Knowledge, attitude and preventive practices related to novel Coronavirus Infection (COVID-19) among patients attending dental hospital in Dharwad

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ABSTRACT

Background: The Novel Coronavirus Disease 19 (COVID-19) is one of the deadly diseases declared as pandemic by WHO. The managing strategies include prevention of spread of the infection and awareness regarding the preventive practices, which are very vital in preventing the exponential spread of the disease. Despite the rolling commentary over telephone calls and advertisements at every desk, public is too negligent over this global threat. **Aims and Objectives:** The present questionnaire based study was aimed to assess the knowledge, attitude and preventive practices existing among the public to face the pandemic. **Materials and Methods:** The present study was a cross-sectional questionnaire based study using a convenience sampling method. The patients attending the outpatient section of the Oral Medicine department of a Dental Hospital for various dental complaints were interviewed by telephonic conversation. Patient's knowledge and awareness regarding the prevailing situation created by the media was assessed. **Results:** Seventy-seven point seven percent of the participants were following the preventive practices. They had an average attitude towards the prevention of spread of infection (52.4%) and considering COVID-19 as a serious infection (51.8%). Younger population, professionals and females had an overall better Knowledge, Attitude and Practices. **Conclusions:** Majority of the assessed population had a sound knowledge about the pandemic. Certain key issues like visiting the hospitals only for emergencies needs to be emphasised by health care professionals to prevent the spread of the disease.

Key words: KAP; Pandemic; Preventive practices; COVID-19

INTRODUCTION

The novel Coronavirus Disease 19 (COVID-19) outbreak has currently become one of the major concerns across the globe. With the first case in Wuhan, Hubei district, China on 31 December 2019 was reported as pneumonia of an unknown cause and it has been spreading fast.[1] Since January 2020, cases had been reported outside China as the individuals began to travel to various other countries.[1] WHO announced COVID-19 as a Public Health Emergency of International Concern on 30th January 2020.[1] The world is not new to such an emergency as the history did report Severe Acute Respiratory syndrome (SARS) in 2002 and Middle Eastern Respiratory Syndrome (MERS) in 2012. But the scale at which the COVID-19 is being reported across different nations not only instils sense of panic but also agitates various sectors as dealing with the prevention and cure of this pandemic serves as a major challenge.

COVID-19, like SARS-CoV and Middle East Respiratory Syndrome Coronavirus (MERS-CoV), belongs to

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Coronavirus family,[2] which is a zoonotic virus that manifests Pneumonia-like symptoms.[2] It is transmitted through air-droplets among humans when the infected person coughs or sneeze.[3] The most common symptoms of COVID-19 are fever, tiredness and dry cough with an incubation period from 1 to 14 days.[3] Some patients may have aches and pains, nasal congestion, running nose, sore throat or diarrhea.[3] These symptoms are usually mild and begin gradually. Testing for COVID-19 includes molecular recognition and serology testing.[4] The sample source for the tests include swabs from nasopharyngeal region or even sputum sample.[4] Results are generally available within a few hours to 2 days.[5] Currently, there are no specific vaccines or treatments for COVID-19. However, there are many ongoing clinical trials evaluating potential treatments.

People of all ages can be infected by the novel coronavirus COVID-19. Older people, and people with pre-existing medical conditions (such as asthma, diabetes, heart disease) appear to be more vulnerable to becoming severely ill with the virus.[1] COVID-19 virus can be transmitted in areas with hot and humid climates. Cold weather and snow cannot kill the new coronavirus.[1]

Various measures have been taken by the Government and other health services to prevent the further spread. Health care professionals are at highest risk to contract the disease either from affected people or from asymptomatic secondary contacts. Personal protective equipments, hand sanitization, cleanliness of the surroundings, social distancing, self-isolation is the need of the hour and form the most crucial aspects of preventive strategies advocated.[6] In order to battle this global threat, every individual is ought to follow the stringent measures towards preventing the COVID-19 spread and serve to help recover the ones affected.

As of 7th July, there were around 259557 active cases of COVID-19 in India.[7] This rise in number could be attributed to varied reasons, one of which is the lack of awareness and appropriate attitude among the public towards this outbreak. Despite the rolling commentary over telephone calls and advertisements at every desk, public is too negligent over this global threat.

