



COVID-19 knowledge, attitude, and practices among the Rohingya refugees in Cox's Bazar, Bangladesh

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ABSTRACT

Objectives: The Rohingya refugee population in Bangladesh has become more vulnerable to COVID-19 because of their living and environmental conditions. The aim of the study was to represent an assessment of the Rohingya people's COVID-19-related knowledge, attitude, and practices (KAP) at eight refugee camps in Cox's Bazar.

Study design: Cross-sectional study.

Methods: This study was completed with a total of 400 responses between July and September of 2020. A questionnaire was created to assess demographic characteristics (5 items), knowledge (10 items), attitude (5 items), practices (5 items), and information sources (1 item). Aside from the KAP scores, the scores are also presented based on demographic variables.

Results: The KAP of the respondents were not satisfactory, with scores of 5.8 ± 1.8 , 2.2 ± 1.0 , and 0.9 ± 0.7 , respectively. We found significant differences only in the knowledge scores based on education and gender.

Conclusion: In conclusion, this study emphasizes the importance of COVID-19 training that focuses on behavioral changes for the Rohingya people in Bangladesh.

1. Introduction

Coronavirus disease 2019 (COVID-19) has become a worldwide public health concern since its discovery in China in December 2019. It is caused by a novel coronavirus known as severe acute respiratory syndrome coronavirus 2 (SARS-COV-2) [1,2]. Primarily, COVID 19 transmitted by respiratory droplets in person to person showing fever, fatigue, breathing distress, and respiratory complications [3]. Bangladesh, like the rest of the world, is witnessing the annihilation of this lethal virus. Underprivileged people suffer the most in situations like this. Displaced refugee populations may be at the top of the list of those who are disadvantaged. The COVID-19 pandemic has been declared a global health emergency by the WHO, and the virus poses a significant risk to Rohingya refugees in Bangladesh.

A large number of Rohingya refugees are currently residing in Cox's Bazar, Bangladesh, with inadequate access to water and sanitation [4]. On March 8, 2020, the first case of COVID-19 was found in a Rohingya refugee camp in Cox's Bazar [4]. A lack of health and hygiene infrastructure, as well as a health information system, may all contribute to the spread of this disease within the camps. Fear and misinformation concerning COVID-19 may intensify the situation in the camps, given the existing telecoms ban, limited Internet access within the camp region, and the illiteracy of the Rohingya people [5]. The entire refugee accommodation area in Cox's Bazar has characteristics that make it a likely epicentre of infection spread.

People must follow the World Health Organization's control measures for the successful prevention and control of this coronavirus disease [6]. The effectiveness of precautionary and preventive measures is

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heavily influenced by an individual's knowledge, attitude, and practices (KAP) [7,8]. A KAP study is carried out with a specific population to gather information about their ideas, thinking, and execution to a specific object [9]. Several studies revealed that the previous SARS outbreak's prevention was somewhat related to people's knowledge and attitude toward infectious diseases [10,11]. Furthermore, there is a scarcity of information on Rohingya refugees' perspectives on the COVID-19 pandemic situation in Bangladesh. Given the foregoing, we decided it was necessary to assess the Rohingya population's COVID-19-related knowledge, attitude, and practices during the pandemic. As a result, the current study aimed to evaluate the KAP of the Rohingya people in Bangladesh during the early stages of COVID-19 severity in Bangladesh. To the best of our knowledge, this is the first study to assess the KAP of Rohingya refugees in regards to COVID-19.

2. Methods

2.1. Study design and participant selection

A cross-sectional study was conducted to assess the knowledge, attitude, and practices of Rohingya people in eight refugee camps of Ukhiya and Teknaf in Cox's Bazar between July and September 2020. The only inclusion criterion was that the participant had not been infected with COVID-19 during the participation period. In Bangladesh, anyone under the age of 21 is considered a child. That is why the only exclusion criterion was that the participant was under the age of 21. We contacted the UNICEF health officers who were working inside the camps to help us arrange the interviews because there was a restriction for countrywide lockdown.

2.2. Sample size detection

The infinite population formula was used to calculate sample size [$S = (Z) [2] \times P \times (1-P) \div (M) [2]$]. A 95% confidence level was used to calculate the Z-value (1.96). The population proportion (P) and margin of error (M) were calculated at the 50% (0.50) and 5% (0.05) levels, respectively. We increased the S from the calculated 385 to 400 Rohingya refugees, for an anticipated level of precision of 4%.

