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COVID-19 Awareness among A Cohort of Bangladeshi People and their Perception toward the Role of Dentists in it's Prevention

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Abstract

Background: The main purpose of the study is to assess the awareness of a group of Bangladeshi about COVID-19 infection and their perception of the role of dentists in it's prevention.

Materials and methods: An observational cross-sectional survey included 101 participants who attended "DKRC-Smile Design & Orthodontics", a Private Dental Care Center, Chattogram from May to July 2020. A face-to-face interview using an anonymous questionnaire was carried out in this study. The questionnaire contained 20 questions divided into three parts, the first part included the participant's baseline characteristics. The second part analyzed the participants' awareness of COVID-19 infection through ten questions. Finally, four questions outlined participants' perception of the role of dentists in preventing the spread of COVID-19.

Results: Overall participant awareness was good at 70.30%. The percentages of "adequate" and "poor" overall awareness scores were 20.79% and 8.91%, respectively. Most respondents' perception of dentists' role in COVID-19 prevention was adequate. Not all but gender, education and income level baseline characteristics showed statistically significant difference related to the participants' awareness about COVID-19 infection and its spread.

Conclusion: From the findings of the present study, it can be concluded that the general population's awareness of COVID-19 infection and its route of transmission was good. Participants' understanding of the role of dentists in COVID-19 prevention was adequate.

Key words : Bangladesh, Dental, Corona virus; COVID-19; Disinfectant; Lockdown; Social distance; Telemedicine.

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Introduction

Corona Virus Disease 2019 (COVID-19) is a newly emerged, highly contiguous disease. It was first discovered in Wuhan City, the capital of Hubei Province, in China. The ongoing pandemic nature of the COVID-19 outbreak is ascribed to its fast spread.[1] COVID-19 belongs to a family of viruses that causes a group of manifestations ranging from the signs and symptoms of the common cold to Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). COVID-19 symptoms vary from mild in most cases to advanced serious complications. Common symptoms include fever, cough, loss of smell and dyspnea. Symptoms may be aggravated and advance to pneumonia, multi organs failure and death.[2-4] The aggressive spread of COVID-19 over 200 countries and regions caused approximately 6,99,579 deaths by 30th July, 2020 (COVID).

In Bangladesh, authorities of the Ministry of Health and Population announced 2,34,889 confirmed cases by 30th July 2020 with 3,083 deaths.

Meanwhile, Chattogram district recorded about 8,000 confirmed cases of COVID-19 and 484 deaths by 28 June 2020.

COVD-19 transmission is mainly via droplets released by coughing, sneezing, talking or expiration. Droplets from uncovered coughing can travel 4.5 m in a study conducted in Singapore.[5-6] Salivary droplets can be a source of viral infection. Touching surfaces contaminated with infected droplets can also be a source as the virus can survive for different amounts of time depending on the surface (Stainless steel, plastic or cardboard) temperature and humidity.[7-8]

Social distancing and adopting personal hygiene measures are important to avoid infection. Using a disinfectant, such as household soap, 60–71% ethanol, 0.1% sodium hypochlorite, 0.5% hydrogen peroxide or 0.2–7.5% povidone-iodine, effectively kills the virus.[8-10] One of the WHO's strategies to control overwhelming infection spread is

breaking the infection cycle, e.g minimizing human-to-human transmission by reducing secondary infections among close contacts and health care workers such as dentists.[11] Dental procedures are a high-risk source of infection because of direct exposure to aerosols during treatment.

In this critical stage, public awareness of the disease nature and its route of transmission is the cornerstone of diminishing infection spread. The current pilot study aimed to assess the awareness of a group of Bangladeshi about COVID-19 infection and their perception of the role of dentists in its prevention.

Materials and methods

Of 110 subjects, 101 agreed to participate in the current observational cross-sectional survey. The study was conducted in a private dental clinic (DKRC- Smile Design & Orthodontics) in Chattogram City, from 1st May 2020 to 30th July 2020.

The only exclusion criteria were the presence of obvious emotional and/or behavioral problems and refusing to participate in the study.

