

Knowledge and public health practices during lockdown towards COVID-19 in Bangladesh

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ABSTRACT

The study aimed to assess the role of having knowledge and essential hygiene practices to prevent coronavirus pandemic and to find out the relationship between people's knowledge and good hygiene practices with socio-demographic variables during coronavirus disease 2019 (COVID-19) pandemic situation. In this study, data were collected from 248 respondents for cross-sectional study using voluntary response sampling from April, 30 2020 to May, 30 2020, during lockdown situation in Bangladesh. Descriptive statistics were done to calculate the frequencies and percentages by using Stata SE 14.2 (StataCorp). Chi-square was performed at the significance level of 5% to find the factors which were associated with knowledge about COVID-19. After knowing about COVID-19, 86.29% respondents had taken preventive measures and 71.37% respondents had agreed to stay at home. Among the respondents, 47.98% were involved in services and were positively associated with good general knowledge of preventive practices. Our present findings indicated significant relationship between good general knowledge and practice of general people towards COVID-19 outbreak in Bangladesh. The findings of the study are helpful for the researchers and the population to follow all good promotional practices for preventive measures against coronavirus.

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1. INTRODUCTION

Being a developing country, the health system of Bangladesh is not good enough to tackle coronavirus disease 2019 (COVID-19) pandemic. In this situation awareness, keeping good knowledge and safety health practices are the only way to survive. In China, the confirmed cases of coronavirus were first found in 2019 [1], [2] and the case related death was reported in 2020 [3]. A few weeks later, coronavirus infection spread over the globe in rapidly [4]. The disease was announced as global concern of health emergency on 30 January, 2020 [5]. World Health Organization (WHO) declared a new disease called as COVID-19 on 11 February 2020 [6], which was later declared as global pandemic [7], [8] when about 114 countries and areas were affected by this disease [9], [10].

The world people were initiated awareness of healthcare for the country peoples towards coronavirus due to similarity with severe acute respiratory syndrome (SARS) virus [8]. In general people of

different countries have a lot of facts regarding prevention and management of COVID-19 outbreaks [11]. In Bangladesh, the number of confirmed cases and total deaths reached to 989,219 and 15792 respectively on July 8, 2021 [12]. Most of the COVID-19 infected countries have put in place lockdowns and public health measures to promote the physical distancing, hand washing with soap, sanitizing, isolating cases, testing and tracing contacts of people with coronavirus infection [5]. A large number of employees in different types of organizations are working from home to avoid physical transmission. On 16 March 2020, all types of educational institutions have been closed for uncertainty in Bangladesh [13], [14]. Since onset of coronavirus pandemic, proper use of hand gloves, masks, sanitizers and face shields have increased exponentially along with its prices in local market [15]. The higher authorities of the countries are warning the public to avoid any types of gatherings to prevent the transmission and infection in the healthy population [16]. Despite these warning and concerning efforts, many people of different countries are ignoring social distancing due to attitudinal problems and religious matter [17]. Another previous study stated that a number of socio-demographic factors (age and gender) can affect the spread of coronavirus [18].

Regarding the knowledge and practices of coronavirus, several studies showed mediocre level of knowledge and practices among the general population [19]-[21] including young students [21]-[23] and slum dwellers [24]. All these studies have assessed the level of knowledge and practice for general perspectives. For example, in 2020, Ferdous *et al.* [19] evaluate the level of knowledge about how the coronavirus affected and transmitted by the general population [19], [25]. Those studies are not properly and solely assessed the knowledge and awareness of the coronavirus subject to the preventive behavioral aspects. At this second wave, familiarity and basic level of knowledge is not sufficient to reduce the impact and translate into the preventive behavior. Results of this study can be translated into the practices of the general population by considering their knowledge subject to the preventive measures. Besides, results on preventive behaviors such as hand washing, social distancing is useful for implementing the national level of strategies for reducing the impact of coronavirus. Bangladesh is a heavily populated country with inadequate health-care resources; without public participation, controlling COVID-19 will be impossible. Data on public awareness and prevention behaviors about COVID-19 is required. This will relieve the government of some of the burden of fighting outbreak strategies. There have been a few researches undertaken in the country that deal with this topic. Therefore, the present study was aimed to assess the role of having knowledge and essential hygiene practices to prevent coronavirus pandemic. Moreover, we have tried to find out the relationship between people's knowledge and good hygiene practices with socio-demographic variables during COVID-19 pandemic situation.

