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Perceptions and beliefs related to covid 19 among patients visiting a dental hospital in Bangalore

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Abstract

Introduction: Coronavirus disease 2019 (Covid-19) is an emergent respiratory infection caused by the most recently discovered severe acute respiratory syndrome coronavirus (SARS-CoV-2). The control of communicable diseases depends mainly on the local population's knowledge, perceptions, and beliefs. The strict observance of precautionary measures to avoid spreading this disease to the masses is key to controlling it. Therefore the present study aims to assess the knowledge, perceptions, and beliefs towards Covid 19 among the patients visiting a dental hospital in Bangalore.

Methods: A pretested closed-ended questionnaire was administered by interview method to 155 participants visiting the outpatient department of a dental college. The first section included demographic data. The second section consisted of 9 questions which assessed patient's knowledge toward Covid -19 and 5 questions which assessed patients beliefs and perceptions towards Covid 19.

Results: A weak Positive correlation (0.30) was seen between educational qualification and knowledge levels which indicated that knowledge levels increased with education and this result was statistically significant with a p-value of <0.001. Gender and age did not show any statistically significant correlation. There was no statistically significant correlation between perceptions and belief scores with age, gender, and educational qualification.

Keywords: Covid-19, knowledge, perception, pandemic

Introduction

Coronavirus disease 2019 (Covid-19) is an emergent respiratory infection caused by the recently discovered severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and it was first detected in December 2019 in Wuhan, China ^[1, 2]. This infection has been transmitted to 213 countries and territories worldwide and infected 25,925,003 people causing 860,857 deaths (as of September 3, 2020) ^[3]. The World Health Organization (WHO) declared the SARS-CoV-2 outbreak as a pandemic on March 11, 2020, due to its alarming nature.

It has created havoc in the entire World and has affected all aspects of human lives from economies to people's social lives ^[1]. With the exponential rise in the number of confirmed cases and deaths per day across the World, the health care system has been affected the most.

As a response to the pandemic, countries issued travel restrictions, closed schools, universities, and public services, and placed people in quarantine to alleviate the spread of the disease. While these actions took place, individuals were informed about the pandemic and what individual measures could and should be taken to combat the spread of Covid-19 ^[4].

In the initial phase of the pandemic social media was filled with sharing Covid-19 related news and articles, some of which were found to be misinformation. The abundance of available information and its ambiguity combined with the novelty of the pandemic situation increased the risk of health anxiety ^[5]. Myths and misinformation related to various infections have been prevalent from time to time, and it takes a long battle to demystify the existing myths by providing an accurate evidence-based approach ^[6].

The WHO recommends the risk communication and community engagement efforts to investigate and control "infodemics", myths and stigma so that the spread of the coronavirus would be effectively battled.

Regardless of creating awareness and providing sufficient information to the general public through telecommunication (radio, television Advertisements, public health messages by prominent celebrities and national leaders) and distributing pamphlets/signboards at public places about infection control measures and mode of spread of the infection, still, there is a large amount of misinformation associated with the spread and treatment and vaccination of Covid-19 infection in the society^[4].

The control of communicable diseases depends mainly on the local population's knowledge, perceptions, and beliefs. The strict observance of precautionary measures to avoid spreading this disease to the masses is key to controlling it^[1]. Therefore the present study aims to assess the knowledge, perceptions, and beliefs towards Covid 19 among the patients visiting a dental hospital in Bangalore and also to correlate knowledge and perceptions to age, gender, and educational qualification of the study subjects.

Materials and Methods

The present questionnaire-based cross-sectional study was conducted at Krishnadevaraya College of dental sciences. Ethical approval was taken from the institutional review board of Krishnadevaraya College of Dental Science, Bengaluru for conducting the study. The sample size was calculated by using the formula.

$$\frac{z^2 \times p(1-p)}{e^2} \\ 1 + \left(\frac{z^2 \times p(1-p)}{e^2 N} \right)$$

N=Total number of expected samples (250), e=Margin of error (absolute precision (d) = 5% (0.05), p=Percentage value (Expected proportion of samples meeting the criteria)-50%, Z α at 95% CI=1.96. substituting values in the formula final sample size obtained was 155.