2.3. Study tools and data collection

For convenience, the KAP questionnaire was prepared in two versions (English and Bengali). For readability and clarity, the questionnaire was pilot tested. For reliability, it was pilot tested for face validity before being entered into a spread sheet, cleaned, principal component analysed, and revised for reliability. The survey was carried out with the assistance of 15 trained interviewers. After explaining the survey's purpose and design, the interviewers approached the respondents and conducted a face-to-face interview to complete the questionnaire. The first part of the questionnaire was used to collect demographic information, and the second part was used to evaluate respondents' KAP regarding COVID-19. To minimize the possibility of choosing the desired and correct answer by chance, three answering options were provided. The answering options in the knowledge section were a) true, b) false, and c) don't know, whereas in the attitude section the options were a) agree, b) disagree, and c) not sure) and in the COVID-19 practices section the options were a) yes, b) no, and c) sometimes). Each correct and desired response was worth one point, while the remaining responses received no point or zero. The score ranges for the knowledge, attitude, and practices sections were 0–10, 0–5, and 0–5, respectively. After then the scores were converted to a scale of 0–100. According to the Bloom's cut-off point, score of more than 60% was considered acceptable, while a score of less than 60% was considered poor [12,13]. The mean and standard deviation of the KAP scores are presented within the dataset. Furthermore, for ease of interpretation, response scores were converted into percentages.

2.4. Statistical analysis

Before importing to the Statistical Package for Social Sciences (SPSS) software (version 20.0), all data were entered on a master Microsoft Excel spread sheet. To assess the differences in mean KAP scores between demographic variables, a paired sample t-test and ANOVA were used. A p-value of less than 0.05 was considered significant.

2.5. Ethics statement

The institutional review committee of Cox's Bazar Medical College and Hospital checked the design and approved the study. The participants' implied consent to participate in the study was based on their verbal acceptance of the survey and their responses to the interviewers' queries.

3. Results

3.1. Demographic characteristics

A total of 400 participants were enrolled in the study, with females accounting for the majority (n = 213). Three hundred sixty-three of those polled had lived in the camp for more than a year. The majority of people who responded were between the ages of 51 and 60, with those aged 41 to 50 coming in second. Two hundred and sixty-two people said they had never had any formal education. Only 7.5% of them had acquired more than five years of education. Most of the respondents were married (Table 1).

3.2. COVID-19 knowledge

The majority of participants (n = 307) stated that they were aware that COVID-19 is caused by a virus. Three hundred forty-nine of those interviewed were familiar with the major symptoms of COVID-19 (fever, cough, and fatigue). Participants in the study had a low level of knowledge about whether COVID-19 can spread through foods and whether it can penetrate cloth mask; only 39.0% and 34.3%, respectively, knew that COVID-19 cannot transmit through foods and can pass through cloth masks. COVID-19 could be spread by respiratory droplets, was known to more than 60% (n = 269) of respondents. More than half (n = 208) were unaware that people with heart disease, diabetes, and high blood pressure are more likely to be infected with COVID-19. A remarkable number of people (n = 294) agreed that isolating and treating infected people are effective ways of limiting virus spread.

Table 1
Demographic characteristics of survey participants (n = 400).

Variables/Characteristics	n (%)
Gender	
Male	187 (46.7)
Female	213 (53.3)
Age (year)	
21-30	70 (17.5)
31-40	90 (22.5)
41-50	117 (29.3)
51-60	123 (30.7)
Time spent in the camp	
<1 year	37 (9.3)
>1 year	363 (90.7)
Marital Status	
Married	239 (59.7)
Unmarried	122 (30.6)
Others (Divorced, widow, etc.)	39 (9.7)
Years of education received	
No education	262 (65.5)
<2 years	53 (13.3)
2-5 years	55 (13.7)
>5 years	30 (7.5)

Almost two-thirds ($n = 258$) were aware that there is still no permanent cure for COVID-19. On the other hand, 43.3% of the respondents were well aware that COVID-19 is the same as the flu virus and that not all COVID-19 infected people will experience severe symptoms (Table 2).

3.3. COVID-19 attitude and practices

Table 3 shows the attitude of Rohingya people regarding COVID-19. A good number of respondents ($n = 268$) agreed that wearing mask is very important during this pandemic time. Hand washing and the use of sanitizer were the most frequently reported methods of avoiding COVID-19 virus infection, and 59.5% of respondents agreed on this. Lockdown is required to control the spread of COVID-19, according to 39.7% respondents. However, 85.5% of them were unsure about staying at home while suffering from COVID-19 symptoms. 41.8% of respondents were concerned that COVID-19 would spread throughout the camp settings.