2. RESEARCH METHOD

2.1. Materials

In the present investigation, an online survey was conducted from April, 30 2020 to May, 30 2020. Respondents were selected using a voluntary response sampling method. Respondents with internet access were recruited for this online survey. Dhaka, Rajshahi, Chittagong, Khulna, Mymensingh, Sylhet, Rangpur, Barisal division and immigrant population of Bangladesh were considered as respondents for the study. Selected study population from all nine regions comprised of educated/non-educated respondents. Total 248 responses were recorded and used as raw materials.

2.2. Questionnaire and data collection

A questionnaire was developed on Google forms, considering the important factors, knowledge and general people attitude during the COVID-19 pandemic, in Bangladesh. The questionnaire was sent randomly to the population through messenger, e-mail, and Facebook. For data collection, questionnaire and its contents were designed by moderated Pérez-Fuentes *et al.* method [26]. The questionnaire was arranged in different parts including, socio-demographic approaches (five items), and source of information (two items), knowledge and practices for prevention of coronavirus (seven items). Unlimited time was given to respondents to read, comprehend evaluate and answer all the survey questions. Respondent's identity and personal information was maintained confidentially throughout the study and the data was only used for research purposes.

2.3. Data analysis

Data analyses were performed by Pérez-Fuentes *et al.* [27] method. Responses were recorded in Microsoft Excel and transformed to Stata for further analysis. Descriptive statistics were done to calculate the frequencies and percentages by using Stata SE 14.2 (Stata corp.). The analysis of chi-square was performed at the significance level of 5% to find the factors which were associated with knowledge about COVID-19. The score of knowledge was arranged from 0 to 15, respondents who scored 15, 10-14 and less than 10 points were considered to have good general knowledge, medium knowledge and poor knowledge towards coronavirus respectively.

2.4. Ethical clearance

This study was approved by the Institute of Biological Sciences Research Ethics Committee, University of Rajshahi, Bangladesh and the approval no. was deposited (Ref. no. B.0003/BS.03.02.2020).

3. RESULTS AND DISCUSSION

3.1. Socio demographic characteristics

More than 30% of the respondents were 26-35 years' age group. The non-educated respondents who could access internet in this study were also observed. Among the respondents, 45.56% were females, 54.03% were males and 0.40% preferred not to answer. Of all, 79.84% respondents had higher education, proportion of 9.27% completed secondary education, 5.65% primary and 5.24% were non-educated. In this study, largest proportion of respondent was involved in jobs (47.98%), 27.82% were students, 12.10% of the respondents were housewife, 8.87% respondents were involved in business and 3.23% were retired population. More than 38% of respondents were from Dhaka division. The socio demographic characteristics of the respondents were represented in Table 1.

Table 1. Demographic characteristics of the respondents

Item	Category	Frequency (n)	Percent (%)
Age group (years)	18-25	56	22.58
	26-35	84	33.87
	36-45	57	22.98
	46-60	38	15.32
	Above 60	13	5.24
Gender	Female	113	45.56
	Male	134	54.03
Educational qualification	Not to answer	1	0.40
	Higher education	198	79.84
	Secondary	23	9.27
	Primary	14	5.65
	Non-educated	13	5.24
Occupation	Service	119	47.98
	Student	69	27.82
	Housewife	30	12.10
	Business	22	8.87
	Retired	8	3.23
	Dhaka	96	38.71
Area of residence	Rajshahi	80	32.26
	Chittagong	52	20.97
	Khulna	4	1.61
	Mymensingh	3	1.21
	Sylhet	3	1.21
	Rangpur	3	1.21
	Barisal	3	1.21
	Immigrant	4	1.61

3.2. Awareness and hygiene practices about preventive measures

The majority with 86.29% respondents had heard about the disease. On the other hands, only 5.24% of respondents had known about two weeks of quarantine period and 6.85% had no idea about quarantine period. This indicates that there is a lack of quarantine knowledge among the Bangladeshi people compared with the Jordanian population [28]. The practices for using mask and maintained handkerchief or tissue or elbow when sneezing/cough was found among 87.50% of all respondents. In addition, almost 87% respondents had maintained social distance or avoided social ceremony and 82.66% respondent's children were abandoned to go out for outdoor activities during lockdown. Moreover, more than 71% of the respondents had awareness about stay at home for preventing coronavirus disease but 22.98% were confused about these preventive measures. Only 5.65% responded that stay at home policy cannot control coronavirus disease. Percentage distribution of awareness and hygiene practices were presented in Table 2.

