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# Knowledge and perception towards Novel Coronavirus (COVID 19) in Bangladesh

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## Abstract

The World Health Organization (WHO) declared the 2019–20 coronavirus outbreak a Public Health Emergency of International Concern (PHEIC) on 30 January 2020 and a pandemic on 11 March 2020. Local transmission of the disease has been recorded in many countries across all six WHO regions. A poor understanding of the disease among the general people and healthcare workers may implicate in delayed treatment and the rapid spread of infection. The study aimed to investigate the knowledge and perceptions of about COVID-19 in Bangladesh. This study is a cross sectional design with mixed method approach. Appropriate statistical analysis was performed as the Chi-square test was used to investigate the level of association among variables. A total of 435 completed the study questionnaire, including (71.26.6%) men and (28.73%) women, and most of them are age range 41-50 years of age (80.45%). Respondents are doctors (31.18%), medical students (29.88%), public service (7.35%) and from other professions (30.57%). All of the participants agreed that they heard about COVID-19 (97.8%). Most of them used social media to obtain regarding the COVID-19 information. A significant proportion of had poor knowledge of its transmission and symptoms onset and showed a positive perception of COVID-19 prevention and control. Factors such as profession and age are correlated with inadequate knowledge and poor perception of COVID-19. The findings of this study suggest significant knowledge gaps between the amount of information available about COVID-19 and the depth of knowledge among the healthcare personnel and general people, particularly about the mode of transmission and incubation period of COVID-19. As the global threat of COVID-19 continues to emerge, it is critical to improving knowledge and perceptions among the general people and healthcare professionals in Bangladesh.

**Keywords:** Novel Coronavirus, outbreak, COVID-19, knowledge, perceptions, healthcare

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## INTRODUCTION

The World Health Organization (WHO) declared the 2019–20 coronavirus outbreak a Public Health Emergency of International Concern (PHEIC) on 30 January 2020 (Tait 2020) and a pandemic on 11 March 2020 (WHO 2020).[10] Local transmission of the disease has been recorded in many countries across all six WHO regions (WHO 2020). As of 10 March 2020, situation report prepared by WHO a total and new cases in last 24 hours as globally: 153 517 confirmed (10 982 new) 5735 deaths (343 new), China: 81 048 confirmed (27 new) 3204 deaths (10 new) and Outside of China 72 469 confirmed (10 955) 2531 deaths (333 new) 143 countries/territories/areas (09 new).

According to WHO (2020) Novel Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The disease was first identified in December 2019 in Wuhan, the capital of China's Hubei province, and has since spread globally, resulting in the ongoing 2019–20 coronavirus pandemic (WHO 2020). U.S. Centers for Disease Control and Prevention (2020) explore that the common symptoms include fever, cough and shortness of breath and other symptoms may include fatigue, muscle pain, diarrhea, sore throat, loss of smell and abdominal pain. The time from exposure to onset of symptoms is typically around five days, but may range from two to 14 days (Velavan & Meyer 2020) while the majority of cases result in mild symptoms, some progress to viral

pneumonia and multi-organ failure (Hui et al 2020).

The virus is mainly spread between people during close contact (WHO 2020), often via small droplets produced during coughing (Politi 2020), sneezing, or talking (CDC 2020). While these droplets are produced when breathing out, they usually fall to the ground or surfaces rather than being infectious over large distances (Politi 2020; Bourouiba 2020; ECDPC2020)). People may also become infected by touching a contaminated surface and then their face (Politi 2020; CDC 2020). The virus can survive on surfaces for up to 72 hours (WHO 2020). Coronavirus is most contagious during the first three days after onset of symptoms, although spread may be possible before symptoms appear and in later stages of the disease (WHO 2020).

The standard method of diagnosis is by real-time reverse transcription polymerase chain reaction (rRT-PCR) from a nasopharyngeal swab (CDC 2020). The infection can also be diagnosed from a combination of symptoms, risk factors and a chest CT scan showing features of pneumonia (CDC 2020; WHO 2020). Recommended measures to prevent infection include frequent hand washing, maintaining physical distance from others (especially from those with symptoms), covering coughs and sneezes with a tissue or inner elbow and keeping unwashed hands away from the face (Salehiet al 2020). The use of masks is recommended for those who suspect they have the virus and their caregivers (WHO 2020).