Knowledge attitude & preventive practices (KAP) studies aid in identifying what is known and what needs to be done about various health-related challenges. In addition, KAP studies will assist in suggesting an intervention strategy and plan activities that are suited to the respective population involved. In view of emerging global pandemic of novel COVID-19 infection and its crisis, the present questionnaire based study was designed with an objective to assess the Knowledge, Attitude & Preventive Practices (KAP) among the public regarding the existing awareness of the new pandemic, necessary precautions advised and practiced for preventing the spread of COVID-19 pandemic disease. Since KAP studies have advantage of action tool embedded, they will contribute not only assessment of the awareness existing in the public but also to utilise the data to educate the public about the rising pandemic.

MATERIALS AND METHOD

Study design and sampling – A cross sectional survey was carried out among the patients who visited the outpatient section of the Oral Medicine department of a Dental hospital for a period of 15 days from 08/03/2020 to 22/03/2020 through telephonic interview.

Sample Size determination - A pilot study was conducted among twenty patients to assess the required sample size for the study. The final sample size was estimated to be 723 with the Confidence level of 95%, which was deduced with the formula.[8]

$$n = Z_{(1-\alpha/2)}{}^2 \ \ p(1-p)$$

where, p : Expected Proportion, ε : Relative precision
εp² (1-α/2): Desired Confidence level.

Questionnaire: For the purpose of the study, the questionnaire was developed to assess the knowledge, attitude and preventive practices related to Novel COVID-19. The questionnaire (Appendix-1) contained, data regarding the demographic profile of the patients, 7 items enquiring the Knowledge, 5 items related to the attitude and 3 questions pertaining to the preventive practices related to COVID 19. The questionnaire was given to the subject experts to assess the content validity. The questionnaire was finalised after revision and modification of the original version. The questionnaire was framed in English language which was translated to the local language Kannada by a language professional, later the questionnaire was back translated to English to ensure the validity. Questionnaire was read out both in English and local language Kannada.

Two researches were trained to conduct the telephonic interview of the patients, as it was not advisable to have any type of contact with the patients during the COVID 19 outbreak. As majority of the people speak regional language Kannada and English in this region, interviewers fluent in these languages were selected to conduct the telephonic interview. Interviewer's bias was addressed by training the

interviewers to read out each question exactly as it appears on the questionnaire and were asked not to interpret the questions for the interviewee.

Data Collection: Data was collected using a convenience sampling. The telephonic interview was preceded with the patients who visited the dental hospital between 08/03/2020 to 22/03/2020 for various dental complaints and those who were willing to participate and consented to be a part of the study. Patients unwilling to participate in the study and the ones having suffered road traffic accidents and with acute dental emergencies and those who were unable to comprehend to questionnaire were excluded from the study. The average time taken for each telephonic interview was about 8-10 minutes. On an average each day 48-50 patients were interviewed by both the interviewers. Ethical clearance for conducting the survey was obtained from the institutional review board.

Statistical Analysis: Statistical Package for the Social Sciences Version 20 was used for statistical analysis. Descriptive Statistics including Kruskal wallis test, Mann-Whitney U tests were performed. The level of significance was set at $p \leq 0.05$.

RESULTS

A total of 723 participants completed the telephonic interview, amongst which 363 were males and 360 were females. The average age of the participants was 38.93 years. Majority of the participants belonged to the age group of 20 to 50. Occupation wise, most of the participants were unemployed, majority of them being the housewives. In addition to demographic details like age, gender, occupation the travel history of subjects was also recorded. (Table-1).

With respect to COVID-19, 66.4% participants had better knowledge, as compared their attitude (54.1%) and preventive practices (53.8%). 83.7% of the participants had better knowledge regarding what is corona virus infection, its spread (77.6%), the age group it affects (65.4%), whether travelling is advisable during the outbreak unless necessary (58.6%), number of days a person has to be quarantined (60.2%) and the symptoms of the disease (75.6%). But very less number of participants knew about what is quarantine (43.6%). (Table- 2).

The participants expressed better attitude towards the actions taken by the government to prevent the spread of COVID-19 (77.7%). They had an average attitude towards the prevention of spread of infection (52.4%) and considering COVID-19 as a serious infection (51.8%).