Table 2. Percentage distribution of awareness and hygiene practices about preventive measures of respondents on COVID-19

Item	Questionnaire	Category	Frequency (n)	Percent (%)
Preventive measures	Do you take preventive steps after knowing about COVID-19?	No	34	13.71
		Yes	214	86.29
Understanding about quarantine period	What do you mean about the quarantine period?	2 weeks	13	5.24
		1 week	12	4.84
		1 month	206	83.06
		No idea	17	6.85
Using mask when go outside	Does all members of your family use mask when go outside?	No	22	8.87
		Sometimes	9	3.63
Using handkerchief or tissue or elbow	Do you cover your mouth using handkerchief or tissue or elbow when you cough or sneeze?	Yes	217	87.50
		No	31	12.50
Social distancing or avoid social ceremony	Do you maintain social distancing or avoid social ceremony?	Yes	215	86.69
		No	205	82.66
Give permission children to go outside	Do you give permission your children to go outside?	Sometimes	25	10.08
		Yes	18	7.26
Stay at home	Do you think that stay at home can help control COVID-19?	No	14	5.65
		May be	57	22.98
		Yes	177	71.37

3.3. Association of knowledge and socio-demographic characteristics

Table 3 indicates that the respondents who were higher educated and involved in service were significantly associated with good knowledge practices towards COVID-19. Moreover, respondents were of 26-35 years' age group had significant general knowledge ($p < 0.05$). On the other hand, respondents who were above 60 years old and non-educated had poor knowledge about prevention of hygiene practices. However, our study shown more than 52% respondents who were from Dhaka division of Bangladesh had good general knowledge on maintaining safety practices. Previous studies also found that increasing level of educational qualification and middle age of the people has more knowledge on the coronavirus transmission and prevention measures [19], [20]. In this COVID-19 condition, people with higher degrees or education are more likely to have greater knowledge and preventive behaviour [19], [20], which is consistent with the current findings. However, the current study found that having more knowledge about COVID-19 increased the number of COVID-19 preventive activities.

Table 3. Effects of different socio-demographic characteristics vs general knowledge of respondents on COVID-19

Item	Category	Pk (%)	Mk (%)	Gk (%)	Chi-square	p-value		
Educational qualification	Non educated	76.92	15.38	7.69	131.482	0.000		
	Primary	35.71	35.71	28.57				
	Secondary	8.70	60.87	30.43				
Age group (years)	Higher education	0.51	37.37	62.12	25.054	0.002		
	Above 60	30.77	53.85	15.38				
	46-60	15.79	42.11	42.11				
	36-45	7.02	35.09	57.89				
	26-35	2.38	34.52	63.10				
Occupation	18-25	3.57	41.07	55.36	52.653	0.000		
	Service	1.68	35.29	63.03				
	Student	1.45	37.68	60.87				
	Housewife	33.33	40.00	26.67				
	Business	13.64	45.45	40.91				
	Retired	25.00	62.50	12.50				
	Dhaka	5.21	42.71	52.08			26.844	0.043
	Rajshahi	16.25	37.50	46.25				
	Chittagong	0	28.85	71.15				
	Khulna	0	25.00	75.00				
Area of residence	Mymensingh	0	33.33	66.67	26.844	0.043		
	Sylhet	0	33.33	66.67				
	Rangpur	0	33.33	66.67				
	Barisal	0	100.00	0				
	Immigrant	0	25.00	75.00				

NB. Pk= Poor knowledge, Mk= Medium knowledge, Gk= Good knowledge, - = 0.00%

3.4. Devices at home and sources of collecting information about COVID-19

Maximum respondents (48.79%) had got the information about coronavirus from internet. However, about 43% respondents had accessed to television, 8.065% and 0.4032% of the respondents accessed to newspaper and radio respectively at their home as shown in Figure 1. Furthermore, majority of the respondent's (35.89%) received updates from television, 31.85% of the respondent's sources were YouTube and Facebook, 23.39% respondents used mobile to talk with their relevant sources for knowing coronavirus information and some of them used newspaper for updated information as shown in Figure 2. One study in Satkhira district found that social and mass media were the common sources of information and majority of them can get the information from the social media who have access to the internet. Both medium of sources of information can reduces the misinterpretation of the pandemic [29].

