

Original Article



Perceptions and Behaviors of Forefront Healthcare Fighters About COVID -19 During Its Pandemic Situation in Bangladesh-A Rapid Survey

Md. Fakhru Islam Khaled¹, Sheikh Mohammad Mahbus Sobhan², MSI Tipu Chowdhury³,
 Mohammad Kamrul Hossain⁴, Sharmin Ahmed⁵, Mohammad Moinuddin Chowdhury⁶,
 Sanjida Ansari⁷, SM Ear-E-Mahbub⁸, Dipal K. Adhikari⁹, Sajal Krishna Banerjee¹⁰.

Abstract

Background: The whole world is going through a grim crisis instigated by the Novel Coronavirus (COVID-19) pandemic. Health systems of Bangladesh are overburdened in response to the disease. Healthcare workers (HCWs) are at a high risk of getting the infection and the source of transmission in the community. **Objectives:** This study was designed to explore the real scenario about knowledge, perception and practical behavior about COVID-19 among healthcare professionals of Bangladesh to combat the pandemic during the first outbreak of the COVID-19 pandemic in Bangladesh. Findings of this study might be utilized for the promulgation of policy and program for upcoming days. **Materials and Methods:** This cross-sectional survey was conducted among the adult Bangladeshi healthcare professionals of purposively selected three type of healthcare facilities- a Tertiary level hospital: Bangabandhu Sheikh Mujib Medical University as well as District hospital and Upazila health Complex from highly infected district Narayanganj and low infected district- Brahmanbaria. A number of 241 HCWs were interviewed using a semi-structured self-administered questionnaire electronically via-email, Facebook Messenger or other social media communication. **Result:** It is observed that knowledge level is higher among the elder people (age >40 years) than the young people (age <30 years) (10.84±0.48 vs 10.13±1.39, p value is 0.003 at 1% level of confidence). Although there was no significant difference in attitude among them (Attitude score in age >40 years vs <30 years age group was 3.24±0.96 vs 2.96±0.635 with p value is >0.05 at 5% level of significance). **Conclusion:** To reduce the risk of infection among health care professionals who are not in direct contact with patients. Policy and education should be implemented to convey the importance of possible exposure to the virus.

Key words: Perception, Behavior, COVID-19, Healthcare workers, Bangladesh.

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Introduction

The whole world is going through a grim crisis instigated by the Novel Coronavirus (COVID-19) pandemic. It is the second generation of Severe Acute Respiratory Syndrome Coronavirus, so named as SARS-CoV-2.¹ Since the outbreak in the Hubei province of the People's Republic of China in early December 2019, 79.2 million patients have been confirmed to have the disease & 5.4 million death globally and in Bangladesh, 509 thousand were affected and 7452 death observed, as of 27th December 2020.^{2,3} The country's health

systems are overburdened in response to the disease. Healthcare workers (HCWs) are at a high risk of getting the infection and the source of transmission in the community.⁴ Some previous studies showed that HCWs had a lack of knowledge and awareness toward MERS CoV⁵ and SARS⁶. Healthcare providers are experiencing this disease for the very first time and lots of panic is coined due to insufficient knowledge and media hype. There is enormous constraints of resource and logistic support. There is lacking of quarantine and isolation facilities in both institutional & personal level. In sequence, it is candid horrible experience for these forefront

1. Associate Professor, Department of Cardiology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.
2. Registrar (Clinical Research), National Heart Foundation & Research Institute, Dhaka, Bangladesh.
3. Junior Consultant, Department of Cardiology, Boalkhali Upazila Health Complex, Chattogram, Bangladesh.
4. Assistant Professor, Dept. of General Educational Development, Daffodil International University, Dhaka, Bangladesh.
5. Assistant Professor, Department of Medicine, Greenlife Medical College, Dhaka, Bangladesh.
6. Assistant Professor, Department of Medicine, Chattogram Medical College, Chattogram, Bangladesh.
7. Resident, Department of Cardiology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.
8. Assistant Professor, Department of Cardiology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.
9. Associate Professor, Department of Cardiology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.
10. National Professor, Department of Cardiology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.

