▮ RESEARCH PAPER ▮

Health Literacy Status and Preventive Behavioral Perception of Dental Patients Regarding COVID-19 Pandemic in Selected Tertiary Hospitals of Bangladesh

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Abstract

Background: COVID-19 has declared a public health emergency as a global crisis. In this situation dental patients are at high risk because of direct person to person transmission. Dental treatment requires very close contact elsewhere there are some other factors such as waiting room, ventilation system of hospital, gathering and so on which make the condition more critical.

Objectives: The purpose of this study was to assess the health literacy status and preventive behavioral perception of dental patients regarding COVID-19.

Methods: This cross sectional study, data were collected from total 342 respondents by self-administered semi-structured questionnaire and face to face interview was conducted. Systematic random sampling was done in Dhaka Dental College Hospital and Chattogram International Dental College Hospital during data collection. Informed written consent was taken from each participants. Frequencies, percentages, charts, and diagrams were used to present the analysis, which was carried out using SPSS.

Results: In this study, majority of dental patients were within 25-34 years age. Mean (±SD) age was 36(±13.32) years. Maximum patients (85.1%) had more accurate health literacy related perception regarding COVID-19 and there were significant association between educational status, occupational status of the dental patients and their health literacy status (p <0.05) regarding COVID-19. More than 80% patients were aware about preventive aspects of COVID-19 and had good preventive behavior related perception but they expressed that it was not possible to maintain every precautionary behavior in reality. About 53.8% agreed staying at home would play a significant role in preventing COVID-19 but a big portion disagreed with this. Approximately 15% disagreed with the issue that keeping a physical distance in public places and avoiding social events reduces the spread of novel corona viruses.

Conclusion: In this study a significant portion of good health literacy related and preventive behavioral perception of dental patients regarding COVID-19 was recorded. However a comprehensive awareness-raising program should be continued to hold this optimistic perception and inspire them to practice this perception in reality.

Keywords: health literacy, preventive behaviour, perception, dental patients, COVID-19

Introduction

Corona Virus Disease 2019 (COVID-19) is an infectious disease which is caused by Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2).[1] Centers for Disease Control and Prevention (2020)

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suggested the COVID symptoms were fever, dry cough and shortness of breath, muscle pain, diarrhea, sore throat, loss of taste and smell sensation etc..[2] COVID-19 transmits by droplets during sneezing, coughing while talking etc. A study conducted in Singapore which showed that uncovered coughing travels about 4.5 m. Droplets of saliva can cause viral infection because it is a good source.[3-4]

Dental treatment requires very close contact between doctor and patient. So every patients should maintain

proper precaution when come for dental treatment. But most of our patients are not so serious in maintaining precautionary behaviors. Maximum patients don't wear mask, don't maintain safety distance and sanitize hands. Many dental treatment procedures generate droplets and aerosols, and thus dental patients are at a high risk of becoming infected and transmitting COVID-19 to others.[5] The volume of the salivary droplets determines the extent of transmission. A cough may produce three thousand droplets, and a sneeze may produce 40,000 droplets which reaching several meters in the air.[6]

It is necessary to make sure that the patients when staying in dental facility, do not touch anything in the office, including door handles, surfaces, objects, etc.[6] Maintaining social distance in the dental settings is also challenging for the patient.

It is important to know how COVID-19 related health literacy are influenced in maintaining preventive behaviour & changing in lifestyle among dental patients of Bangladesh. Preventive measures have still been the only way of slowing down the transmission and prevention of the deadly disease. Practice of preventive guidelines and perception about the disease is important in this regard.

In Bangladesh a large number of people were affected COVID-19, so proper maintenance of preventive measures is very important which is affected by their perception regarding COVID-19.[7]

COVID-19 creates a serious threat to humanity, health and economy of the whole world,[8] which also contribute a great effect on dental sector. So it is very important to know dental patients perception and their thinking about COVID-19. If we can limit the rate of infectivity, in turn we will reduce the burden on the health service of the country. Proper administration of the preventive regimens can also reduce the financial and mental burden of the sufferer.[8]

Determining perception of dental patients will give a brief look at how patients are reacting to the pandemic in this condition of rising cases. This will additionally assist with assessing their general readiness. The study objectives were to assess the level of perception of dental patients regarding COVID-19 and how they are affected by socio-demographic factors.