Recommendations for mask use by the general public vary, with some authorities recommending against their use, some recommending their use and others requiring their use (Feng et al 2020). Currently, there is no vaccine or specific antiviral treatment for COVID-19 (WHO 2020). Management involves treatment of symptoms, supportive care, isolation and experimental measures (WHO 2020).

Bangladesh is a developing country. The two major sectors in the economy of this country are the export of readymade garments and remittances. China is deeply involved in the socioeconomic sector in Bangladesh. Since the disease is an outbreak, experts suspect that it is likely to be imported into Bangladesh from different countries. The basic objective of this study is to observe and review the kind of knowledge and preparedness that the people of Bangladesh have in the coming days to address such a crisis.

## **METHODOLOGY**

This study is a cross sectional design with mixed method approach. Four hundred and thirty-five respondents were selected randomly. The survey instrument constituted close ended questions and took approximately 15 minutes to complete during the period of 15<sup>th</sup> February to 15<sup>th</sup> March 2020. The questionnaire was divided into three parts including participant characteristics, awareness of COVID-19, and source of information, knowledge about symptoms of COVID-19 effected patients, different modes of transmission, precautions and risk

prevention and perceptions toward COVID-19. Sufficient time was given to respondents to read, comprehend, and answer all the questions.

## **DATA ANALYSIS AND DISCUSSION**

All the collected data was rechecked, coded and entered into a database using SPSS (20.0) software. Appropriate statistical analysis was performed such as the Chi-square test was used to investigate the level of association among variables where p-value of less than 0.05 was considered statistically significant.

### **Survey Results**

A total of 435 respondents completed the study questionnaire, including 310 (71.26.6%) men and 125 (28.73%) women, and most of them are age range 41-50 years of age (80.45%). Respondents are doctors (n=140, 31.18%), medical students (n=130, 29.88%), public service (n=32, 7.35%) and from other professions (n=133, 30.57%). All of the participants agreed that they heard about COVID-19 (97.8%).

### **Source of knowledge and information**

As COVID-19 is a completely new topic, when asked about reliable sources of knowledge and information about it, it can be seen that the main source of primary information about COVID-19 was through social media 71.10% and next segment news media 67.30% which include print and electronic media. However, other sources were about 33.50% of respondents said that they use e-government, 22.2% family and friends, 32.20% religious

announcements and about 27.40% of respondents sometimes discuss political publicity issues with COVID-19 to get

information about COVID-19 is shown details in the following Table 1.1.

**Table: 1.1 Source of Knowledge about Novel coronavirus**

Sources	Not at all	Sometimes	Frequently	Mostly
Social media	2.2%	7.0%	19.7%	71.1%
News media	1.1%	19.2%	24.4%	67.3%
e-Government	4.2%	24.1%	19.3%	33.5%
Family and friends	29.2%	29.5%	19.1%	22.2%
Religious announcements	20.1%	23.4%	24.3%	32.2%
Political publicity	9.1%	29.3%	34.2%	27.4%

According to the data released by the Internet World Stats (IWS) in January 2020, Bangladesh, the number of Internet users is about 96.19 million, which is about 58.40% of the total population and the only social network Facebook user is 33.71 million. Various studies show that with the use of Facebook among the people of Bangladesh, they spend a considerable amount of time on religious vows, political speeches, educational and entertainment issues through YouTube. In this study, we have found that the respondents collect the most information using social networks, but 32.2% religious speeches and 27.4% political announcements here is other sources including YouTube. So one thing to say from this study is whether the statements of religious and political leaders influence the coming days.

### **Knowledge about COVID-19**

In this study, we were asked ten questions about the knowledge among the

respondents basically source, remedy and prevention of COVID-19 at the four-point Likert scale which shows in the following Table 1.2. Although no proper information on the source of COVID-19 has been found so far, the body of a woman was first discovered from a wet market in China, but research is still being done on how this woman's was infected. We know that there are different sources of viruses, and different ideas about the source of this virus have been published in different ways as some believe it is completely natural and some think it has infected of the woman from the wild animal in the market. Mass media and social media have emerged that made it into the laboratory. Those who participated in this study also had mixed reactions. They first assumed it came naturally and 72.1% strongly agreed this way, but the rest contained mixed reactions. However, in the opinion that they are skeptical about two different opinions about its source that more than 70.0% of their beliefs strongly agreed.