Corresponding author: Dr Md. Fakhru Islam Khaled, Associate Professor, Department of Cardiology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. Email: drfikhaled@bsmmu.edu.bd Mobile: +8801817517505

fighters of healthcare arena. Addressing the level of perception & practicing behavior against COVID-19 pandemic and attempt to solve the issues will definitely improve the strength of fighters and overcome the situation. Therefore, the objective of the study was to assess the knowledge, attitude and behavior toward Corona virus disease-2019 (COVID-19) among healthcare professionals. As it was a very unprecedented disease, empirical study was done in search of new evidence base, which can eventually help us in tailoring policies and programs for future.

Materials and Methods

This study used a cross sectional descriptive study and was done during June 2020 to September 2020. A frontline HCW was defined as a worker directly involved in COVID-19 prevention and treatment and having direct contact with confirmed or suspected cases through patient intake, screening, inspection, testing, transport, treatment, nursing, specimen collection, pathogen detection, pathologic examination. There were four categories of HCW- doctors, nurses, laboratory technicians and allied health staff. This quantitative survey was a multicentered study spread over three type of healthcare facilities. Tertiary level hospital, District hospital and Upazila health Complex HCWs were included from Bangabandhu Sheikh Mujib Medical University (BSMMU) hospital, 250 bedded district hospital of Narayanganj, Brahmanbaria and Upazila Health Complexes of Bandar, Narayanganj & Sarail, Brahmanbaria. Contemplating feasibility a purposive sample of 290 responses were collected. However, 49 responses were excluded from analysis for incomplete response. As a result, 241 responses were taken for analysis. A semi-structured self-administered questionnaire was sent to aforementioned respondent electronically via-email, Facebook Messenger or other social media communication.

The questionnaire which was designed according to the Question and Answer about COVID-19 in the webpage of WHO⁸ and Vietnam study.⁹ The structured questionnaire included three parts. The first section comprised demographic characteristics of the participants such as age, gender, occupation, years of experience, and the source information of COVID-19 knowledge. The second section included 11 questions regarding the knowledge of COVID-19, and the third one estimated the attitude regarding COVID-19, including 6 questions in which the participants' answers will be assessed through 5 points Likert scale of agreement. The fourth section comprised eight questions for assessment of standard of practice. Data were collected by Google form link of which was sent to the respondents by mail, messenger & WhatsApp. 290 responses were collected & 241 responses was analyzed to see the level of knowledge, perception, attitude & practicing behavior and correlation of knowledge with practice among the respondents.

Data analysis:

Each correct answer in relation to the knowledge of COVID-19 was given one point. The total knowledge score for the HCWs varied between 0 (with no correct answer) and

11 (for all correct answers), and a cut-off level of <7 was considered as poor knowledge, and ≥ 7 indicated good knowledge. The score of the attitude was based on 5 points Likert scale, in which the score of 1 to 5 was given from strongly agree to strongly disagree. A mean score of ≤ 2 (answering for strongly agree or agree) carried out as a positive attitude and a score of 3 to 5 will indicate a negative attitude (answering strongly disagree or disagree or undecided). Therefore, the lower the attitude scores, the higher the probability of positive attitudes and the reverse applied for a high score. The score for the standard of practice varied from 0 to 8 and a score of ≥ 6 was considered as good practicing behavior.

Data were analyzed applying appropriate statistical procedures and tests using SPSS (Statistical Package for the Social Science) version 25.0. Descriptive analysis was reported as frequency, percentage and mean scores. T-test and ANOVA were used to compare knowledge and attitude based on the demographic characteristics of the participants. All the differences of estimated variables were considered statistically significant if $P < 0.05$.

This study was conducted by online communication, considering the COVID-19 pandemic situation. The consent form and questionnaire were sent to the respondents by email, Facebook messenger & WhatsApp. Communication with them was maintained by phone-call and internet. So, there was minimum physical, psychological, social and legal risk during the study.

Only research personnel was allowed to access data. Ethical clearance was obtained from the Institutional Review Board (IRB) of BSMMU to undertake the present study. According to Helsinki Declaration for Medical Research involving Human Subjects 1964, all the participants were informed about the study design, expected outcome and the right for the participants to withdraw themselves from the projects at any time, for any reason, what so ever which would not hamper the standard duty of care anyway. Informed written consent was obtained from each subject who voluntarily provided consent to participate in the study.

Results

Table I is shows that doctors were the most frequent respondents (68.8%) and nurses were the second most frequent (30%). Most respondents were in 30-40 years age group. HCW from BSMMU responded mostly (43.8) and district hospital staff comprised the second frequent (40.9%) respondents. Most of the respondents live in single family (56.8%) & a good number live with joint family (39.4%).