The dental instruments (such as handpieces, ultrasonic scalers and air-water syringes) which are used during dental treatment procedure create particle droplets of water, saliva, blood, microorganisms, and other debris.[9] So the environment of dental settings are very risky in COVID-19 situation and it is important for the dental patients to be careful about this.

The virus spreads during close contact between dental patients and dental service provider.[10] Dental healthcare delivery requires close physical contact between patients and Dental Health Care Personnel (DHCP).[9] So it was important to know the patients perception about COVID-19 infection.

Materials and Methods

This descriptive type of cross-sectional study was conducted in the outpatient departments of Dhaka Dental College Hospital and Chattogram International Dental College Hospital by pre-tested semi structured questionnaire. This study was conducted from 1st July, 2020 to 31st December, 2020 and data were collected from 1st September 2020 to 31st October 2020.

The study population were the dental patients who were ≥18 years of age and came to seek dental treatment at hospital outdoors. Patients who came to seek treatment to the hospital for at least once were included in this study and who had cognitive impairment were excluded from this study.

Sample was calculated using the following formula: $n = z^2pq/d^2$

n = desired sample size, z = standard normal deviate, 1.96 at 95% confidence interval, p = 0.718 [proportion of prevalence of perception that covid-19 is natural curse] [11]

q = 1-p = 0.282, d = allowable error = 0.05

After calculation the estimated sample size was 342.

The semi structured questionnaire was pretested among a group of dental patients to eliminate any kinds of ambiguity and to improve the quality of the research instrument. The questionnaire was made in English then translate into local language Bangla and used for data collection.

Systematic random sampling was done in this study by maintaining sampling interval. We did not get any sampling frame. We got idea about sampling frame by reviewing hospital record. Written permissions were taken from the hospital authorities prior to data collection. Informed written consent was taken from each participants and explained the purpose of the study before data collection. They were informed that

their participation were voluntary in this study and they could withdraw themselves anytime from this study. The questionnaire was containing three parts. First portion was containing socio-demographic details, second portion was health literacy related perception regarding COVID-19, containing: cautiousness about symptoms of COVID-19, awareness about COVID-19 test and following recommendations. Third portion was containing perception about preventive measures for COVID-19, such as: hand washing, oral hygiene practice, maintaining physical distancing, use of face mask, use of hand sanitizer, avoid touching contaminated surfaces, avoiding social event, disinfecting surface, maintaining balanced diet and regular physical exercise and staying at home.

Dental patients' health literacy status and preventive behavior related perception score regarding COVID-19 was assessed by scoring.[12]

In health literacy status each correct answer contains score 1 and wrong answer contains score 0. Total health literacy score was 11. In preventive behavior related perception each correct perception contains score 1 and wrong answer contains score 0. Total Preventive behavior related perception score was 9 (Table I).

Data were checked for consistency, relevancy and quality control. Data were compiled, coded, cleared, categorized, re-coded and analyzed using the SPSS. Analysis plan was developed according to the objectives and variables. Data was presented in tables and graphs for assessing categorical responses. Chi square test, Likelihood ratio test were done to see the association with 5% level of significance.

Table I: Health literacy and preventive behavioral perception score

Health literacy score	Scoring (0-11)
More accurate conception	8-11
Less accurate conception	0-7
Preventive behavior perception score	Scoring (0-9)
Good perception	6-9
Poor perception	0-5

Results

In this study, among 342 dental patients majority of them were within 25-34 years age. Mean (±SD) age was 36(±13.32) years. Minimum age 18 and maximum age 73 years. Male and female respondents were about equal ratio. Most of the respondents were from urban place and nuclear family with divergent educational status. Maximum dental patients were married, home maker and monthly family income were within 20000 BDT. Majority of the patients were from Public dental hospital and rest of them were from private dental hospital (Table II).