**Table 1.2: Knowledge about Novel coronavirus (COVID-19)**

Questions	Do not believe	Probably	Agree	Strongly agree
COVID-19 is thought to be originated from natural	4.2%	9.3%	14.4%	72.1%
COVID-19 is thought to be originated from animal	29.1%	24.4%	19.3%	37.2%
COVID-19 is thought to be originated from laboratory	24.0%	29.1%	34.2%	22.6%
COVID-19 is transmitted through air	9.1%	14.2%	9.5%	67.2%
COVID-19 is transmitted through personnel contact	4.2%	6.1%	7.4%	82.3%
COVID-19 is transmitted through fecal-oral routes	9.3%	4.3%	14.1%	62.5%
Headache, fever, cough, and sore throat are symptoms of COVID-19	0.0%	4.4%	4.2%	91.4%
The incubation period of COVID-19 (2-14 days)	0.0%	2.5%	6.2%	91.3%
COVID-19 leads to pneumonia, respiratory failure, and death	24.2%	14.3%	19.1%	53.4%
Hand hygiene, covering nose and mouth while coughing, and avoiding sick contacts can help in the prevention of COVID-19 transmission	9.3%	9.1%	9.4%	72.2%

In case of COVID-19 infection three are asked such that it can be transmitted through the air, personal contact and fecal-oral routes. In this case, 100% of the respondents do not have accurate information about this, most respondents' think of the three ways as infection, but about 10% of the respondents do not believe that the disease can spread through the above three ways. The population in Bangladesh almost 160 million and population density is reached around 1,265/sq km<sup>2</sup>, but it is mentioned here that the population density in capital Dhaka the capital city is estimated at about 50,000 per sq km<sup>2</sup>. Therefore, this study sees an alarming signal of the widespread outbreak of future epidemics, as already all three of the aforementioned ways have spread the virus which has confirmed by the World Health Organization including other health organization in the world, thus

they have already advised and agreed to maintain social distance.

Up to day, the headache, fever, cough and sore throat are among the symptoms of COVID-19 as far as information is available. We know that Bangladesh is a six-season country and that almost every season, such symptoms are observed in Bangladesh every year and its prevalence is usually higher during May-July period. In this study, 91.4% of participants were strongly agreed that the symptoms of COVID-19 are primarily manifest in the form of common headache, fever, cough and sore throat. Therefore, it can be difficult for people to differentiate between COVID-19 and common headache, fever, cough and sore throat. Thus, this study is suspecting in advance that if the COVID-19 diagnosis is not provided for every human being in Bangladesh in a fast and easy way, the

epidemic could be widespread, disrupting the health and medical care system.

So far as we know COVID-19 does not usually show its symptoms as soon as it enters the human body. Symptoms usually occur within 2-14 days. In this research, 91.3% of the participants are well aware of this. However, in this dormant state, the virus is spreading so secretly in the world that it is able to spread the virus from one body to another. In the meantime, expatriate Bangladeshis from different countries are returning to the country in large numbers. At the airport, only the body temperature of the passengers is monitored in a limited way, but there is no such thing as an overall test. Therefore, with the arrival of such a large number of expatriates, there is considerable potential for the virus to spread rapidly in almost every region of Bangladesh.

COVID-19 sufferers usually lead to leads to pneumonia, respiratory failure, and death, although these are unknown to doctors or experts. Nevertheless, due to the wide spread of publicity through various media, some ideas have arisen among the common people. This study shows that only half (53.4%) of respondents were strongly agreed whereas about a quarter (24.2%) of respondents know nothing about this fact. For these types of patients, transferring to the intensive care unit immediately after high-powered oxygen even becomes necessary for ventilation. The medical sector in Bangladesh, especially in the government-run system, is inadequate for the current general patient. In that case, if such a powerful

virus spreads quickly across the country, it can be virtually impossible to handle it officially. On the contrary, the private sector is largely city-centered and at a cost that is not possible for the general public, as well as how much the private sector is prepared to provide for such a rapidly transmitted new disease, also raises considerable questions.