A face-to-face interview using an anonymous questionnaire was adopted in this study. Informed consent was obtained from all individual participants included in the study. The questionnaire contained 20 questions that were divided into three parts, the first part included 5 questions covering the following: (1) Personal data (Gender and age) (2) Socioeconomic data in which the following variables were addressed: (a) Education level categorized into three sub classes: greater than secondary, secondary school and primary.[12] (b) Daily income with a cutoff point of US$3.20 per day.[12] Income was divided into three categories: lower medium, < 28000 BD Tk.(Bangladeshi taka) upper middle (29000– 87000 tk. Upper class >87000 tk (c) Marital status with two responses: currently married or currently unmarried. (3) One question was about the participants' health condition and had two possible responses, yes or no. If the answer was "yes," the participant was asked about the nature of his/her health status.

The second part of the questionnaire analyzed the participants' awareness of COVID-19 infection through 10 questions. Questions were extracted mainly on the basis of pre-tested questionnaires described in the literature to assess public awareness about three infectious diseases.[13-16] Questions discussed the participants' knowledge of the viral route of transmission and the required precautions and measures to follow to avoid the spread of infection. Each questions had three responses: yes, no or I'm not sure. For each question, the correct response was scored "1" and an incorrect response was scored "0." The scores were summed (The maximum score for each individual was 10, and the minimum was 0).[17] Awareness scores were classified into "good" for correct 8-point responses, "moderate" for correct 6- or 7-point responses and "poor" for < 6 correct responses. The overall awareness was assessed as follows: "good" for scores between 80%-100%, "adequate" for scores of 50%-79% and "inadequate" for scores < 50%.

The third part consisted of 4 questions with three responses as mentioned previously in the second part of the questionnaire. Questions outlined participants' perception of the role of dentists in prevention of COVID-19 spread. The participants' answers were divided into two categories: "adequate" for at least three questions with "yes" responses and "inadequate" for less than three questions with "no" or "I am not sure" responses. The maximum total score of participants' perception was 296, and the minimum score was 0. An overall score ≥303 (75%) was considered "good" and from 202 (50%) to 221 "adequate," while overall scores < 202 were considered "inadequate."

Statistical Package for the Social Sciences (SPSS) version-16 was used for tabulation of descriptive data including baseline characteristics and questionnaire domains (i.e., participants' answers to the questionnaire on awareness about COVID-19 infection and their perception of dentists' role in its prevention). Mean ± standard deviation and median and interquartile range (IQR) of the study domain scores were calculated in relation to the baseline characteristics. Mann-Whitney U test and Kruskal-Wallis H tests were used to compare differences between two or more independent non-parametric data. Spearman's correlation coefficient (r) was used to determine the strength of the association between baseline characteristics and participants' total COVID-19 awareness score and their perception of the role of dentists in its prevention. Significance (p) was defined at 0.05 (2-tailed test).

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Results

Internal consistency (Cronbach's alpha) which addressed the reliability of the questionnaire data, was 0.67. The most prevalent age group (26.73%) was between 25 and 34 years old. The percentages of males and females were 41.58% and 58.42%, respectively. More than half of the participant's education was in higher level (More than twelve classes) (53.47%), while the percentage of secondary and primary was (33.60%) and (11.88%) respectively. Approximately half of respondents were of upper middle income class (47.52%), while lower middle income class and upper income class comprised 28.71% and 22.77%, respectively. Slightly more than two-thirds of the participants were married and free of long term diseases (Table-I).

The percentage of the "good" overall participant awareness score was 70.30% (n = 71), while the percentages of "adequate" and "poor" overall awareness scores were 20.79% (n =217) and 8.91% (n = 09). 47.52% of the respondents' perception toward dentists' role in COVID-19 prevention was adequate 47.52(n = 48). 38 respondent's recorded inadequate perception (37.62%) and 15 showed poor perception (14.86%) (Fig. 1).

The average score for questions concerning participants' awareness about COVID-19 infection ranged from 0.66 ± 0.48 to 1.00 ± 0.00. The mean score for the question related to the perception of dentists' role in the prevention of the spread of COVID-19 infection ranged from 0.06 ± 0.37 to 0.68 ± 0.47 (Table II).

Gender, education level & income level baseline characteristics showed highly statistically significant difference related to participants' awareness of COVID-19 infection and its spread (Table III).

The correlation between baseline characteristics and participants' total awareness score of COVID-19 and their perception of the role of dentists in its prevention was strong. They showed statistically significant difference at 0.001 levels (Table IV).