Table II: Socio-demographic characteristics of the dental patients (n=342)

Attributes	Findings	
Age	Age (in years)	Percentage (%)
	18-24	17.8
	25-34	30.4
	35-44	22.8
	45-54	15.2
	55-64	10.5
	>64	3.2
	Total	100
	Mean±SD : 36.91±13.32 years, Age range:18-73 years	
Education	No formal education: 6.4%, Primary: 10.4%, Secondary: 17.5%, SSC: 18.4%, HSC: 19.3%, Graduate: 14.3%, Post-graduate: 13.2%	
Place of residence	Urban: 77.5%, Rural: 22.5%	
Occupation	Home maker 36.5%, Service holder: 17.3%, Student: 14%, Business: 12.9%, Day laborer, 4.4%, Unemployment 3.5%, Others 7.3%	
Dental hospital type	From Public dental hospital 70%, From private dental hospital 30%	
Monthly family income (BDT)	Up to 20000: 47.4%, 20001-40000: 26.9%, 40001-60000: 10.8%, 60001-80000: 6.7%, >80000: 8.2%	

Health literacy status regarding COVID-19

Figure-1 shows that among 342 respondents, majority of the dental patients were aware about the symptoms of COVID-19.

About half of the respondents heard about WHO guideline related to COVID-19 and believed that following WHO guideline can prevent COVID-19 (Table III).

A large number of the patients responded they were aware about availability of confirmatory test for COVID-19 but a few of them mentioned RT-PCR as available confirmatory test for COVID-19 in Bangladesh. Rest of the respondents had misconception regarding this issue.

Among 342 dental patients, majority of the respondents (85.1%) had more accurate and rest of them (14.9%) had less accurate health literacy related conception regarding COVID-19 (Figure 2).

In respect of association between health literacy status and place of residence ($p>.05$) and health literacy status and dental hospital type of the respondents ($p>.05$), there were no significant difference denoting that health literary status was not dependent on the patients place of residence or the dental hospital where they seek for treatment.

By analyzing the association between educational status and health literacy status ($p=.001$) and health literacy status and different occupational group of the dental patients ($p=.006$), it revealed that there were significant difference in between the variables. The associations were statistically significant meaning that educational status and occupation influenced the patients' health literacy status regarding COVID-19 (Table IV).

Preventive behavioral perception regarding COVID-19

Among 342 respondents, majority of them (ranging from 83-98%) agreed with all of the preventive approaches that can reduce the novel corona virus spreading except the statement "Staying at home would play a significant role in preventing COVID-19" where only about half (53.8%) of the respondents were agreed with the point (Table V) and maximum dental patients had good preventive behavior related perception regarding COVID-19 (Figure 2).
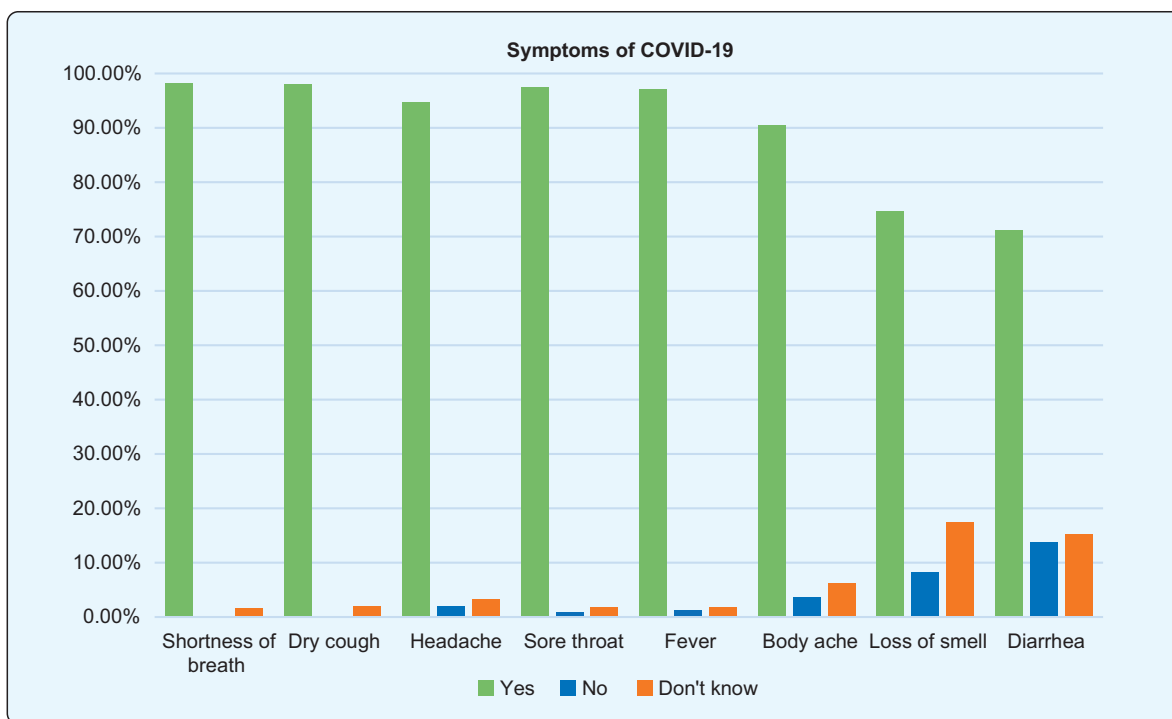