In regards of hand hygiene, covering nose and mouth while coughing, and avoiding sick contacts can help in the prevention of COVID-19 transmission, local government and other non-governmental organizations, including the World Health Organization (WHO), as a result this study finds the majority (72.2%) of the participants of widespread health rule dissemination, but about one fifth of the participants were not aware at all. While this health rule is currently considered to be most effective in preventing COVID-19, it is easy to assume that the virus can spread very quickly in a chaotic situation, especially in public transport in a populated country like Bangladesh. In that case it is easy to assume that the virus can spread very quickly.

The above statements are particularly divided into four occupations such as Doctor, Medical Students, Public Service and others for advance analysis as a Chi-square test, the results of which are given in the table 1.3 below. It is seen that COVID-19 is thought to be originated from natural; COVID-19 is transmitted through personnel contact; headache, fever, cough, and sore throat Symptoms of COVID-19; the incubation period of

COVID-19 (2-14 days) and hand hygiene, covering nose and mouth while coughing, and avoiding sick contact can help in the prevention of COVID-19 transmission statements, which are for all occupational respondents significant. COVID-19 is transmitted through fecal-oral routes, this

statement is significant in the field of doctors, medical students and public service. COVID-19 is transmitted through air and COVID-19 leads to pneumonia, respiratory failure, and death, these statements are significant only in the case of doctor and medical students.

**Table 1.3: Relationship between respondents' professional attainment and knowledge of COVID-19**

Statements	Doctor	Medical Students	Public Service	Others	p-value				
COVID-19 is thought to be originated from natural	<b>0.023</b>	<b>0.034</b>	<b>0.024</b>	<b>0.031</b>					
COVID-19 is thought to be originated from animal	0.863	0.732	0.934	0.824					
COVID-19 is thought to be originated from laboratory	0.729	0.628	0.876	0.768					
COVID-19 is transmitted through air	<b>0.045</b>	<b>0.043</b>	0.625	0.845					
COVID-19 is transmitted through personnel contact	<b>0.019</b>	<b>0.021</b>	<b>0.045</b>	<b>0.050</b>					
COVID-19 is transmitted through fecal-oral routes	<b>0.021</b>	<b>0.032</b>	<b>0.050</b>	0.061					
Headache, fever, cough, and sore throat are symptoms of COVID-19	<b>0.010</b>	<b>0.021</b>	<b>0.045</b>	<b>0.035</b>					
The incubation period of COVID-19 (2-14 days)	<b>0.032</b>	<b>0.043</b>	<b>0.050</b>	<b>0.045</b>					
COVID-19 leads to pneumonia, respiratory failure, and death	<b>0.013</b>	<b>0.032</b>	0.089	0.078					
Hand hygiene, covering nose and mouth while coughing, and avoiding sick contacts can help in the prevention of COVID-19 transmission	<b>0.010</b>	<b>0.022</b>	<b>0.034</b>	<b>0.044</b>					

The hope is that doctors and medical students have basic knowledge of COVID-19, but there is a lack of knowledge about it among people of other professions. The question now is whether doctors and medical students have the proper knowledge but are quite skeptical about the preparations needed to take necessary measures. On the other hand, the lack of basic knowledge among people of other professions is a question of apathy and awareness. Due to their apathy and lack of awareness, the virus has considerable potential to spread widely.

### Perceptions about COVID-19

When nine statements of Table 1.7 were presented below to measure respondents' perceptions of COVID-19, it is seen that most respondents expressed positive opinion of COVID-19 natural course (71.8%); symptoms appearing in 2-14 days (92.9%); COVID-19 is fatal (66.7%); during the outbreak fresh fruit and vegetable are not safe (53.5%); while the outbreak, eating well-cooked and safely handled meat is safe (91.7%); sick patients should share their recent travel history



with healthcare providers (61.6%); disinfect equipment and wet markets in the working area at least once a day (56.4%) and washing hands with soap and water can help prevent COVID-19 transmission

(81.7). On the contrary, only 18.6% of the respondents gave negative comments on the flu vaccinated is sufficient for preventing COVID-19 in this statement.