Table 4 displays the COVID-19 practice of the interviewed participants. When asked if they frequently went in a crowded place during COVID-19, more than half of respondents ($n = 227$) said they did. When it came to shaking hands with outsiders, a large number ($n = 352$) of the respondents did not appear to be very cautious. In contrast, a considerable number of persons ($n = 128$) stated that they wear masks when they go outside. 55.3% of respondents claimed that they occasionally washed their hands after coming in from outside, while 31% said they never did. When coughing or sneezing, 33.7% of participants reported covering their face.

3.4. Sources of COVID-19 information

The NGOs working inside the refugee camps played a critical role in disseminating information about COVID-19 to the people. According to Fig. 1, the majority of those who took part in this study ($n = 172$) received the COVID-19 information from the NGOs. As a source of receiving information about the pandemic, social media came in second place. Different social media platforms were the source of pertinent information for 26.7% of the study participants. Rest of the participants got the message from television, newspapers, radios, poster, banners, and leaflets.

3.5. Association of KAP scores with demographic variables

There was a significant difference in knowledge between male and female respondents. Male participants scored significantly higher on their COVID-19 knowledge. In the case of COVID-19 attitude and

Table 2
Responses of participants regarding COVID-19 knowledge.

Questions	Correct answer, n (%)	Wrong answer, n (%)
1. COVID-19 is caused by virus	307 (76.7)	93 (23.3)
2. Fever, cough, fatigue are major symptoms of COVID-19	349 (87.3)	51 (12.7)
3. COVID-19 cannot be transmitted through foods	156 (39.0)	244 (61.0)
4. COVID-19 can spread through respiratory droplets	269 (67.3)	131 (32.7)
5. People with heart, diabetes and high blood pressure are more likely to be infected by COVID-19	192 (48.0)	208 (52.0)
6. COVID-19 cannot penetrate the cloth masks	137 (34.3)	263 (65.7)
7. Isolation and treatment of infected people are effective methods of limiting virus spread	294 (73.5)	106 (26.5)
8. COVID-19 is same as flu virus	173 (43.3)	227 (56.7)
9. Currently there is no effective cure for COVID-19	258 (64.5)	142 (35.5)
10. Not everyone infected with COVID-19 will develop severe symptoms	173 (43.3)	227 (56.7)
Score, Mean (SD)	5.8 (1.8)	

Table 3
Participants' attitude towards COVID-19.

Questions	Agree, n (%) ^a	Disagree, n (%)	Not sure, n (%)
1. Imposing lockdown is necessary to control the spread of COVID-19	159 (39.7)	82 (20.6)	159 (39.7)
2. Wearing mask is very important in this pandemic time	268 (67.0)	53 (13.3)	79 (19.7)
3. I am worried that COVID-19 will spread throughout the camp settings	167 (41.7)	65 (16.3)	168 (42.0)
4. Regular hand washing and the use of sanitizer can safeguard an individual during COVID-19	238 (59.5)	34 (8.5)	128 (32.0)
5. If you have the symptoms, you should stay at home	58 (14.5)	112 (28.0)	230 (57.5)
Score, Mean (SD)	2.2 (1.0)		

^a Indicates the correct/desired responses.

Table 4
Responses of participants regarding COVID-19 related practices.

Questions	Yes, n (%)	No, n (%)	Sometimes, n (%)
1. Do you wash your hands every time you come from outside?	55 (13.7) ^a	124 (31.0)	221 (55.3)
2. Do you usually shake hands with others?	134 (33.5)	48 (12.0) ^a	218 (54.5)
3. Do you wear mask every time you go outside?	128 (32.0) ^a	89 (22.3)	183 (45.7)
4. Did you often go in a crowded place?	227 (56.7)	12 (3.0) ^a	161 (40.3)
5. Do you cover your face while coughing/sneezing?	135 (33.7) ^a	83 (20.7)	182 (45.6)
Score, Mean (SD)	0.9 (0.7)		

^a Indicates the correct/desired responses.

practices, no significant difference was observed in them. There was no significant difference in KAP scores based on age, length of stay, or marital status. However, respondents aged 21–30, on the other hand, had higher KAP scores. Besides, those with more than 5 years of education, scored significantly higher in COVID-19 knowledge, but the scores for attitude and practices did not differ significantly based on education.

4. Discussion

To the best of the author's knowledge, this is the first ever study that assesses the KAP of Rohingya refugee people regarding COVID-19. We, therefore, attempt to discuss and compare our findings with those of other refugee studies as well as other generic Rohingya KAP studies. A KAP survey can be beneficial if conducted in the early phase of a situation [9]. This KAP study began in the second month after the first COVID-19 case was identified in the Rohingya camps in Cox's Bazar, Bangladesh [4]. Improved sanitation facilities, as well as very good knowledge, attitude, and, most importantly, consistent and accurate practice of hygiene and sanitation methods, are critical for disease outbreak prevention and control [14].