Figure 1: Perception of dental patients about the symptoms of COVID-19

Table III: Perception about WHO guideline regarding COVID-19 and COVID-19 confirmatory test (n=342)

Atributes	Yes	No	Don't know
Following WHO guideline can prevent COVID-19	45.6	5	49.4
Aware about the availability of confirmatory test	94.7	2.3	2.9
COVID-19 confirmatory test name		10.8% answered RT-PCR as available confirmatory test	
Heard about WHO guideline	Yes	No	
	50.3	49.7	

Table IV: Association of health literacy status of the dental patients with educational status and occupational status regarding COVID-19 (n=342)

Educational status	Health literacy status		p value
	More accurate perce	Less accurate perce	
No formal education	40.9%	59.1%	
Primary	75.7%	24.3%	
Secondary	71.7%	28.3%	
SSC	92.1%	7.9%	.001
HSC	92.4%	7.6%	
Graduate	100.0%	0.0%	
post graduate	95.6%	4.4%	
Occupation of the respondents			
Home maker	78.4%	21.6%	
Unemployment	75.0%	25.0%	
Business	97.7%	2.3%	
Service holder	81.4%	18.6%	0.006
Day labourer	80.0%	20.0%	
Student	93.8%	6.2%	
Retired	100.0%	0.0%	

Note: The tests are done by chi square test and likelihood ratio

Table V: Preventative measures that can reduce the novel corona virus spreading (n=342)

| Preventative measures that can reduce the novel corona virus spreading	Response (percentage)		
	Agree	Disagree	Not sure
Coughing and sneezing into the elbow or within clothing	98.8	0.3	0.9
Washing hands frequently using soap or sanitizer	98.2	0.9	0.9
Maintaining balanced diet and regular physical exercise	96.5	1.8	1.8
Avoiding placing fingers into eyes, nose and mouth	95	4.7	0.3
Wearing a face mask in public place	90.4	8.5	1.2
Disinfecting surface	86.8	11.1	13.12
Maintaining physical distance in public place	83.9	14.3	1.8
Avoiding any social event	83	14.9	32
Staying at home would play a significant role in preventing COVID-19	53.8	43.6	2.6
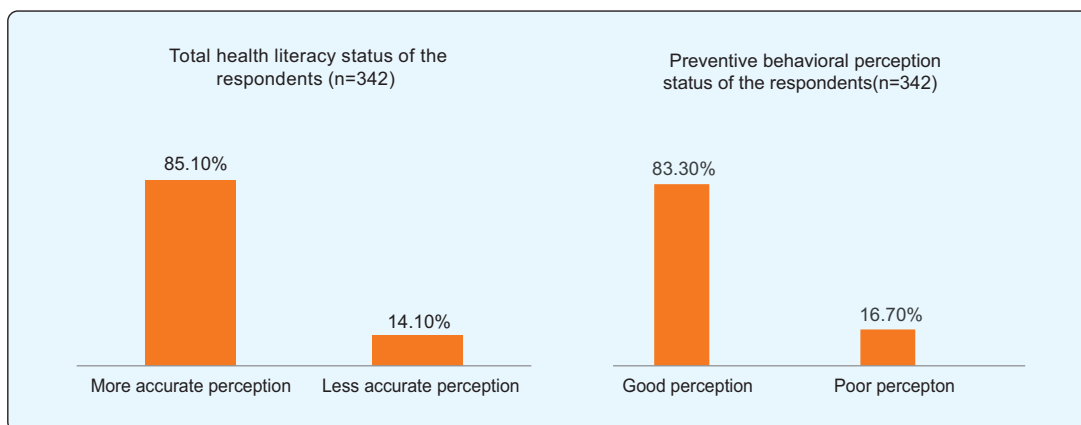
Figure 2: Total health literacy and and preventive behavioral perception status of dental patients regarding COVID-19

