Knowledge, Attitudes of Preclinical Medical and Dental Students in Mymensingh towards "COVID-19": A Cross-sectional Study

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Abstract

In 2020, a new global pandemic Coronavirus disease (COVID-19) emerged, which was caused by a new strain of coronavirus called severe acute respiratory syndrome-corona virus (SARS-COV-2). This study aims to assess the knowledge and attitudes towards COVID-19 among preclinical medical and dental students of Community Based Medical College (CBMC,B) in Mymensingh, Bangladesh. Data were collected in September 2020. The online questionnaire was created using Google Forms after reviewing previously conducted research and posted on several online platforms accessible by the students. Most of the students (93%) were medical students, and the rest 7% were studying Bachelor of Dental Surgery (BDS). The mean COVID-19 knowledge score was 9.04 (SD: 2.107, Range: 0-12), suggesting an overall 75.33% correct rate. The results showed that knowledge scores are higher in male, MBBS students but the difference are not significant. Analyses showed that the knowledge scores of 1st-year participants were significantly higher than 2nd-year students. Increased knowledge score was noticed in those who were not in direct contact with COVID-19 patients and not infected by COVID-19 than others, though the difference was insignificant ($P>0.05$). Half of the participants (50.2%) agreed that this disease will finally be successfully controlled. One hundred and sixty-seven participants (65%) had confidence that Bangladesh would get a vaccine soon to prevent the COVID-19 virus. The overall knowledge level of students was generally good. As the global threat of COVID-19 continues to emerge, improvement of knowledge and perceptions among healthcare students is essential.

Keywords: COVID-19, preclinical medical and dental students, knowledge, attitudes

Introduction

In 2020, a new global pandemic Coronavirus disease (COVID-19) emerged, caused by a new strain of coronavirus called severe acute respiratory syndrome-corona virus (SARS-COV-2). This pandemic started in Wuhan, China in December 2019, and involved almost every country in the world. Some people infected with the virus never develop symptoms. However, 80% of the patients have mild upper respiratory tract symptoms that do not require medical intervention. A minority of cases had serious illnesses such as dyspnea, sepsis, septic shock, and or multiple organ dysfunction, and can be fatal.[1] As of September 12th, 2022, over 600 million confirmed cases and over 6.4 million deaths have been reported globally.[2] The SARS-CoV-2 virus is highly contagious and easily transmitted from human to human via small liquid particles (larger respiratory droplets to smaller aerosols) and direct contact.[3]

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Several misconceptions and false information are circulating on social media about the disease. Hence, knowledge of such outbreaks is necessary, especially for healthcare professionals, service providers, and medical and allied health science students. Though the students from medical and allied health sciences are not directly involved in managing COVID-19 patients, they can inform people about maintaining personal hygiene, symptoms, and the mode of transmission of COVID-19. With this background, our study is aimed to assess the knowledge and perceptions about COVID-19 among preclinical medical and dental students.

Methods

A cross-sectional study was done among a group of medical and dental students from Community Based Medical College, Bangladesh (CBMC,B) in Mymensingh, Bangladesh. Data were collected in September 2020. The online questionnaire was created on Google Forms after reviewing previously conducted research and posted on several online platforms accessible by the students. The questionnaire was pretested on 5 students and proper modifications were done before posting to participants. Participation in this study was voluntary and the identification information of participants will not be recorded anywhere on the form. The questionnaire covered the following: (I) Demographic characters: age sex, education, and source of information about COVID-19. (II) The knowledge section: To measure knowledge about COVID-19, 12 questions were adapted from previous research.[4,5] These questions included the participants' knowledge about clinical presentations (items 1–4), transmission routes (items 5–8), and prevention and control (items 9–12) of COVID-19. Participants were given "true," "false," or "not sure" response options to these queries. A correct response to a question was assigned 1 point, while an incorrect/not sure response was assigned 0 with a maximum score of 12. Higher Score indicates better knowledge about COVID-19. (III) Attitudes toward COVID-19; to measure attitudes towards COVID-19, Medical and dental students were asked whether they agreed, disagreed, or were not sure that the pandemic would be successfully controlled. They were also asked about their confidence that Bangladesh would get vaccine soon to prevent the COVID-19 virus (yes or no).