Table 1: Demographic characteristics of the participants

Characteristics		Number of participants	Percentage
Gender	Male	363	50.20
	Female	360	49.79
Age	10-19	64	8.85
	20-29	196	27.10
	30-39	147	20.33
	40-49	127	17.56
	50-59	86	11.89
	60-69	58	8.02
	70+	45	6.22
Occupation	Unemployed	360	49.79
	Unskilled worker	73	10.09
	Semiskilled worker	174	24.06
	Skilled worker	35	4.84
	Clerical/Shop owner/Farm	66	9.12
	Semiprofessional	5	0.7
	Professional	10	1.3
Travel history	Self	4	0.55
	Family Members	4	0.55

Table 2: Overall percentage of correct response for the questionnaire

	Question number	Percentage
Knowledge	Do you know about corona virus infection	83.7
	Do you know how it spreads?	77.6
	Do you know which age groups are more prone to corona virus infection?	65.4
	Is it advisable to travel anywhere unless it is an emergency?	58.6
	Do you know what quarantine is?	43.6
	Do you how many days a patient should be quarantined for once he is tested positive for COV or has been with a person who was tested positive?	60.2
	Which do you think are the symptoms of Corona virus infection?	75.6
	Overall	66.4
Attitude	Do you think the spread of infection can be prevented?	52.4
	Do you think it is necessary to avoid going to dental hospital/clinic unless there is an emergency?	43.2
	Do you feel quarantine will help prevent the spread of infection?	45.3
	Do you think COVID is a serious infection?	51.8
	Do you approve the government actions taken to prevent COVID like avoiding gatherings, unnecessary travelling, and closure of schools and malls, restaurants, cinema theatres?	77.7
	Overall	54.1
Practice	For what treatment have you come to the dental hospital?	6.1
	Which one of the following preventive measures are you following?	77.7
	Are you following the government rules regarding quarantine measures (avoiding to going to places having more than 10 people unless emergency)?	77.7
	Overall	53.8

The participants had lower attitude score for questions like, is it necessary to avoid going to hospital/clinic unless emergency (43.2%) and if the quarantine will help prevent the spread of infection (45.3%).

Related to preventive practices, majority of the participants had visited the dental hospital for non-emergency treatments. Only 6.1% of the participants visited the dental hospital for availing emergency treatments. Majority (77.7%) of the participants were following the preventive procedures as well as the government rules related to the social distancing measures. (Table-2)

Kruskal Wallis ANOVA test for the comparison of Knowledge, attitude and practices between the age groups showed a statistically significant difference between the age groups (p=0.001, p=0.001, p=0.008 respectively). The participants belonging to 20-29 year had the maximum knowledge (32.4) followed by 30-39 age groups (23.03). The least knowledge scores were seen among the older age participants 60-69 and 70+ age groups with scores of 4.5 and 2.5 respectively. The same pattern followed with respect to attitude wherein 20-29 age group people had higher scores for attitude (38.2) and least scores were seen among 60-69 year (2.8) and 70+ years (1.7). The preventive practices were better followed among 30-39 years old (32.1) and poor preventive practices were seen among 70 and above old people (1.6) (Table-3)

Mann Whitney U Test was used to test the percentage of correct answers with respect to Knowledge, Attitude and Practices by gender. There was a statistically significant difference between the gender with respect to Knowledge, Attitude and Practices (p=0.011, P=0.009, p=0.029 respectively). Females had an overall better Knowledge,

Attitude and practices regarding Covid-19 compared to males. (Table 4)

When the percentage of correct responses according to different professions with respect to knowledge, attitude and preventive practices was compared, it was evident that the overall knowledge level was better among all the occupations compared to their attitude and practices related to COVID-19. It was observed that the highest knowledge and attitude scores were seen amongst the professionals and least knowledge and attitude scores were seen amongst the unskilled workers. With respect to the preventive practices, better scores were observed among the semi-professionals followed by professionals and least scores were seen among the unskilled workers. (Table-5).

DISCUSSION

COVID-19 disease is one of the worse known pandemics of this century. It is crucial to encourage the public to adopt precautionary measures, based on the appropriate knowledge of the epidemic and response from the general public, as strict compliance to preventive measures advocated by the government authorities plays a key role to prevent the community spread of the disease. As the details of this emerging disease is not completely clear to the health professionals, knowledge, attitude regarding adoption of preventive measures like maintaining social distancing and regular hand sanitization is a responsibility from the general population as well to prevent the growing number of cases.

To the best of our knowledge, this is the first study in India assessing the KAP towards COVID-19 among patients