Table I: Background characteristics of the respondents. [N= 241]

Characteristics	Categories	Frequency [N]	Percent [%]
Occupational position	Doctor	166	68.8
	SACMO	9	3.7
	Nurse	28	12.0
	Technician	17	7.4
	Allied Health staff	21	9.1
Age	<30	38	15.8
	30-40	140	58.1
	40+	63	26.1
Working Station	BSMMU	106	43.8
	Upazila Hospital	37	15.3
	District Hospital	98	40.9
Living in	Joint Family	95	39.4
	Single Family	137	56.8
	Coworker	9	3.7

Figure 1 shows the level of knowledge of HCW about COVID 19 virus infection. The HCW showed high level of knowledge (>90%) about all questions except about appropriate knowledge on donning & doffing.

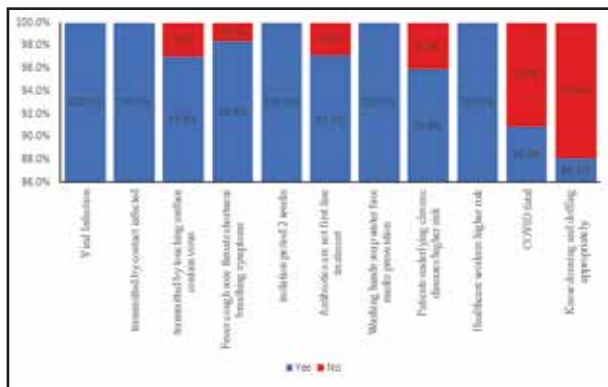


Figure 1: Knowledge about COVID 19 among the Healthcare Professionals. [N=241]

Table II shows the source of knowledge about COVID 19 virus infection. Doctors learned mostly from hospitals & journals but allied staff learned mostly from mass media & social media.

Table II: Source of knowledge of the respondents about COVID-19.

Source of Knowledge	Occupational position*		Total
	Doctor	Allied health profession	
Hospital	120 (65.2)	64(34.8)	184
Mass media	35(20.3)	41(23.8)	76
Journal	80(46.6)	16(9.3)	96
Social media	42(25.8)	121(74.2)	163

Note. *Multiple responses recorded

Table III presents that more than 42% HCWs had attended in less than 3 training session on COVID 19.

Table III: Number of training session on COVID 19 attended by the individual. [N=241]

Number of sessions attended	Frequency of attendance % [n]
>3	35.6% [86]
<3	42.4% [102]
Never	22% [53]

Table IV shows attitude of HCW to the new COVID-19 virus where a mixed result is observed. Although the HCW feels stressed (mean score <3) they bear positivity in all questions (mean score >3).

Table IV: Attitude of the healthcare professional

	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)	Mean score ± Std. dev
• Probably will get ill	51(21.2)	52(21.6)	48(19.9)	24(10.0)	66(27.4)	3.01±1.51
• Family members might get infection	54(22.4)	38(15.8)	40(16.6)	27(11.2)	82(34.0)	3.19±1.58
• Due to COVID 19, may not accept isolation in health facilities	64(27.2)	23(9.8)	24(10.2)	32(13.6)	92(39.1)	3.28±1.68
• Less confidence defeating virus	32(13.6)	29(12.3)	41(17.4)	43(18.3)	90(38.3)	3.55±1.44
• Feel stressed due to outbreak	60(24.9)	55(22.8)	77(32.0)	19(7.9)	30(12.4)	2.60±1.28
• Patients hiding status of exposure	50(20.7)	18(7.5)	19(7.9)	34(14.1)	120(49.8)	3.65±1.65

Note. Std. dev indicates standard deviation

Table V shows that the HCW has a significantly high practice of handwashing. A significant number of respondents (46%) have no home isolation facility. >51% have no separate donning & doffing room. A significant number don't disinfect their equipment and furniture frequently.

Table V: Hygienic practice of the Healthcare Professional during COVID-19.

	No	Yes
	N(%)	N(%)
Frequency of handwashing	33(13.7)	208(86.2)
House isolation facility	111(46.1)	130(53.9)
Presence of separate donning and doffing room	121(51.5)	114(48.5)
Use disinfectants for frequently used equipment and furniture	101(41.9)	140(58.1)

Table VI is shows the practice status of health safety activities among respondents. Here it is observed that >90% are careful in using their protective equipment & dress. But a significant amount of them didn't participate in health safety training after the outbreak till the study time. A significant number couldn't maintain appropriate quarantine with their family.

