	0	
How often do you wash your hands immediately after coughing, rubbing nose or sneezing?							
Always (182)	67%	0.01	60	66	39	17	<0.001
Mostly (87)	77%		20	24	40	3	
Sometimes (51)	51%		25	12	14	0	
Never (3)	33.3%		2	1	0	0	
How often do you wear mask regardless of the presence or absence of symptoms?							
Always (116)	62.9%	<0.001	43	41	29	3	<0.001
Mostly (161)	75.8%		39	50	55	17	
Sometimes (35)	57.1%		15	11	9	0	
Never (11)	9.1%		10	1	0	0	
How frequently do you wash your hand with soap and water / use sanitiser after meeting someone?							
Always (194)	66.5%	0.246	65	74	41	14	0.001
Mostly (101)	71.3%		29	20	46	6	
Sometimes (27)	51.9%		13	8	6	0	
Never (1)	100%		0	1	0	0	

Table 3: Association of COVID-19 and Stress Level and utilisation of dental services

Likely hood of Population (No of Persons)	Percentage Anxious	Significance (p value)	Anxiety Grade (GAD - 7 scale) (No of Persons)				Significance (p value)
			Nil	Mild	Moderate	Severe	
Are you concerned on the likelihood of contracting COVID-19 from dental clinic or from other patients?							
Very likely (136)	78.7%	<0.001	29	51	47	9	<0.001
Somewhat likely (119)	57.1%		51	38	25	5	
Not at all (15)	40%		9	2	1	3	
Don't know (53)	66%		18	12	20	3	
Are you worried of carrying the infection home and infect your family from the dental clinic?							
Very likely (148)	77%	0.001	34	52	52	10	0.018
Somewhat likely (136)	61.8%		52	43	31	10	
Not at all (27)	44.4%		15	6	6	0	
Don't know (12)	50%		6	2	4	0	
Probability of utilising dental services in case of tooth pain							
Very likely (87)	41.4%	<0.001	51	21	13	2	<0.001
Somewhat likely (174)	79.9%		35	66	58	15	
Not at all (23)	47.8%		12	8	3	0	
Don't know (39)	76.9%		9	8	19	3	
Probability of utilising dental services in case of tooth swelling / abscess							
Very likely (177)	57.1%	<0.001	76	48	43	10	<0.001
Somewhat likely (122)	85.2%		18	47	47	10	
Not at all (15)	53.3%		7	6	2	0	
Don't know (9)	33.3%		6	2	1	0	
Probability of utilising dental services in case of oral injury / oro - facial trauma							
Very likely (270)	65.9%	0.014	92	76	82	20	0.002
Somewhat likely (31)	87.1%		4	17	10	0	
Not at all (13)	61.5%		5	8	0	0	
Don't know (9)	33.3%		6	2	1	0	

Table 4: Association of knowledge base about COVID-19 and Stress Level amongst the dentists and non - dentists

Knowledge Base of Population (No of persons)	Percentage Non - Dentists	Percentage Dentists	Significance (p value)
Do you have knowledge of transmission of COVID-19?			
Yes (306)	53.9%	46.1%	0.337
No (1)	100%	0	
Not Sure (16)	68.8%	31.2%	
Are you updated with the current CDC, WHO or Government guidelines for Cross - Infection Control regarding COVID-19?			
Yes (231)	44.6%	55.4%	<0.001
No (54)	87%	13%	
Not Sure (38)	71.1%	28.9%	
Do you think N - 95 mask should be routinely worn due to the current outbreak?			
Yes (190)	42.1%	57.9%	<0.001
No (70)	68.6%	31.4%	
Not Sure (63)	77.8%	22.2%	
Are you aware of which authority to contact if you come across a patient with suspected COVID-19 Infection?			
Yes (265)	51.3%	48.7%	0.006

No (49)	44.4%	55.6%	
Not Sure (9)	75.5%	24.5%	
Are you aware of the quarantine and isolation protocols in case you have contracted COVID-19?			
Yes (252)	48.8%	51.2%	<0.001
No (9)	44.4%	55.6%	
Not Sure (62)	80.6%	19.4%	

Table 5: Association of Lifestyle modification due to COVID-19 and anxiety amongst the dentists and non - dentists

Lifestyle modification	Percentage Non - Dentists	Percentage Dentists	Significance (p value)
How often do you wear N - 95 masks?			
Always (52)	48.1%	51.9%	<0.001
Mostly (111)	41.4%	58.6%	
Sometimes (66)	48.5%	51.5%	
Never (94)	78.7%	21.3%	
How often do you cover your mouth while coughing or sneezing?			
Always (249)	47.4%	52.6%	<0.001
Mostly (35)	57. .1%	42.9%	
Sometimes (39)	100%	0%	
Never (0)	0%	0%	
How often do you wash your hands immediately after coughing, rubbing nose or sneezing?			
Always (182)	50.5%	49.5%	<0.001
Mostly (87)	44.8%	55.2%	
Sometimes (51)	86.3%	13.7%	
Never (3)	66.7%	33.3%	
How often do you wear mask regardless of the presence or absence of symptoms?			
Always (116)	45.7%	54.3%	0.022
Mostly (161)	57.1%	42.9%	
Sometimes (35)	74.3%	25.7%	
Never (11)	54.5	45.5%	
How frequently do you wash your hand with soap and water / use sanitiser after meeting someone?			
Always (194)	49.5%	50.5%	0.008
Mostly (101)	58.4%	41.6%	
Sometimes (27)	81.5%	18.5%	
Never (1)	0%	100%	

Table 6: Association of Likely - hood of utilising dental services and anxiety amongst the dentists and non - dentists

Likely hood of Population (No of Persons)	Percentage Non - Dentists	Percentage Dentists	Significance (p value)
Are you concerned on the likelihood of contracting COVID-19 from dental clinic or from other patients?			
Very likely (136)	31.6%	68.4%	<0.001
Somewhat likely (119)	64.7%	35.3%	
Not at all (15)	86.7%	13.3%	
Don't know (53)	83%	17%	
Are you worried of carrying the infection home and infect your family from the dental clinic?			
Very likely (148)	35.1%	64.9%	<0.001
Somewhat likely (136)	71.3%	28.7%	
Not at all (27)	70.4%	29.6%	
Don't know (12)	75%	25%	
Probability of utilising dental services in case of tooth pain			
Very likely (87)	43.7%	56.3%	<0.001
Somewhat likely (174)	50%	50%	
Not at all (23)	65.2%	34.8%	
Don't know (39)	94.9%	5.1%	
Probability of utilising dental services in case of tooth swelling / abscess			
Very likely (177)	50.3%	49.7%	0.023
Somewhat likely (122)	55.7%	44.3%	
Not at all (15)	86.7%	13.3%	
Don't know (9)	77.8%	22.2%	
Probability of utilising dental services in case of oral injury / oro - facial trauma			
Very likely (270)	54.1%	45.9%	0.005
Somewhat likely (31)	41.9%	58.9%	
Not at all (13)	100%	0%	
Don't know (9)	55.6%	44.4%	