Table I : Frequency of baseline characteristics

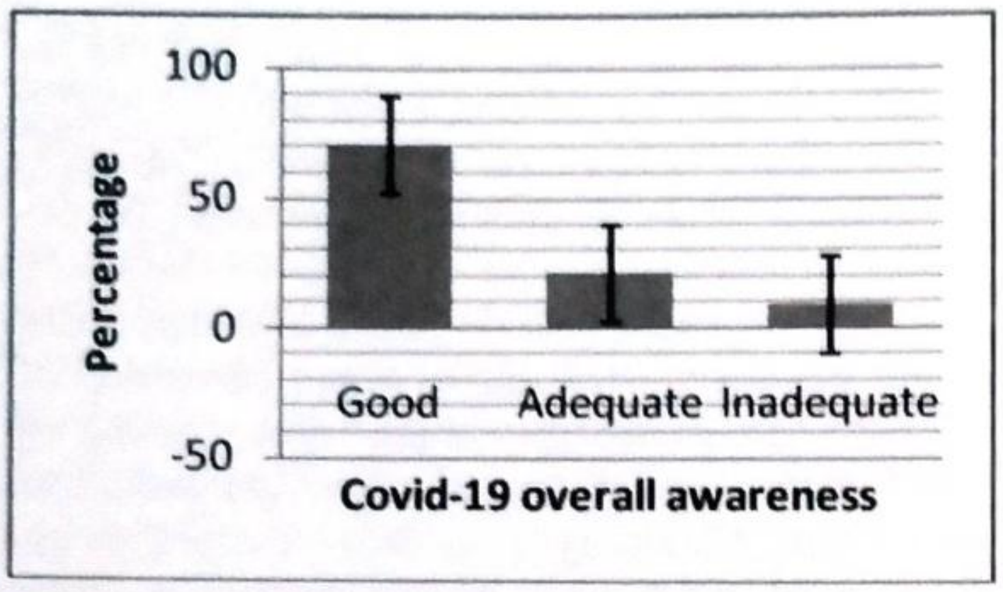
Independent variables	n (%)
Gender	
Male	4 2 (41.58)
Female	59 (58.42)
Age (Years)	
15-24	20 (19.80)
25–34	27(26.73)
35–44	18 (17.82)
45–54	17 (16.83)
≥55	19 (18.81)
Education level	
Greater than secondary	54 (53.47)
Secondary school	34 (33.66)
Primary school	12 (11.88)
Illiterate	01 (0,99)
Income per month	
< 6000 BD Tk.	01 (0.99)
6000–2800 BD Tk.	29 (28.71)
29000-87000 BD Tk.	48 (47.52)
>87000 BD Tk.	23 (22.77)
Material status	
Currently married	77 (76.24)
Currently unmarried	24 (23.76)
Suffer from a chronic condition	
Yes	22(21.78)
No	79 (78.22)

Discussion

A face-to-face pilot cross-sectional survey was conducted with two main purposes. The first was to evaluate the awareness of a group of Bangladeshi about COVID-19 infection, and the second was to evaluate their perception of the role of dentists in COVID-19 prevention.

One of the milestones of infectious disease prevention that hinders disease progression is raising the public's level of awareness about infectious diseases. A higher level of awareness plays a significant role in primary prevention through health promotion. Moreover, it allows suspected infected individuals to recognize the early symptoms and take the necessary precautions to avoid the spread of infection as well as seek treatment at the initial disease stage.[15]

The current pilot study suggested a good awareness regarding COVID-19 infection and its route of transmission. This might be related to the flood of information in the media, such as television programs, social media and newspapers. Moreover, the precautionary measures that have been taken by the authorities have increased the sense of the seriousness of the situation among the general population. For instance, since the middle of March 2020, a decision was made by the government to suspend study in schools and universities for a 2-week period. Then, the study was canceled and the final examinations postponed until further notice. Moreover, an expandable full and partial lockdown was imposed. This might explain the recorded