In the current study, we observed that the Rohingya participants had a very poor attitude (2.2 ± 1.0) and practices (0.9 ± 0.7) toward COVID-19, whereas their knowledge (5.8 ± 1.8) was found to be slightly improved when compared to these two. A study was conducted recently on Rohingya people in the Cox's Bazar camps regarding water, sanitation, and hygiene (WASH), and similar results were found in the overall knowledge scores [15]. In the knowledge section, we found in five questions about half of the respondents failed to provide correct answers. The questions concerned the transmission of COVID-19 through foods, the effectiveness of cloth masks, comorbidities, the severity of developed symptoms, and whether COVID-19 is similar to the flu virus.

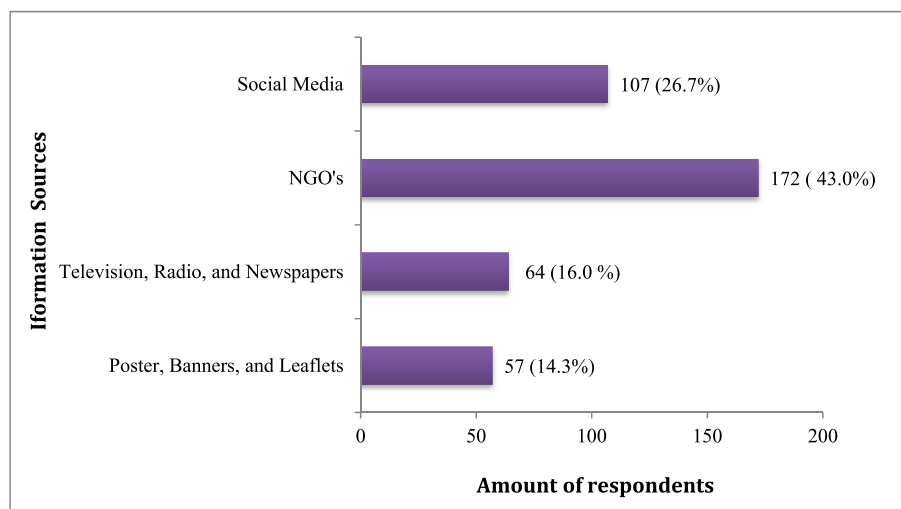


Fig. 1. Sources of information about COVID-19.

Similarly, in another study, respondents were unable to correctly answer transmission-related questions [16]. Respondents with some educational qualifications appeared to perform well in these types of COVID-19 questions [17–22]. The majority of the participants in this study (65.5%) were uneducated. Another study on the Rohingya people of Bangladesh discovered a higher rate of illiteracy among respondents (79.6%) [23]. Same author also stated that a reasonable impact on knowledge and behavior necessitates an educational background [23]. There is a significant difference in the knowledge scores based on education (Table 5). A lack of information during the period of rapid rise may be another possible cause [16].

According to our findings, the overall attitude of the Rohingya respondents toward COVID-19 was unsatisfactory. They exhibited a comparatively positive attitude toward the use of masks as well as hand washing and sanitizing issues. But when come to practice, we found a very little number of people (<20%) are not used to it. The hygiene behavior of the Rohingya participants in this study contradicts the findings of a recent study [24]. On the other hand, another author stated that more than 50% of the Rohingya refugees engaged in unsafe hygiene practices [15]. Literacy rate and family size have no effect on the

hygiene behavior of the Rohingya people [23]. Furthermore, finding a relationship in such a matter is irrelevant because the entire community is in desperate need of relief goods [23]. There are scarcities of hygiene and sanitation items inside the camps. Notably, about 88% of Rohingya people depend on external aid from UN agencies and other non-governmental organizations to meet their needs of daily living [25]. This could be one of the reasons why people are unable to practice proper hygiene and sanitation. However, the people do not want a lockdown in the camps, as approximately 60% of those polled responded negatively to this question. Regrettably, they do not believe that they should remain at home during this time. About two-thirds of them appeared unconcerned about spreading the disease within the camps. This attitude of them also reflects in their practices. More than 80% of people said they usually shake hands with others and go to crowded places. These kind of risky behaviors of the Rohingya people were also reported in a recent study [24]. The findings further showed that more than half of the study participants frequently went outside, attended social gatherings, and did not maintain social distance [24]. But, this is the polar opposite of the Syrian refugee mothers. They demonstrated a very positive attitude and practice in social distance and large

Table 5
Comparison of KAP scores and demographic variables.