Discussion

In this study the total health literacy status of the respondents regarding COVID-19 was satisfactory (85.1%); majority of the respondents have good health literacy related perception. Geldsetzer, 2020 conducted a study regarding perceptions and knowledge of corona virus among the general population of the United Kingdom and in the United States where we have found similar findings regarding COVID-19 health literacy related perception (85%).[13]

Here majority of the respondents (91.56%) were cautious about the symptoms of COVID-19. We have got nearly similar findings in a Nepalese study where maximum respondents (82.1%) have satisfactory knowledge about COVID-19 and maximum (92.5%) were aware about the major symptoms of COVID-19 such as fever, shortness of breath and dry cough etc.[14] But in another study we have got dissimilar findings, where a large portion (44.1%) had a partial knowledge about severe COVID-19 symptoms.[15] This may be due to socio-demographic variation of study subjects.

We noticed that, a minimum portion of this study subjects (10.8%) had the perception that RT-PCR was available confirmatory test for COVID-19 in Bangladesh and rest of the respondents have wrong idea about it. A study was conducted in India where we have got dissimilarity regarding this issue. A large number of respondents (44.90%) answered correctly that RT-PCR and Immunofluorescence antigen detection assay were the diagnostic tests for COVID-19 in India.[14] The variation may be due to lack of mass awareness regarding COVID-19 diagnostic test.

In this study approximately half of the participants heard about WHO guideline regarding COVID-19 and rest half of the participants did not hear about it. The finding correlates with the another study conducted in Nepal, where more than half of the respondents (63.6%) were aware about WHO guideline regarding COVID-19 and nearly half of the respondents (49.4%) did not know about it.[16]

Less than half portion of participants (45.6%) were aware and believed that following WHO guidelines can prevent COVID-19. The findings showed dissimilarity with another study conducted among US population where maximum (90%) respondents were aware about CDC recommended infection prevention measures.[17] The existence of this dissimilarity occurred due to socio-demographic variation and educational status of the respondents.

In this study, statistically significant association have found between educational status and health literacy status of the respondents regarding COVID-19. The study revealed that participants with relatively higher educated possessed good health literacy regarding COVID-19. The findings coincides with another web-based cross-sectional study on Nigerians, where higher COVID-19 knowledge was related to greater risk perception and greater precautionary behaviour.[18]

In this study the total preventive behavior related perception regarding COVID-19 of the respondents was good (83.30%). Farhana and Mannan, conducted a study in Bangladesh, where we got similarity that study a significant proportion had positive perception about prevention of COVID-19.[11] Another cross sectional study among US population showed more than 90% general people were aware were aware about preventive behavior regarding COVID-19.[17]

Conclusion

This study was carried out in two renowned dental hospital outdoors in Dhaka and Chattogram city of Bangladesh. The study revealed satisfactory status of health literacy and preventive behavioral perception of dental patients regarding COVID-19. However, some preventative behavioral perceptions were unsatisfactory and need to be improved. For example, staying at home, maintaining physical distance in public place and avoiding any social event can all help to lessen the transmission of the novel corona virus. A thorough awareness-raising campaign for COVID-19 prevention should be maintained so that people who come in for dental care will be more cautious about it. Although receiving dental care necessitates close proximity, hospital administrators should utilize more banners, posters, and leaflets to encourage patients for maintaining better precautionary behavior. Further research work regarding this issue should be continued for betterment of oral health sector.

Acknowledgement

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