Once all necessary data is obtained and checked for completeness, they will be coded and analyzed using Statistical Package for Social Science (SPSS) version 16.0. Simple descriptive analysis was adopted as mean and standard deviation (SD) considered for numerical data and number and percent for qualitative data. Comparing knowledge scores between two groups will be done using student t-test and ANOVA test for more than two groups. $P \leq 0.05$ was considered statistically significant. The study was approved by the Ethical Review Committee of the same institution.

Results

A total of two hundred and fifty-seven students have completed the survey. Table-I shows the demographic characteristics of the studied participants. More than half of the participants (61.9%) were females. Their mean age was 20.44025±0.924978 years. Most of the students (93%) were medical students, and 7 % are studying BDS. The mean COVID-19 knowledge score was 9.04 (SD: 2.107, Range: 0-12),

suggesting an overall 75.33% correct rate on this knowledge test. About 49.03% of participants were able to obtain scores of 10 and above, representing an acceptable level of knowledge of COVID-19. Most study participants (86.4%) correctly identified clinical symptoms of COVID-19. Most of the study participants (81.7%) knew that elderly persons or people with comorbidities are more prone to acquire COVID-19.

There was noticeable confusion among participants regarding the transmission of the virus. One hundred and four (40.5%) students correctly answered that COVID-19 infected persons cannot infect the virus others if they do not have a fever whereas 35.8% of students were incorrect about the statement. Most participants (61.8%) answered correctly that the virus was airborne. The majority of the participants knew that people who had contact with an infected person should be immediately isolated for 14 days (96.5%) and this is an effective way to reduce the spread of the virus (95.3%).

The results showed that knowledge scores are higher in male, MBBS students but the differences are not significant. Analyses showed that the knowledge scores of 1st year participants were significantly higher than 2nd year students. Increased knowledge score was noticed in those who were not in direct contact with Covid patients and also not infected by Covid than others, though the difference was insignificant (P>0.05).

Participants were asked two questions in the assessment of attitudes. For the first question, half of the participants 50.2% (129/257) agreed that this disease will finally be successfully controlled. Even so, 13.6% (35/257) of participants were unsure whether the virus would

be controlled and 36.2 % (93/257) of participants disagreed that it would be successfully controlled. For the second attitude question, 65% (167/257) participants had confidence that Bangladesh would get a vaccine soon to prevent the COVID-19 virus, whereas 28% (72/257) participants did not have that confidence. The main sources of information were social media (Facebook, Instagram) (47.47%) followed by the internet (website, blogs, etc.) (23.74%), and television (21.79%). The remaining participants got the information through newspapers (4.67%), and physicians (2.33%).

Table-I: Demographic characteristics of study participants (n = 257)

Characteristics	Number	Percentage
Gender		
Male	98	38.1
Female	159	61.9
Age(years)		
18	5	1.9
19	37	14.4
20	90	35
21	95	37
22	30	11.7
Type of course		
MBBS	239	93
BDS	18	7
Year of the study		
1st year	139	54.1
2nd year	118	45.9
Direct contact with COVID-19 patients		
Yes	36	14
No	221	86
Affected by COVID-19		
Yes	245	95.3
No	12	4.7

Table-II: COVID -19 related questions (n = 257) (Correct answers are indicated in bold)