Convenience sampling was used to meet the required sample size based on the patients visiting the outpatient section of the dental college for 1 month.

A pilot study was conducted among 30 participants to assess the feasibility and applicability of the questionnaire. The pilot study confirmed the feasibility of the main study with minor changes in the questionnaire for effective communication among participants. After 1 week the questionnaire was again distributed among the study subjects to check the reliability of the questionnaire. The reliability statistics obtained for the questionnaire using Cronbach's alpha was 0.84 indicating good internal consistency.

Data collection

The study involved administration of questionnaires by interview method. The first section included demographic data such as Name, Age, Gender, Educational qualification, and op number. The second section consisted of 9 questions that assessed the patient's knowledge toward Covid-19 and 5 questions that assessed the patient's beliefs and perceptions towards Covid 19 and another question to check the

respondent's willingness to get vaccinated.

Statistical analysis

Data obtained was compiled using Microsoft excel sheet and was subjected to statistical analysis using SPSS 22.0 (SPSS Inc., Chicago, IL), and the level of significance was set at $p < 0.05$. Descriptive statistics were performed to assess the mean and standard deviation of the respective groups. The normality of the data was assessed using the Shapiro Wilkison test. Inferential statistics to find out the association between variables was done using the Chi-square test, Fischer's exact t-test, and Pearson correlation test.

Results

Among the 155 study subjects 31.6% (49) were in the age group of ≤ 25 , 53.5% (83) in the age group of 26-50, and 14.8% (23) were in the age group of 51-75. The study population consisted of 55.5% (86) males 44.5% (69) of females. 7.7% (12) of the respondents had completed primary education. 23.2% (36) had completed high school. 40.6% (63) had completed higher secondary education. 22.6% (35) were graduates and 5.8% (9) were postgraduates.

Table 1: Demographic characteristics of the study subjects

Characteristics		Frequency	Percentage
Age	≤ 25	49	31.6
	26-50	83	53.5
	51-75	23	14.8
Gender	Male	86	55.5
	Female	69	44.5
Educational qualification	Primary	12	7.7
	High school	36	23.2
	Higher secondary	63	40.6
	Graduate	35	22.6
	Postgraduate	09	05.8

The overall distribution of the response is shown below in Table 2.

70.3% of study subjects agreed that "people should not wear a mask while exercising". 64% of study subjects disagreed with the statement that "drinking alcohol protects you against Covid-19". 73.5% of the study subjects disagreed with the statement Covid-19 can be transmitted through mosquito bites. 49.1% of study subjects agreed with the statement prolonged use of masks cause oxygen deficiency. 50% of study subjects disagreed with the statement that "you do not have to maintain social distancing or practice hand sanitization once you get vaccinated against the Covid - 19". 61.3% of study subjects disagreed with the statement that "You do not have to use masks once you get vaccinated against the Covid - 19". 72.9% of the study population agreed with the statement. "Most people who get COVID- 19 recover from it." 45.2% among the study population agreed with the statement "Hot and humid climates reduce the transmission of Covid-19. 60.6% disagreed with the statement "only old people get affected by Covid-19". 54.2% of the study population agreed with the statement that "Gargling with warm water can protect you against the coronavirus". 48.4% of the study population disagreed with the statement "I'm not at risk for severe complications of Covid-19 so I don't need the vaccine."