Variables	Knowledge score ^a	p-value	Attitude score ^a	p-value	Practices score ^a	p-value
Gender						
Male	6.1 (1.8)	0.041 ^b	2.4 (1.2)	0.071 ^b	1.1 (0.8)	0.269 ^b
Female	5.4 (2.0)		1.9 (1.0)		0.8 (0.7)	
Age (year)						
21-30	6.7 (1.9)	0.126 ^c	2.9 (1.2)	0.206 ^c	1.1 (0.6)	0.730 ^c
31-40	6.5 (2.0)		2.8 (1.2)		1.0 (0.7)	
41-50	5.7 (1.8)		2.0 (1.1)		1.1 (1.0)	
51-60	4.8 (1.8)		1.6 (0.8)		0.7 (0.5)	
Time spent in the camp						
<1 year	5.2 (1.3)	0.143 ^b	2.4 (1.1)	0.692 ^b	0.9 (0.5)	0.993 ^b
>1 year	5.8 (1.9)		2.2 (1.0)		0.9 (0.7)	
Marital Status						
Married	5.8 (1.9)	0.923 ^c	2.2 (1.1)	0.964 ^c	1.0 (0.7)	0.862 ^c
Unmarried	5.8 (1.7)		2.2 (0.9)		0.8 (0.6)	
Others (Divorced, widow, etc.)	5.5 (1.8)		2.4 (0.9)		0.8 (0.5)	
Years of education received						
No education	5.0 (1.9)	0.019 ^c	1.7 (1.0)	0.073 ^c	0.6 (0.6)	0.206 ^c
<2 years	7.2 (1.7)		3.1 (1.1)		1.4 (0.8)	
2-5 years	7.1 (1.9)		3.2 (1.0)		1.5 (0.9)	
>5 years	7.4 (1.8)		3.3 (0.9)		1.7 (0.8)	

^a Data are presented as Mean (SD).

^b Paired t-test; p < 0.05 considered significant.

^c ANOVA; p < 0.05 considered significant.

gatherings. Sneezing was thought to be a good way to spread COVID-19 by 77% of mothers, and shaking hands was thought to be a good way to spread the virus by 80% of mothers [16].

According to a recent study, NGOs are trusted sources of information among Cox's Bazar refugees [24]. In the current study, approximately half of the participants (43%) said they learned about COVID-19 from NGOs working inside the camps. The second highest number of respondents (26.8%) in this present study obtained relevant information from various social media. However, according to one study, among Syrian refugee mothers, various social media platforms (Facebook, Whatsapp, etc.) were the most popular source of COVID-19 information [16]. In the refugee camps of Bangladesh, more than 100 NGOs are functioning [26]. The NGOs' active participation in the COVID-19 may make them the primary source of information for the camp residents. On the other hand, the findings support the provision of social and print media within the camps for disseminating health information [27].

The entire refugee accommodation area in Cox's Bazar possesses the characteristics that make it likely to become an epicentre of infection spread. Current camp conditions include lack of social distancing, food insecurity, and scarcity of knowledge and awareness about COVID-19. A lack of personal protective equipment for health workers at other health facilities at Ukhiya, Teknaf and other camp health facilities creates a barrier to even primary medical consultation [28]. These situations may impact the knowledge, attitude, and practices of the Rohingya people regarding COVID-19.

5. Limitations and future directions

There is the possibility of selection bias because we conveniently selected participants from the selected Rohingya camps. Again, the study measured their self-reported practices; it is prone to respondent bias and may not reflect actual practice. As for future directions, a strong training and behavior change communication program may help to improve the situation and prevent disease outbreaks. A follow-up KAP study with two groups of refugees (trained and untrained) could be conducted to improve training content and quality.

6. Conclusion

The Rohingya community in several refugee camps in Cox's Bazar, Bangladesh, is a greater at-risk group for COVID-19 transmission, and their risk may be exacerbated. All relevant organizations, such as the government, the United Nations, bilateral agencies, and humanitarian non-governmental organizations, that are closely assisting in the management of the Rohingya population in Bangladesh, must prioritize gathering more accurate information and educating these people. More extensive research should be conducted to identify particular risk groups among various demographic characteristics. Failure to give adequate information may worsen the spread and effect of the pandemic in these congested camps. Health workers and the NGOs are important providers of health information for refugees. As a result, they should also be given regular training to keep their knowledge up to date. It is also critical to provide health literacy interventions as part of infodemic management in order to address behavior at all levels—individual, community, healthcare, and humanitarian personnel.

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Data availability statement

Data will be available upon reasonable request.

Declaration of interest

The authors declare no conflicts of interest.

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