Table 3: Percentage of correct response based on different age groups

	Question number	Age-Group							P Value
		10-19	20-29	30-39	40-49	50-59	60-69	70+	
Knowledge	Q1	10.1	31.8	23.3	19	9.9	4.1	1.7	
	Q2	10.5	33	24.8	19.6	7.7	3.4	0.9	0.001*
	Q3	11.7	35.2	24.6	17.8	7	2.8	1.1	
	Q8	5.4	17.7	20.8	18.9	15.8	12.1	9.2	
	Q9	14.6	40.3	21.9	13.7	5.1	2.9	1.6	
	Q11	11	35.4	24.4	17.9	6.9	3	1.4	
	Q13	10.3	33.7	23.4	19.4	8.4	3.5	1.3	
	Overall	10.5	32.4	23.3	18.0	8.7	4.5	2.5	
Attitude	Q4	12.2	39.7	23	14.8	5.6	3.2	1.6	0.001*
	Q7	13.8	39.7	20.8	16	5.4	2.2	1.9	
	Q10	15.3	40.7	22	12.8	4.3	3.4	1.5	
	Q12	13.6	37.7	23	15.8	5.6	2.4	1.9	
	Q14	10.5	33.3	23.7	19.3	8.9	2.9	1.4	
	Overall	13.1	38.2	22.5	15.7	6.0	2.8	1.7	
Practice	Q5	4.5	29.5	36.4	6.8	11.4	9.1	2.3	
	Q6	9.8	33.2	23.2	18.9	9.3	4.5	1.2	0.008*
	Q15	10.5	33.7	23.2	19.1	8.9	3.4	1.2	
	Overall	8.3	32.1	27.6	14.9	9.9	5.7	1.6	

and general public. It was evident in the present survey that the participants had better knowledge, as compared to their attitude and preventive practices which is similar to results of study by Olum R et al.[9] This leads us to emphasise the importance of preventive practices and educating the masses of the importance of prevention in limiting the community spread. Related to preventive practices, majority of the participants had visited the dental hospital for non-emergency treatments, which again as health professionals we need to educate the public regarding postponing of non-emergency treatment, as it is evident that aerosol related treatments are known to increase the spread of COVID-19.[10] Zhou W et al, in their study have proposed that besides improving the

medical levels, media can be considered as an elective way to mitigate the disease spreading during the initial stage of an outbreak.[11] Majority (77.7%) of the participants were following the preventive procedures as well as the government guidelines related to the social distancing measures, this highlights the fact that preventive guidelines advocated by government and health authorities by various social media platforms were being adhered to. When knowledge and attitude measures were compared among different age groups, it was apparent that younger age groups had better knowledge and attitude towards the prevailing situation, but the findings are in contrast with the study by Erfani A et al[12] and Srichan P et al,[13] where it was evident that the knowledge was better among older age groups. This finding could be probably be attributed to the extensive use of social media by the younger generation in India. Possibly this can be highlighted, that youth can take a step forward to advice the older generation, having limited access to social platforms, regarding the incoming and changing measures of preventive practices to fight the spread of infection. In contrast, when compared among genders, it was seen that females had an overall better Knowledge, Attitude and practices regarding COVID-19 compared to males which is similar to the studies by Amirhossein Erfani et.al, and Peerdone Srichan et. al.[12,13] Whereas a study by Olum R et al,[9] shows that males had better knowledge compared to females. When compared KAP among different professionals, it was observed that the highest knowledge and attitude scores were seen amongst the professionals which is in accordance with a study by Bhagavathula A S et, al,[14] and least knowledge and attitude scores were seen amongst the unskilled workers & with respect to the preventive practices, better scores

Table 4: Percentage of correct response by gender

	Question number	Male	Female	P Value
Knowledge	Q1	49	51	0.011*
	Q2	48	52	
	Q3	47.5	52.5	
	Q8	51.1	48.9	
	Q9	49.8	50.2	
	Q11	48.3	51.7	
	Q13	48	52	
	Overall	48.8	51.2	
Attitude	Q4	50.8	49.2	0.009*
	Q7	48.1	51.9	
	Q10	48.3	51.7	
	Q12	48.9	51.1	
	Q14	49.2	50.8	
	Overall	49.1	50.9	
Practice	Q5	43.2	56.8	0.029*
	Q6	48.8	51.2	
	Q15	49	51	
	Overall	47	53	

Note: Sex spans the Male and Female columns.