Table 2: Responses of study subjects to knowledge and perception questions

Questions	Agree		Disagree		Don't know	
	N	%	N	%	N	%
People should not wear masks while exercising	109	70.3	39	25.2	07	4.5
Drinking alcohol protects you against Covid-19	24	15.5	100	64.5	31	20
Covid-19 can be transmitted through mosquito bites	18	11.6	114	73.5	23	14.8
The prolonged use of masks cause oxygen deficiency	77	49.7	49	31.6	29	18.7
If someone already had Covid-19, they don't have to get vaccinated	41	26.5	78	50.3	36	23.2
You do not have to maintain social distancing or practice hand sanitization once you get vaccinated against the Covid -19	41	26.5	95	61.3	19	12.3
You do not have to use masks once you get vaccinated against the Covid -19	38	24.5	95	61.3	22	14.2
Most people who get Covid-19 recover from it	113	72.9	28	18.1	14	0
Hot and humid climates reduce the transmission of Covid-19	70	45.2	54	34.8	3	20
Only old people get affected by Covid-19	49	31.6	94	60.6	12	07.7
Gargling with warm water can protect you against the virus	84	54.2	42	27.1	29	18.7
I'm not at risk for severe complications of Covid-19 so I don't need the vaccine	46	29.7	75	48.4	34	21.9

The relationship between demographic variables and education and perception and belief levels are shown in table 3. The educational qualification of the participants showed a significant association with knowledge level regarding Covid 19. (P=0.002) those who had only completed primary school

had a low level of knowledge towards Covid 19. Age and Gender did not show a statistically significant association regarding knowledge about Covid 19. Age, Gender, and educational qualification did not show a statistically significant association regarding perceptions about Covid 19.

Table 3: Relationship between demographic variables and knowledge, perception, and belief level of participants on Covid-19

Demographic variables	Category	Sample	Knowledge level		P-value	Perception level		P-value
			Low (≤ 22) N	High (> 22) N		Low (≤ 12) N	High (> 12) N	
Age	≤ 25	49	23	26	0.53	32	17	0.28
	26-50	83	47	36		54	29	
	51-75	23	13	10		11	12	
Gender	Male	86	50	36	0.21	48	38	0.06
	Female	69	33	36		49	20	
Educational qualification	Primary	12	12	0	0.002	07	05	0.93
	High school	36	23	13		22	14	
	Higher secondary	63	29	34		38	25	
	Graduate	35	17	18		24	11	
	Post graduate	09	02	07		06	03	

Table 4 shows the correlation of variables with knowledge and perception and belief scores A weak Positive correlation (0.30) was seen between educational qualification and knowledge levels which indicated that knowledge levels increased with education. And this result was statistically

significant with a p-value of < 0.001 . Gender and age did not show any statistically significant correlation. There was no statistically significant correlation between perceptions and belief scores with age, gender, and educational qualification.

Table 4: Correlation of demographic variables with knowledge and perception and belief scores

	Age		Gender		Educational Qualification	
	r	P value	r	P value	r	P value
Knowledge scores	-0.07	0.38	-0.01	0.86	0.30	< 0.001
Perception scores	0.14	0.08	-0.13	0.06	0.07	0.38

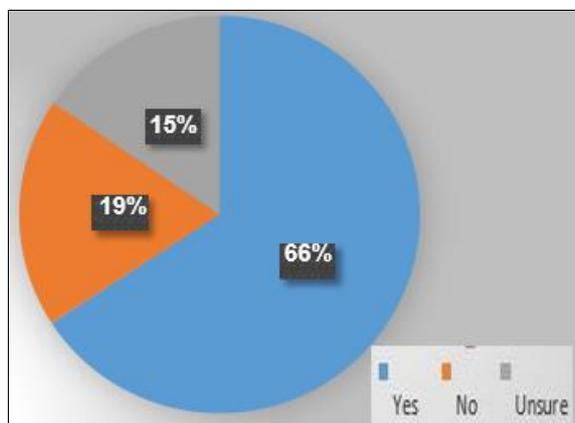


Fig 1: Descriptive statistics for the question “are you willing to get vaccinated against Covid 19”

Figure 1 shows the descriptive statistics for the question “are you willing to get vaccinated against Covid 19”. The majority of the study subjects (66%) reported that they were willing to get vaccinated against Covid 19. 19% of the study subjects were unwilling to get the vaccine and 15% of them were unsure about getting the vaccine.