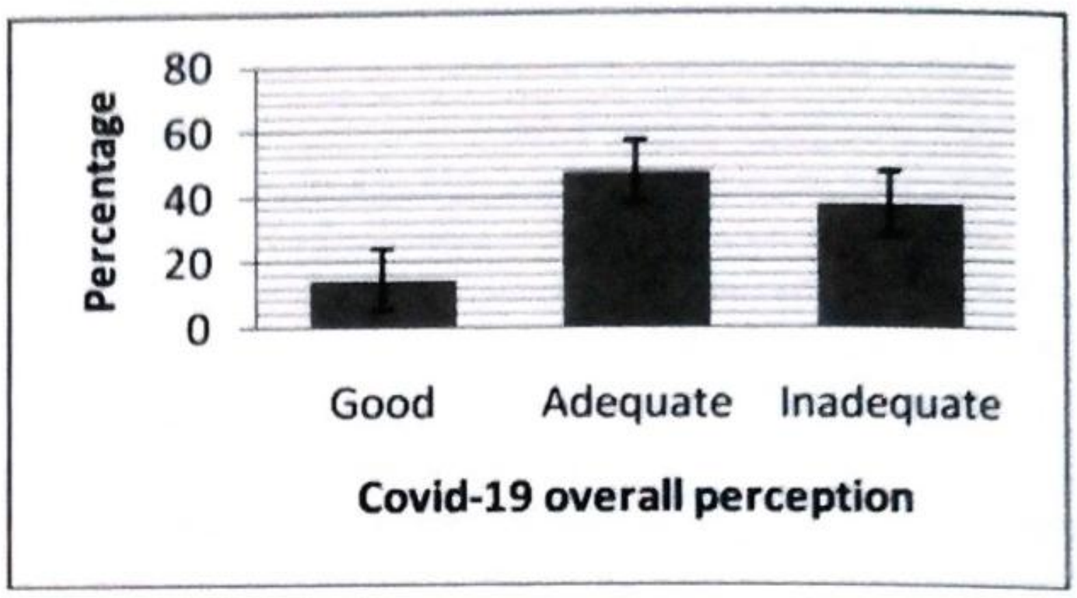


Fig 1: Number of participants based on their (a) awareness of COVID-19 infection and (b) overall perception of dentists' role in COVID-19 prevention

statistically insignificant difference between some variables adopted in the present study. In Brazil, the National Health Surveillance Agency (ANVISA) has recommended that only emergency and urgent dental care should be performed (From 20 March 2020) and all private offices had to cancel elective treatments. Bangladesh government also adopted latest recommendations regarding health policy on this pandemic. The rapid progression of the infection and daily official and unofficial data regarding the number of new cases and deaths might also be associated with the push to obtain information about the novel virus. Despite the huge amount of daily information regarding the COVID-19 virus, it is essential to refine this information into clear guidelines. However, it is early to announce well-established guidelines.

The Bangladesh Ministry of Health & Family Planning activated the Telemedicine emergency services. This step has been adopted in other countries, e.g the USA and Brazil.[18] Concerning dental treatment, the governmental hospitals suspended elective dental procedures, restricting treatment to urgent dental care.

Table II: Frequency and mean ± Standard Deviation (SD) of participants' questionnaire answers about awareness of COVID-19 infection and their perception of dentists' role in its prevention

Questionnaire components	Yes n(%)	No n(%)	I m not sure n(%)	Mean ± SD n(%)
Awareness questions (Q1-Q10)				
1. Is COVID-19 spread by coughing and sneezing?	88(87.13)	09(8.91)	4(3.96)	0.87 ± 0.34
2. Is COVID-19 spread by saliva droplets?	73(72.28)	28(27.72)	0(0)	0.72 ± 0.45
3. Can COVID-19 be prevented?	69(68.32)	32(31.68)	0(0)	0.68 ± 0.47
4. Do you know persons who are more susceptible to serious COVID-19 complications?	72(71.29)	29(28.71)	0(0)	0.71 ± 0.45
5. Should a person with COVID-19 be isolated?	101(100)	0(0)	0(0)	1.00 ± 0.00
6. If a person looks healthy, can he/she be a COVID-19 carrier?	92(91.09)	9 (8.91)	0(0)	0.91 ± 0.29
7. Do you think that there is no COVID-19 vaccine so far?	67(66.34)	34(33.66)	0(0)	0.66 ± 0.48
8. Do you know the symptoms of COVID-19?	90(89.11)	11(10.89)	0(0)	0.89 ± 0.31
9. Can disinfectant such as soap kill COVID-19?	76(75.25)	25(24.75)	0(0)	0.75 ± 043
10. Do you think dealing with a person with a COVID-19 is dangerous?	91(90.10)	10(9.90)	0(0)	0.90 ± 0.30
Participants' perception of the role of dentists in COVID-19 prevention (Q11-Q14)				
11. Do you think that dental offices can be a potential source of COVID-19 transmission?	68(67.33)	33(32.67)	0(0)	0.67 ± 0.47
12. Do you think that dentists have a role in prevention of COVID-19?	69(68.32)	32(31.68)	0(0)	0.68?±?0.47
13. Last time you visited the dentists, did he/she give you any information regarding COVID-19 and its spread?	16(15.84)	85(84.16)	0(0)	0.06?±?0.37
14. Do you ask your dentist about COVID-19 and the required prevention methods?	18(17.82)	83(82.18)	0(0)	0.16?±?0.39