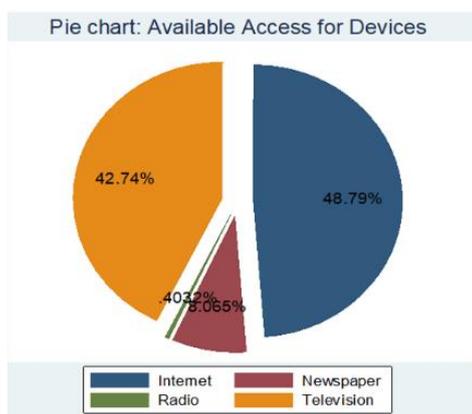


Figure 1. The rate (%) of access for devices

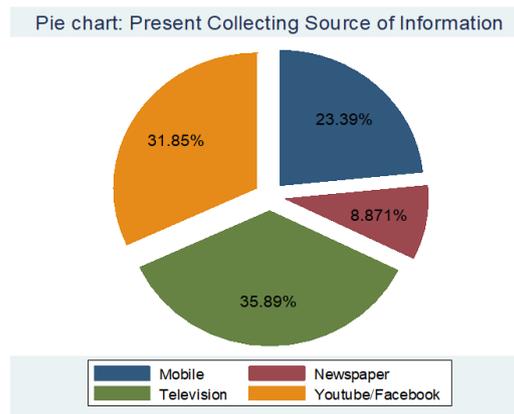


Figure 2. Percentage of sources of COVID-19 information

3.5. Hand washing practices

The highest proportion of respondents who washed their hands 7-10 times on a daily basis was 50.4% followed by 22.58% respondents who washed hands 3-6 times in a day. On the other hand, the lowest proportion of respondents washing their hands 15-20 times in a day was 7.258% while 19.76% respondents only washed their hands 10-15 times in a day as shown in Figure 3. Evidence suggested that the rate of washing hand increased significantly (88.4%) after the coronavirus invasion and on average they wash their hands three times per day [30]-[32]. Some study also found that by using the nationwide representative data, more than ¾ people wash their hand after coming back from outsides [30], [33]. But after sneezing, coughing the rate of washing hand is comparatively low (about 37%) [30].

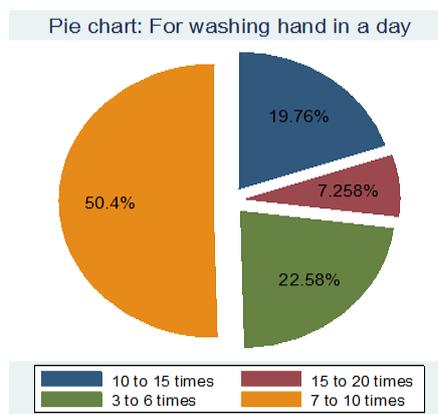


Figure 3. The ratio (%) of hand washing practices on daily basis

3.5. Maintaining social distance by occupation and staying at home by respondents' age group

The highest proportions of respondents were from service group who maintained social distancing about 48%. Besides this, almost 28% students followed social distancing prevention steps and the lowest proportion of retired respondents kept social distancing only 3% as shown in Figure 4 (a). On the other hand, 26-35 years' age group respondents who stayed at home to control the pandemic situation were higher than other age group of the respondents as shown in Figure 4 (b).