Discussion

The present study was conducted to assess the knowledge, perceptions, and beliefs towards Covid 19 among the patients visiting a dental hospital in Bangalore. A total of 155 patients visiting the hospital were interviewed.

Based on the knowledge scores of the respondents, an overall correct rate of knowledge towards Covid-19 was found to be 46.45%, this lower knowledge score shows that there is a gap in the dissemination of information. The knowledge rate of our study is low compared to the studies conducted in Iran

and China [7, 8]. In these studies the overall correct rate of knowledge towards Covid-19 was 90%. A possible reason for the high knowledge score in China and Iran may be due to the differences in the time and the area in which the two studies were conducted. These studies were conducted in the main phase of the Covid-19 outbreak where people had a better exposure to the information about the disease.

In the present study, 49.7% of the study subjects agreed with the statement that prolonged use of masks can cause oxygen deficiency. The continued use of medical masks can be uncomfortable. However, it neither leads to CO₂ intoxication nor oxygen deficiency [9].

24.5% of study subjects in the present study agreed to the statement that you do not have to use masks once you get vaccinated against Covid 19. The CDC guidelines state that until more is known, fully vaccinated people should continue to wear masks and stay 6 feet apart from other people [10]. 45.2% of the study population agreed with the statement that "Hot and humid climates reduce the transmission of Covid-19" there is contrasting evidence to the statement. A systematic review conducted by Mecena P *et al.* [11] reported that warm and wet climates seemed to reduce the spread of Covid-19 although the certainty of the evidence generated was classified as low. Another study conducted by Bukhari Q *et al.* [12] stated that the effect of weather may have only resulted in a comparatively slower spread of Covid-19, but not stopped it. WHO in its attempts to demystify the Covid 19 related facts has stated that The Covid-19 virus can be transmitted in any climate including areas with hot and humid weather [9].

54% of the study population agreed with the statement that "Gargling with warm water can protect you against the coronavirus". Even though various studies have shown that Throat gargling could reduce the viral load in the throat of patients with upper respiratory tract infections [13, 14] there is no evidence to prove that gargling with warm water can protect against the coronavirus. It only provides symptomatic relief for sore throat associated with the disease. The majority of the study subjects (66%) in the present study reported that they were willing to get vaccinated against Covid 19. This was in accordance with a study conducted by F. Serrazina *et al.* [15] among hospital patients in Portugal where 80.9% of the patients were either definitely or probably willing to receive a COVID-19 vaccine. This showed a positive attitude towards the Covid vaccination.

In the present study, there were no significant gender differences for knowledge questions which were in accordance with a study conducted by Ferdous MZ *et al.* [16] in Bangladesh.

The educational qualification of the participants showed a significant association with knowledge level regarding Covid 19. ($P=0.002$). Those who had only completed primary school had a low level of knowledge towards Covid 19. This was in accordance with the study conducted by Narayana G *et al.* [1] among the general public of India where the educational qualification was significantly associated with a low knowledge score ($P < 0.05$).

The current study examined the public perception towards myths and facts concerning Covid-19. A right perception towards facts and fallacies about Covid-19 can encourage good practices among the public. In the present study, 37.41% of the respondents had shown a high perception score towards Covid-19. This is not an acceptable margin to promote better practices among the public of India. There is a dire need to sensitize the public about Covid-19 myth busters, which

were recommended by the World Health Organization.

There are certain limitations that need to be considered before interpreting the findings of this study. The study used a convenience sampling technique and was limited to only part of Bangalore city therefore generalizability of the study will be limited.

Conclusion

The present study showed that there was a Positive correlation between educational qualification and knowledge levels of the study, which indicated that knowledge levels increased with education. Age and gender of the study population did not show a significant relationship with knowledge and perception levels of the population only 37.41% of the respondents had shown a high perception score towards Covid-19, this is not an acceptable margin to promote better practices among the public of India. There is a dire need to sensitize the public about misconceptions related to Covid-19.

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Conflicts of interests

The authors declare no potential conflicts of interest with respect to research, authorship and/or publication of this article

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