Independent variables	Awareness related to COVID-19 infection			Perception of the dentists' role		
	Mean ± SD	Median (IQR)	p*	Mean ± SD	Median (IQR)	p*
Gender						
Male	8.50 ± 1.60	9(2)	0.077	1.88± 1.02	2(1)	0.067
Female	7.81 ± 2.05	8(2)		1.54 ± 0.89	2(1)	
Age (Years)						
15-24	8.05 ± 1.47	8(2)		1.65 ± 1.09	2(1)	
25–34	7.57 ± 1.94	8(3)	0.535	1.59 ± 0.97	2(1)	0.895
35–44	7.83 ± 2.46	8(2)		1.61 ±1.04	2(0)	
45-55	8.47 ± 1.66	9(2)		1.82 ± 0.95	2(.5)	
>55	8.42 ± 1.95	9(2)		1.79±0.63	2(1)	
Education level (years)						
Greater than secondary	8.37 ± 1.87	9(2)	0.013	1.83 ± 0.95	2(1)	0.191
Secondary school	7.76 ± 1.98	8(2)		1.31 ± 0.95	2(1)	
Primary school	8.08 ± 1.71	9(2.5)		1.59 ± 0.89	2(1)	
Income per day						
6000-28000 BD Tk.	7.63 ± 2.43	8(2)	0.009	1.50 ± 0.90	1(1)	
29000–87000 BD Tk.	8.23 ± 1.57	9(3)		1.88 ± 0.98	2(2)	0.201
> 87000 BD Tk.	8.43 ± 1.67	9(2)		1.52 ± 0.85	1(1)	
Material status						
Currently married	8.12 ± 1.84	8(2.5)	0.308	1.71 ± 0.89	2(1)	0.308
Currently unmarried	8.04 ± 2.39	8.5(3)		1.58 ±1.10	2(1)	
Suffer from a chronic condition						
Ye	7.95 ± 2.01	8(2)	0.250	1.64 ± 0.85	1.5(1)	0.184
No	8.14 ± 1.87	9(3)		1.70 ± 0.97	2(1)	

*Mann-Whitney U test and Kruskal-Wallis H tests, level of significance p 0.05

This was in line with the recommendations of the National Health Surveillance Agency (ANVISA) in Brazil.

Although approximately 69% of participants' responses emphasized that dentist have a role to play in COVID-19 prevention, their responses failed to perceive the dentists' function related to the viral outbreak. The findings of the current study showed the poor perception of the participants about the role of dentists in COVID-19 prevention. This situation might be attributed to in a greater extent to the respondent's infrequent visit to the dentists after the viral outbreak. It was the first dentist visit for most of the respondents.

Table IV : Spearman's correlation between baseline characteristics and participants' total COVID-19 awareness score and their perception of the role of dentists in its prevention

Independent variables	Total awareness score		Perception of dentists' role	
	r	p	r	p
Gender	0.95	<0.001	0.88	0.001
Age (Years)	0.93	<0.001	0.84	0.001
Education level	0.94	<0.001	0.88	0.001
Income per month	0.93	<0.001	0.88	0.001
Material status	0.96	<0.001	0.90	0.001
Suffer from chronic condition	0.95	<0.001	0.84	0.001

Lack of dentists' concern regarding spreading sufficient awareness among their patients may also attributed. However, the ability of dentists to perform this task is linked to their scientific knowledge and adherence to the updates regarding this novel virus.

Despite the limitations of this pilot study, this study is the first step toward more comprehensive understanding of the general population's behavior toward the current global crisis and might be an indicator of the need for policies that emphasize raising people's collective awareness about the danger of COVID-19 infection regarding dentistry and dental patients. Moreover, this study is the nucleus of further studies on a larger scale with prospective designs.

Limitations

Cross-sectional design and limited sample size is the limitation to the study. Moreover, it was single center study which can't represent the homonization of the populations.