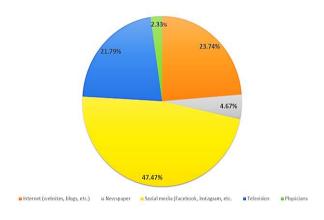|	COVID -19 related questions	True	False	Not Sure
1	The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and body aches.	**222(86.4)**	6(2.3)	29(11.3)
2	Unlike the common cold, stuffy nose, runny nose, and sneezing are less common in persons infected with the COVID-19 virus.	**118(45.9)**	55(21.4)	84(32.7)
3	There currently is no effective cure for COVID-19, but early symptomatic and supportive treatment can help most patients recover from the infection	**228(88.7)**	3(1.2)	26(10.1)
4	Not all persons with COVID-2019 will develop severe cases. Only those who are elderly and have chronic illnesses are more likely to be severe cases.	**210(81.7)**	14(5.4)	33(12.8)
5	Eating or touching wild animals would result in infection by the COVID-19 virus.	54(21)	**128(49.8)**	75(29.2)
6	Persons with COVID-19 cannot infect the virus others if they do not have a fever	92(35.8)	**104(40.5)**	61(23.7)
7	The COVID-19 virus spreads via respiratory droplets of infected individuals.	**224(87.2)**	10(3.9)	23(8.9)
8	The COVID-19 virus is airborne.	**159(61.8)**	40(15.6)	58(22.6)
9	Ordinary people can wear face masks available on the market/ surgical mask to prevent infection by the COVID-19 virus	**227(88.3)**	11(4.3)	19(7.4)
10	It is not necessary for children and young adults to take measures to prevent infection by the COVID-19 virus.	28(10.9)	**211(82.1)**	18(7)
11	Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus.	**245(95.3)**	2(0.08)	10(3.9)
12	People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place. In general, the isolation period is 14 days.	**248(96.5)**	-	9(3.5)

Table-III: Relation between demographic characteristics of study participants and their knowledge scores regarding COVID-19 (n = 257)

Characteristics	Mean knowledge score	P-value
Gender		
Male	9.13$\pm$ 2.13	0.6061
Female	8.99+2.10	
Type of course		
MBBS	9.65+2.16	0.1698
BDS	8.94+1.21	
Year of the study		
1st year	9.45+1.48	0.0007
2nd year	8.56+2.59	
Direct contact with COVID-19 patients		
Yes	8.88+1.36	.208403
No	9.01+2.21	
Affected by COVID-19		
Yes	8.42+1.73	.146315
No	9.07+2.12	

Table-III: Attitudes of medical and dental students regarding COVID-19 (n = 257)

Attitudes	Agree	Disagree	Not Sure
Do you agree that COVID-19 will finally be successfully controlled?	129 (50.2)	35 (13.6)	93 (36.2)
Do you have confidence that Bangladesh will get a vaccine soon to prevent the COVID-19 virus?	167 (65)	18 (7)	72 (28)

Fig. 1: Sources of information about COVID-19 (n = 257)

Internet (websites, blogs, etc.) ■ Newspaper ■ Social media (Facebook, Instagram, etc. ■ Television ■ Physicians

Discussion

In the present study, the mean correct answer rate of the respondents was 75.33% which was similar to the study conducted in India.[6] This result is lower than the studies conducted in China (90%), Egypt (80.4%8), Malaysia (80.5%).[4,7,8] Most of the study participants were sure about the main clinical symptoms related to COVID-19 which is similar to the study conducted in Malaysia (86.7%) but lower than another study conducted in China (96.4%).[4,8] A total of 88.7% of participants believed that there is no effective treatment for COVID-19 which is dissimilar to

another study conducted on the Bangladeshi population during the period from March 29 to April 19, 2020.[9] In this study, most (87.2%) of the students knew about the modes of transmission of COVID-19. In contrast, a study in India revealed that 53.71% of the participants knew about the modes of transmission of COVID-19.[10] In the present study, 61.8% of participants believed that The COVID-19 virus is airborne. Our study was taken early in the pandemic when the World Health Organization stated that SARS-CoV-2 was not transmitted through the air. On 23 December 2021, the World Health Organization (WHO) expressed the word 'airborne', and said clearly that airborne transmission and aerosol transmission are synonyms.[11]

Most of the participants (81.7%) in our study believed that elderly persons with co-morbidities are more likely to be severe cases. Similarly, the majority of the health care workers in Egypt were correct in the statement that COVID-19 is more dangerous for the elderly (89.7%) and patients with chronic diseases (99.4%).[7] In contrast, nearly 40% of the medical and allied health science students believed the statement in an online based study in India.[10]

At present, there is no clear evidence about the origin of COVID-19. Nearly half of the participants (49.8%) from our study gave correct responses about the mode of transmission by the animal. Only 21% of participants gave an incorrect response about the source of transmission. A study conducted in Bangladesh reported that 56.5% of participants gave an incorrect response about the COVID-19 origin which was higher than the present study.[12]

The knowledge scores of 1st year participants were significantly higher than the 2nd year

students. This could be explained by the fact that 2nd year students were the then in the First Professional examinee group. As a result, they could not gain the expected knowledge about COVID-19.