Table 5: Percentage of correct response based on different occupations

		Unemployed	Unskilled	semiskilled worker	Skilled worker	Clerical/shop owner/farm	Semi professional	Professional	Total
Knowledge	Q1	87.8	45.2	91.4	94.3	74.2	100	100	83.7
	Q2	82.8	28.8	89.1	82.9	68.2	33.3	100	77.6
	Q3	70.3	21.9	78.7	60.0	53.0	33.3	90	65.4
	Q8	54.3	88.9	54.6	45.7	68.2	66.7	50	58.8
	Q9	48.6	13.7	41.4	54.3	43.9	33.3	90	43.6
	Q11	65.3	17.8	74.1	48.6	47.0	66.7	80	60.2
	Q13	81.1	31.5	84.5	74.3	66.7	100	100	75.6
	Overall	70.02	35.4	73.4	65.72	60.17	61.9	87.14	66.41
Attitude	Q4	55.6	16.4	51.7	68.6	62.1	33.3	100	52.4
	Q7	46.7	13.7	48.9	60.0	33.3	33.3	50.0	43.2
	Q10	51.4	15.1	42.0	62.9	36.4	66.7	100	45.3
	Q12	57.8	16.4	50.6	65.7	51.5	33.3	80	51.8
	Q14	82.2	24.7	90.2	85.7	69.7	100	100	77.7
	Overall	58.74	17.26	56.68	68.58	50.6	53.32	86	54.08
Practice	Q5	6.9	8.2	1.1	14.3	1.5	66.7	30	6.1
	Q6	81.4	37	85.6	82.9	75.8	66.7	100	77.7
	Q15	82.8	24.7	90.2	82.9	68.2	100	100	77.7
	Overall	57.03	23.3	58.96	60.03	48.5	77.8	76.66	53.83

were observed among the semi-professionals followed by professionals and least scores were seen among the unskilled workers. This emphasises the fact that when unskilled and semi-professionals turn up to health care centres, it is better to assess their knowledge and educate them regarding the preventive practices to control the spread of disease.

A study conducted in Chinese population (residents Hubei, China) to investigate Chinese residents' KAP towards COVID-19 revealed that Chinese residents of a relatively high socioeconomic status, in particular women, were knowledgeable about COVID-19, and held optimistic attitudes, and had appropriate practices towards COVID-19.[15]

A sound knowledge on preventive practices and their effective use will ensure the control of disease at community level. The present study is a cross-sectional survey to assess the KAP of general public towards COVID-19. This will not only ascertain whether the preventive steps taken up are being effectively followed but also to know if any lacunae are existing in the attitude towards the expected practices.

CONCLUSION

COVID-19 infection has emerged as a global pandemic, posing challenge to control and manage the disease. Overall majority of the patients were aware of the existing pandemic situation. Certain key areas like avoiding hospital/clinic visits unless emergency, importance of quarantine needs to be emphasised by health care professionals. The limitation of the present study is that the samples consisted of public who had reported to the dental hospital. Because of lock down restriction ensuing assessment of KAP in rural areas was not possible. These could be vulnerable populations due limited access to Internet and other social media means. Assessment from older adults and rural population at grass-root level is very essential to know if appropriate preventive practices towards COVID-19 are being practiced. In addition to knowledge about the disease process a positive attitude to overcome the challenge will definitely help to combat the disease.

Limitations of the study
Though the KAP studies are feasible to provide data on prevailing situations, the results have to be cautiously interpreted, as the practice related responses may have tendency to be altered due to social desirability. Also the participant's honesty in responding to the questionnaire is dubious. This may also reflect on the advisable strategy changes.

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APPENDIX

Appendix 1: Questionnaire based study on covid-19

Gender :
Occupation :
Travel History:
Yours:
Your relatives whom you came in contact with:

Questions

Questions		
Do you know about the Corona Virus Infection?	Yes	No
Do you know how it spreads?	Yes	No
Do you know which age groups are more prone to Corona Virus Infection?	Children	Middle age
	Old age	Do not Know
Do you think the spread of infection can be prevented?	Yes	No
For what treatment have you come to the Dental Hospital	Emergency	Non-Emergency
Which of the following preventive measures are you following	Washing hands with soap	Using Hand Sanitizer
	Using Mouthmask	Closing the mouth while Coughing
	Prevent touching other people	Avoid Crowded Places
	Avoid unnecessary travel	Avoid touching your nose, eyes, mouth and other parts of the face
Do you think it is necessary to avoid going to dental hospital/clinic unless there is an emergency?	Yes	No
Is it advisable to travel anywhere unless it is an emergency?	Yes	No
Do you know what Quarantine is?	Yes	No
Do you think quarantine will help prevent the spread of infection?	Yes	No
Do you know how many days a patient should be quarantined for once he is tested positive for CoViD-19 or has been with a person who was tested positive?	14 days	1 month
	7 days	Do not know
Do you think CoViD-19 is a serious infection?	Yes	No
Which do you think are the symptoms of the Corona Virus Infection?	Running nose	Sore throat
	Cough	Fever
	Difficulty in breathing in severe cases.	
Do you approve the Government Actions taken to prevent CoViD-19 like avoiding gatherings, unnecessary travelling, closure of schools and malls, restaurants and cinema theatres?	Yes	No
Are you following the government rules regarding quarantine measure (avoiding going to places having more than 10 people unless emergency)?	Yes	No