**Table 1.4: Perception of the survey respondents**

Statements	Yes	No
	%	
COVID-19 natural course	71.8	28.2
COVID-19 symptoms appear in 2-14 days	92.9	7.1
COVID-19 is fatal	66.7	43.3
Flu vaccinated is sufficient for preventing COVID-19	18.6	81.4
During the outbreak fresh fruit and vegetable are not safe	53.5	46.5
During the outbreak, eating well-cooked and safely handled meat is safe	91.7	8.3
Sick patients should share their recent travel history with healthcare providers	61.6	38.4
Disinfect equipment's and working area in wet markets at least once a day	56.4	43.6
Washing hands with soap and water can help in prevention of COVID-19 transmission	81.7	18.3

Respondents' perceptions of positive or negative outcomes depend on other variables. While most respondents here have positive perceptions, it is important that a portion of them express negative attitudes because we know that the virus is infected. In this statement, 18.3% of respondents expressing a negative attitude is really very risky in the coming days, for

example, washing hands with soap and water can help prevent COVID-19 transmission. The information and data given in the next table 1.5 will provide a more comprehensive idea of this.

**Table 1.5: Relationship between respondents' age and perceptions of COVID-19**

Statements	Age group					
	20-29	30-39	40-49	50-59	60-69	70-79
	<b>p-value</b>					
COVID-19 natural curse	0.089	0.072	<b>0.044</b>	<b>0.021</b>	<b>0.043</b>	<b>0.031</b>
COVID-19 symptoms appear in 2-14 days	<b>0.020</b>	<b>0.039</b>	<b>0.045</b>	<b>0.033</b>	<b>0.034</b>	<b>0.023</b>
COVID-19 is fatal	0.089	0.076	0.065	0.087	<b>0.050</b>	<b>0.045</b>
Flu vaccinated is sufficient for preventing COVID-19	0.079	0.082	0.087	0.095	0.086	0.076
During the outbreak fresh fruit and vegetable are not safe	0.088	0.078	<b>0.024</b>	<b>0.045</b>	<b>0.050</b>	<b>0.043</b>
During the outbreak, eating well-cooked and safely handled meat is safe	<b>0.023</b>	<b>0.044</b>	<b>0.021</b>	<b>0.032</b>	<b>0.042</b>	<b>0.034</b>
Sick patients should share their recent travel history with healthcare providers	0.089	0.078	<b>0.034</b>	<b>0.044</b>	<b>0.039</b>	<b>0.043</b>
Disinfect equipment's and working area in wet markets at least once a day	0.078	0.089	<b>0.043</b>	<b>0.050</b>	<b>0.021</b>	<b>0.039</b>
Washing hands with soap and water can help in prevention of COVID-19 transmission	<b>0.032</b>	<b>0.043</b>	<b>0.021</b>	<b>0.032</b>	<b>0.042</b>	<b>0.022</b>

COVID-19 is a natural curse; During the outbreak fresh fruit and vegetable are not safe; sick patients should share their recent travel history with healthcare providers; and in these perceptions of disinfect equipment's and wet markets at least once a day, we can see that only among respondents above the age of forty, that is, under the age of forty, they do not want to be tied to this belief. However, COVID-19 symptoms appear in 2-14 days; during the outbreak and eating well-cooked and safely handled meat is safe; and washing hands with soap and water can help prevent COVID-19 transmission, these statements are significant for respondents of all ages. But COVID-19 is fatal about the age of above-sixty who believe, though COVID-19 is at risk of death for all ages.

## CONCLUSION

We identified a significant gap constituting the source of information, poor knowledge levels, and discrepancies in the perceptions about COVID-19 among our study participants. The findings of this study suggest significant knowledge gaps between the amount of information available about COVID-19 and the depth of knowledge among the healthcare personnel and general people, particularly about the mode of transmission and incubation period of COVID-19. Also, many allied healthcare personnel had inadequate knowledge, thought that COVID-19 can be treated with antivirals, and there is a vaccine available. This is unfortunate, as the surge of COVID-19 is devastating globally, and

a large number of resources are provided by the healthcare authorities to educate healthcare personnel to improve their knowledge about COVID-19 was immense. As a result, our findings were disappointing. As the global threat of COVID-19 continues to emerge, greater efforts through educational campaigns that targeting not only healthcare personnel but also a wide reach population beyond the borders are urgently needed.

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