Table VI: Practice of health safety among health professional during COVID - 19

	Never	Sometim	Always
	N (%)	N (%)	N (%)
Remove protective equipment carefully	4(1.7)	19(7.9)	218(90.5)
Times participated training before after outbreak	60(24.9)	104(43.2)	77(32.0)
Maintained quarantine with family	73(30.3)	81(33.6)	87(36.1)

Table VII is shows the frequency of handwashing agents used by HCW. Most of the doctors (46.8%) used soap water to disinfectant from COVID-19 which is followed by hexisol (27.9%) and sanitizer (26.5%), whereas more than 55.3% of allied health professionals used sanitizer for the same purpose which is followed by soap water (29.8%) and hexisol (14.9%). Doctors are more frequent in using all forms of disinfectants.

Table VII: Hand washing agent used by the health professional during COVID-19

	Occupational position*		Total
	Doctor	allied health professional	
Sanitizer	67(51.5%, 24.7%)	63(48.5%, 55.3%)	130
Soap water	127(78.9%, 46.8%)	34(21.1%, 29.8%)	161
Hexisol	77(81.9%, 28.4%)	17(18.1%, 14.9%)	94

Note. *Multiple responses recorded

Table VIII is presenting the comparison of knowledge & attitude between different characteristics of HCWs. It was observed that knowledge level is higher among the elder people (age >40 years) than the younger people (age <30 years) (10.84±0.48 vs 10.13±1.39, p-value is 0.003 at 1% level of confidence). Although there was no significant difference in attitude among them (Attitude score in age >40 years vs <30 years age group was 3.24±0.96 vs 2.96±0.635 with p-value is >0.05 at 5% level of significance).

The knowledge level was higher in the HCWs of the secondary and tertiary level hospital than HCWs of the primary level hospitals (Knowledge score 10.75±1.02 vs 10.22±1.1, p value 0.005 at 1% level of significance). Here attitude correlated with knowledge. As, negative attitude (3.35±0.74) was more found among the HCWs of primary level hospital and positive attitude (2.98±0.78) was more found among the HCWs of the secondary level hospital (P value 0.013 at 1% level of significance among the health professional depends on level of working station). There was significant difference in knowledge and attitude of health professionals in respect of living status. Higher knowledge was found among the HCWs who lived in single-family than the HCWs who lived in joint family (11.72±0.84 vs 10.37±1.26, p value 0.019 at 1% level of significance), The HCWs living with joint family bears more negative attitude than the HCWs living with coworker (attitude score 3.35±0.74 vs 2.98±0.78, p value 0.02 at 5% level).

Though knowledge did not significantly differ with the numbers of participation in training on COVID-19 as p value more than 0.05, there was significant improvement in attitude with participation in training on COVID 19 as p value less than 0.01 at 1% level of significance. The HCWs who did not attend in any training on COVID 19 have more negative attitude (3.55±0.69). Doctors bear higher knowledge than allied health professionals (10.82±0.48 vs 10.08±1.58, p value <0.001) but more negative attitude (3.32±0.51 vs 2.87±0.47, p value <0.001 at 1% level of significance).

There is no significant difference in knowledge where source is hospital but the significantly higher positive attitude was found who used mass & social media (p value < 0.001 at 1% level) than who didn't used them.

Table VIII: Comparison of knowledge and attitude between different characteristics of healthcare workers