Most of the participants (88.3%) believed that wearing a surgical/ face mask can protect people from getting infected with COVID-19. Only half of the study participants (50.2%) believed that covid-19 can be successfully controlled. This result may be because Bangladesh experienced a sharp rising in positive cases on time during the study and though the government was taking several steps to control the spread of the disease, many people were not following the preventive measures properly and not understanding the pandemic situation, especially lower-class people. A study conducted in china showed that 97.1% believed that COVID-19 will finally be successfully controlled.[4]

Our study revealed that the main source of information about COVID-19 was social media (n = 466, 47.47%), Similarly a study in India observed that most of the healthcare students obtained knowledge from social media (65.17%).[10] In contrast, an Egyptian study showed that physicians were the most often mentioned as a source of information about COVID-19.[7]

Conclusion

The overall knowledge level of preclinical medical and dental students was generally good. As the global threat of COVID-19 continues to emerge, the improvement of knowledge of healthcare students is essential. Improving COVID-19 knowledge will enhance optimistic attitudes and maintain safe and healthy practices. We recommend follow-up studies on a larger scale

across the country.

References

1. Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX, et al. Clinical characteristics of coronavirus disease 2019 in China. N Engl J Med. 2020;382(18):1708-20.

2. World Health Organization (WHO). Coronavirus disease (COVID-19). Retrieved September 12, 2022, from https://www.who.int/emergencies/diseases/novel-coronavirus-2019

3. World Health Organization (WHO). Transmission of SARS-CoV-2: implications for infection prevention precautions: scientific brief, 09 July 2020. World Health Organization; 2020.

4. Zhong BL, Luo W, Li HM, Zhang QQ, Liu XG, Li WT, et al. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. Int J Biol Sci. 2020;16(10):1745.

5. Lau LL, Hung N, Go DJ, Ferma J, Choi M, Dodd W, et al. Knowledge, attitudes and practices of COVID-19 among income-poor households in the Philippines: A cross-sectional study. J Global Health. 2020;10(1):011007.

6. Modi PD, Nair G, Uppe A, Modi J, Tuppekar B, Gharpure AS, et al. COVID-19 Awareness Among Healthcare Students and Professionals in Mumbai Metropolitan Region: A Questionnaire-Based Survey. Cureus. 2020;12(4):e7514.

7. Abdel Wahed WY, Hefzy EM, Ahmed MI, Hamed NS. Assessment of knowledge, attitudes, and perception of health care workers regarding COVID-19, a cross-sectional study from Egypt. J Community Health. 2020;45(6):1242-51.

8. Azlan AA, Hamzah MR, Sern TJ, Ayub SH, Mohamad E. Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. PloS one. 2020;15(5):e0233668.

9. Ferdous MZ, Islam MS, Sikder MT, Mosaddek ASM, Zegarra-Valdivia JA, Gozal D. Knowledge, attitude, and practice regarding COVID-19 outbreak in Bangladesh: An online-based cross-sectional study. PLoS ONE. 2020;15(10):e0239254.

10. Gohel KH, Patel PB, Shah PM, Patel JR, Pandit N, Raut A. Knowledge and perceptions about COVID-19 among the medical and allied health science students in India: An online cross-sectional survey. Clin Epidemiol Glob Health. 2021;9:104-9.

11. Lewis D. Why the WHO took two years to say COVID is airborne. Nature. 2022;604(7904):26-31.

12. Farhana KM, Mannan KA. Knowledge and perception towards novel coronavirus (COVID-19) in Bangladesh. Int Res J Business Social Sci. 2020;6(2):76-88.