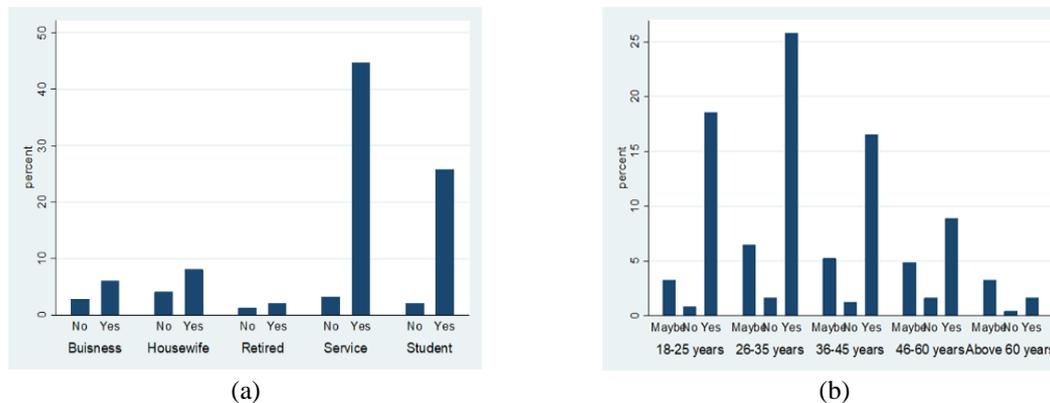


Figure 4. (a) Distance by occupation; (b) Staying at home practices by age group

Nowadays, COVID-19 is the major concern of health and economic sectors for all over the world. This study was performed to evaluate knowledge and practices in daily life to adapt publicly in the period of global pandemic. The study was aimed to acquire more information on association of knowledge and socio-demographic variables of Bangladeshi population. A similar investigation was conducted previous outbreak during the period of 2014 which showed similarity with COVID-19 [34]. Previous study reported about Ebola outbreak knowledge, attitude, and perception of Ebola virus infection [35]. Having optimistic attitudes and appropriate practices would be surely associated with good knowledge for encouraging and maintaining safe practices regarding COVID-19 outbreak [36].

In the present study, we found that respondents who were higher educated either graduate or post graduate were showed good practices of knowledge to confirm better health prevention measures. Most respondents in our study were involved in the service and 26-35 years' age group had good general knowledge and practiced regarding coronavirus issue. A recent study shown the majority of slum dwellers have inadequate knowledge and poor practices of COVID-19 in Bangladesh [24]. The use of masks, hand washing and social distancing are the effective sets of the preventive measures to stop transmission of coronavirus from people to people [37], which support our present findings. In case of Indian population, one study showed that about 85% respondents practiced hand washing procedures, 37% agreed for using masks to prevent the transmission of COVID-19 [11]. Another researcher also stated about 95% respondents have maintained safety procedures, washed hand normally, stay at home and keeping physical distance to stop the transmission of coronavirus in Nepal [38]. The WHO also suggested to washing with soap and or alcohol based rub to protect people from coronavirus infection [4]. Another study observed that 89.5% and 53.8% university going students have the practice of washing hands frequently and using face masks properly while going out in public places respectively to avoid coronavirus infection [22]. This results support our present findings. The previous study exposed that gender, age group, marital status, higher education and occupations were positively associated with lower level of knowledge in Chinese residents [36]. Whitelaw *et al.* [39] reported that people were used to depend on digital machineries for epidemic prevention and reaction, observation, surveillance, interaction, isolation and medical treatment.

Immigrant populations have significantly good knowledge of coronavirus than that of other divisional parts of the country. The People's Republic of Bangladesh has so far acted to raise awareness through news, press release, and social media [40]. But, the government may be unable to control circumstances. So, general public participation, political leader and supporters, industrials, business man, pharmaceutical companies, garment owners, medical practitioner and international supports are required on a quick basis to overcome smoothly [38], [41]-[43]. Therefore, we need to take necessary steps for maintaining knowledge and awareness practices for healthy life during lockdown in Bangladeshi community. Further, sustainable measurement to overcome the COVID-19 difficulties could be build-up by appropriate practices of the residences.

4. CONCLUSION

This study concluded that the respondents have good manure, positive thinking ability and practices to safe themselves from the COVID-19 outbreak. Higher education has significant association with knowledge and good practices towards COVID-19 outbreak in Bangladesh. Moreover, most of the higher educated respondents showed positive thoughts and proper health practices. These findings are helpful for the researchers and the population to follow all good promotional practices for preventive measures against coronavirus.

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