Conclusion

From the findings of the present study, it can be concluded that the awareness of the general population about COVID-19 infection and its route of transmission was good. The participants' perception of the role of dentists in COVID-19 prevention was adequate. The findings are encouraging. In Bangladesh, the Ministry of Health & Family Planning has also implemented regulations on Telemedicine services to reduce disease transmission.

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Recommendations

Further research and investigations with large samples with prospective design are required to provide sufficient evidence of causality.

Author's contribution

MKU-Conception, design, acquisition, analysis, interpretation of data and final approval.

APC- Data analysis, critical revision and final approval.

EUA- Design, critical revision and final approval.

AK- Conception, Drafting and final approval.

AS- Design, critical revision, and final approval.

MM-Conception, critical revision and final approval.

Disclosure

All the authors declared no competing interest.

References

1. Kassema JJ. 2020. Covid-19 outbreak: Is it a health crisis or economic crisis or both? Case of African counties. Case of African Counties. March 23, 2020.

2. Hopkins C, Kumar N. Loss of sense of smell as marker of Covid-19 infection. 2020.

3. Sabino-Silva R, Jardim ACG, Siqueira WL. Coronavirus Covid-19 impacts to dentistry and potential salivary diagnosis. Clin Oral Investig. 2020; 24(4):1619–1621.

4. Tavakoli A, Vahdat K, Keshavarz M. Novel coronavirus disease 2019 (Covid-19): an emerging infectious disease in the 21st century. ISMJ. 2020;22(6):432–450.

5. Bourouiba L. Turbulent gas clouds and respiratory pathogen emissions: Potential implications for reducing transmission of Covid-19. JAMA. 2020.

6. Loh NW, Tan Y, Taculod J, Gorospe B, Teope AS, Somani J, Tan AYH. The impact of high-flow nasal cannula (hfnc) on coughing distance: Implications on its use during the novel coronavirus disease outbreak. Can J Anaesth. 2020.

7. Andersen KG, Rambaut A, Lipkin WI, Holmes EC, Garry RF. The proximal origin of SARS-COV-2. Nat Med. 2020;1-3.

8. Kampf G, Todt D, Pfaender S, Steinmann E. Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents. J Hosp Infect. 2020; 104(3):246–251

9. Mohajan HK. Coronavirus (Covid-19) outbreak: A most fatal pandemic in the twenty-first century. 2020.

10. Wu F, Zhao S, Yu B, Chen Y-M, Wang W, Song Z-G, Hu Y, Tao Z-W, Tian J-H, Pei Y-Y. A new coronavirus associated with human respiratory disease in China. Nature. 2020;579(7798):265–269.

11. Organization WH. Coronavirus disease 2019 (Covid-19): Situation report, 60.

12. Eid SA, Khattab NMA, Elheeny AAH. Untreated dental caries prevalence and impact on the quality of life among 11 to 14-year-old Egyptian schoolchildren: a cross-sectional study. BMC Oral Health. 2020;20(1):83.

13. Cheung J, Lee TK, Teh CZ, Wang CY, Kwan WC, Yoshida EM. Cross-sectional study of hepatitis B awareness among Chinese and Southeast Asian Canadians in the Vancouver-Richmond community. Can J Gastroenterol. 2005;19(4):245–249.

14. Sadat, S., & Muhammad Badruddoza (2020). Importance of Pre-Operative COVID-19 Screening of Asymptomatic Patients Undergoing Maxillofacial Surgery. Journal of Bangladesh College of Physicians and Surgeons, 38 (4);229-231. https//doi.org/10.3229/jbcps.v38i4.49358.

15. Lu SH, Tian BC, Kang XP, Zhang W, Meng XP, Zhang JB, Lo SK. Public awareness of tuberculosis in China: A national survey of 69 253 subjects. Int J Tuberc Lung Dis. 2009;13(12):1493–1499.

16. Yadav SB, Makwana NR, Vadera BN, Dhaduk KM, Gandha KM. Awareness of HIV/AIDS among rural youth in India: A community based cross-sectional study. J Infect Dev Ctries. 2011;5(10):711–716.

17. Khattab NMA, Elheeny AAH, Tony GA. Oral-cancer knowledge, practice, and attitude assessment of dentists in upper Egypt: A cross-sectional study. Clin Exp Dent Res. 5(2):121–127.

18. Mallineni SK, Innes NP, Raggio DP, Araujo MP, Robertson MD, Jayaraman J. Coronavirus disease (Covid-19): Characteristics in children and considerations for dentists providing their care. Int J Paediatr Dent. 2020.