Characteristics	Knowledge	t value	F value	p value	Attitude	t value	F value	p value
Age								
<30	10.13 ±1.39				3.24±0.96			
30 – 40	10.6±1.06		5.881	0.003	3.21 ±0.75		2.741	0.067
40+	10.84 ±0.48				2.96 ±0.63			
Working Station								
Primary level (Upazila Hospital)	10.22±1.1				3.35±0.74			
Secondary (District Hospital)	10.75±0.62		5.338	0.005	2.98±0.78		4.434	0.013
Tertiary level (University)	10.75±1.02				3.25±0.74			
Living with								
Joint Family	10.37±1.26				3.60±1.03			
Single Family	11.72±0.84		4.029	0.019	3.14±0.71		1.591	0.02
Coworker	11±0.01				2.13±0.80			
Participated in Training on COVID -19								
Never	10.75±1.4				3.55±0.69			
Once	10.70±0.83		1.213	0.125	3.35±0.61		50.77	<0.001
Several times	10.81±1.03				2.53±0.63			
Occupational position								
Doctor	10.82±0.48				3.32±0.51			
Allied Health Professionals	10.08±1.58	4.02		<0.001	2.87±0.47	5.067		<0.001
Source of Knowledge: Hospital								
Yes	10.60±1.01				3.11±0.77			
No	10.48±1.13	0.071		0.944	3.35±0.69	1.964		0.051
Source of Knowledge: Journal								
Yes	10.50±1.14				3.05±0.78			
No	10.86±0.51	3.406		0.001	3.46±0.62	3.687		<0.001
Source of Knowledge: Social Media								
Yes	10.65±0.95				2.97±0.72			
No	10.44±1.12	-1.284		0.202	3.65±0.65	6.683		0.001

Note. Result is expressed as mean ± std. dev. t-test and ANOVA were test performed to the comparison of knowledge and attitude between different characteristics of healthcare workers.

Discussion

This cross-sectional study was conducted with the objective to assess the KAP among healthcare workers toward the ongoing COVID-19 pandemic. Till now, the COVID-19 outbreak is considered an emergency and healthcare workers are seen to have an increased risk of infection.

Most respondents were in 30-40 years of age group. HCW from BSMMU responded mostly (43.8) and district hospital staff comprised second frequent (40.9%). Most of the respondents live in single-family (56.8%), however, a good number live with joint families (39.4%).

More than 90% of respondents showed having adequate knowledge on COVID-19. The findings were 81.5% & 89% among healthcare workers surveyed for sufficient knowledge on COVID-19 in Nepal & China respectively.^{7,8} As this study was conducted during the national lockdown period in Bangladesh, healthcare workers were quite aware of most of the information

related to COVID-19 prepared themselves to respond to the ongoing pandemic. Despite the differences in healthcare workers' demographic characteristics, the knowledge seemed to be similar. This finding correlates with Nepali observation⁷ but in contrast with other studies suggesting differences in knowledge with differing types of healthcare workers.⁹

Doctors learnt mostly from hospital and journals whereas allied staff learnt mostly from social media. As multiple responses were accepted in this event, in about 65% responses the source were journaled or social media, i.e. ex-institutional. About 35% respondents participated in adequate training program. The disease is new to us. Mass & social media contributed a lot to improve knowledge and build up a positive attitude.

The HCWs felt stressed to COVID-19 situation (mean score <3) though bore a positive attitude to fight it (mean score >3). This finding supported the heroic service of the HCWs in this pandemic situation that resulted in less death rate Bangladesh than other countries. The high degree of positive attitude was

found in China & Nepal.^{7,8} In relation to the age of the respondent, knowledge was higher in aged than the younger but the attitude was similar among them. Having better knowledge of COVID-19 among the healthcare workers did not correlate with their attitude towards the disease. This finding correlates with Nepali study⁷ but is in contrast with other studies reporting that knowledge directly affected their attitude and increased their confidence.^{8,9} However, both knowledge and attitude are necessary to establish a well-protected healthcare facility as well as control of infection.¹⁰

HCWs living with co-workers or single-family have more knowledge & positive attitude than HCWs living with joint family. Probably, the HCWs who live with joint families remain busy with family matters give less time to study & professional improvement. They remain more concerned about risk of infection of family members.

Though knowledge did not significantly differ with the numbers of participation in training on COVID-19 there was a significant improvement in attitude. Cognitive attitude is improved with training sessions may be due to interaction with other HCWs.

A good number of respondents (46%) have no isolation facility at home. And more than 50% HCWs have no separate donning & doffing room at the workplace as well as home. Isolation after serving COVID-19 patients and a separate donning & doffing facility is crucially needed for the prevention of spreading of disease.

Conclusion

In conclusion, training regarding protection should be organized according to different factors (work experience, educational attainment, and so on), and medical systems should ensure that frontline workers have appropriate isolation & donning doffing facilities. Moreover, to reduce the risk of infection among health care professionals who are not in direct contact with patients, policy and education should be implemented to convey the importance of disclosing possible exposure to the virus.

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