Knowledge, Attitude and Practice Regarding COVID-19 among Healthcare Workers in Chattogram, Bangladesh

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Abstract

Background: The coronavirus disease 2019 (COVID-19) is a pandemic respiratory disease caused by the highly contagious novel coronavirus (SARS-CoV 2). COVID-19 pandemic continues to challenge healthcare services worldwide. Healthcare Workers (HCWs) are more susceptible to COVID-19 infection than the general population due to frequent contact with infected individuals.

This study was aimed to assess the knowledge, attitude and practice among HCWs towards COVID-19 in some COVID dedicated hospitals of Chattogram, Bangladesh.

Materials and methods: This descriptive cross-sectional study was conducted at three hospitals (Chittagong Medical College Hospital, Chattogram 250 Bed General Hospital, and Bangladesh Institute of Tropical and Infectious Disease) in Chattogram, from January 2021 to August 2021. The study included 393 HCWs (Physicians and nurses) by a non-probability convenient sampling method. An interview administered questionnaire was used to evaluate their knowledge, attitude and practices regarding COVID-19 and their associations with the participants' characteristics.

Results: Participants were predominantly female (230/393, 58.0%) and physicians (313/393, 77.0%). Almost all had sufficient knowledge (85.8%) and good preventive practice (92.1%) towards COVID-19, however, there was also a rather low level of positive attitude recorded, at 69.0%. Factors associated with KAP were, Knowledge: being a physician and higher education. Attitude: age >40 years, Practice: being a physician.

Conclusion: The findings demonstrated sufficient knowledge and good preventive practice towards COVID-19, however, positive attitude was lower. Therefore, it is an identified requirement to continue with additional education and training strategies to offer a positive viewpoint of the pandemic for all HCWs.

Key words: Attitude; Coronavirus disease 2019; Healthcare workers; Knowledge; Practice.

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Submitted on : 17.11.2021
Accepted on : 25.12.2021

Introduction

COVID-19 is an emerging respiratory disease caused by the highly contagious novel coronavirus (SARS-CoV 2).[1] The disease was first identified in December 2019 in Wuhan, Hubei province of China, quickly spreading worldwide, resulting in the ongoing coronavirus pandemic.[2] As of August 21, 2021, there have been over 200 million confirmed COVID-19 cases and over 4 million associated deaths from 223 countries, areas, or territories.[3] Bangladesh confirmed the first case of COVID-19 on March 8, 2020. Since then, the number of cases has been increasing. As of August 21, 2021, Bangladesh has recorded more than 290360 positive cases involving 25282 deaths.[4,5] As of October 15, 2020, there were around 4,797 COVID-19 cases for doctors and nurses with more than 100 deaths of physicians in Bangladesh.[6]

Health Care Workers (HCWs) are more susceptible to COVID-19 infection than the general population due to frequent contact with infected individuals. Additionally, some procedures such as non-invasive ventilation, high-flow nasal cannula, and bag-mask ventilation may generate higher aerosol volumes leads to an increased risk of infection.[7,8] The longer working hours (due to the increased number of infected people in the hospital) also put them at risk of infection.[9] Number of studies reported a various prevalence rate of COVID-2019 among HCWs 9.8% in New York and 10.1% from a systemic review of developed countries.[10,11]

Protection of HCWs and inhibition of intra-hospital transmission of COVID-2019 are important parts of epidemic response. Updated knowledge regarding COVID-19 and good practice among HCWs are prerequisites for this.[12] Literature suggests that lack of knowledge and misunderstandings among HCWs leads to delayed

diagnosis, disease spread and poor infection prevention practice.[13,14] There was currently scarce information regarding knowledge, attitude and practice of HCWs towards COVID-19 in Bangladesh, particularly in the southeastern part. Furthermore, previous studies in other countries found risk factors for the poor preventive practice of HCWs.[15-19] The scenario and associated factors may not be the same across geographic locations. Therefore, the present study was aimed to determine the current status of Knowledge, Attitude and Practice) (KAP) towards COVID-19 and associated factors among HCWS in the Chattogram city of Bangladesh.

Materials and methods

This hospital-based descriptive cross-sectional study was conducted in three COVID dedicated hospitals (Chittagong Medical College Hospital, Chattogram 250 Bed General Hospital and Bangladesh Institute of Tropical and Infectious Disease Hospital) in Chattogram city of Bangladesh from January 2021 to August 2021.

Ethical clearance was obtained from the Ethical Review Committee of Chittagong Medical College before conducting the study. At the time of data collection, written consent was obtained from the participants. Each participant was requested to sign it to certify that they had agreed freely to participate in the study. Those not willing to participate were given the right to do so. Confidentiality of responses was also ensured throughout the research process.

HCWs (Physicians and nurses) aged 18 years old and above were included in the study. The sample size was calculated using single population proportion formula based on the following assumptions; 50% prevalence (P) 95% confidence level and margin of error of 5%. By applying the finite population correction formula and adding a 10% non-response rate, the sample size was 393. Participants were selected conveniently.

Data were collected by an interview administered structured questionnaire. The questionnaire was pre-tested on 5% of HCWs from health facilities not included in actual studies and modified before the main study began. The questionnaire included six items about COVID-19 knowledge, eight items focused on attitude and eight items for evaluating COVID-19 preventative practices as per the previous study of Huynh et al.[20] Additionally, sociodemographic were added to the questionnaire. Each knowledge item had two options of yes/no, with each correct answer being given one point. A sufficient knowledge was defined when the total knowledge points achieved 5 or higher and less than 5 points indicated insufficient knowledge. For each attitude item, the points were calculated according to a 5 point Likert Scale. The points from 1 to 3 showed a negative attitude and the positive attitude was recorded as 4 points and higher, having 1 point per positive response. An overall attitude was computed, answers that achieved from 7 or higher were considered a positive attitude and less than seven was marked as a negative attitude. For assessing practices, each item had a choice of yes/no, having 1 point per good practice, with a good practice resulting from an overall score of 7 points or higher, and under 7 points was categorized as poor practices.

The data were checked for completeness and consistency and then coded, entered and stored into the computer using Xcel software. Data was exported to SPSS version 23 statistical packages for analysis. Frequencies and percentages were used to describe sociodemographic, sufficient knowledge, positive attitude and good practices. Binary logistic regression analysis was performed to determine the factors associated with KAP and Odds Ratio (OR) along with 95% Confidence Tnterval (95% CI) were estimated. The significance level was set at 5%.

Results

Total of 393 completed questionnaires were analyzed in this study. The mean age of the respondents was 36.13 ± 7.6 years with majority within the age group of 31-40 years(45.8%). HCWs who were female accounted for 58.5%. Most of them were physicians (79.7%) and only 24.9% of them had post-graduation. Sociodemographic characteristics of the participants are presented in Table I.

Table I Sociodemographic characteristics of participants (n=393)

Variables	Frequency	Percentages (%)
Age group		
21-30 years	113	28.8
31-40 years	180	45.8
>40 years	100	25.4
Sex		
Male	163	41.5
Female	230	58.5

Religion		
Islam	309	78.6
Others	84	21.4
Marital status		
Married	293	74.6
Unmarried	100	25.4
Level of education		
Bachelor and below	295	75.1
Higher education	98	24.9
Living conditions		
With family/relatives	275	70.0
With colleagues	98	24.9
Alone	20	5.1
Job category		
Medical Officer	124	31.6
Resident Doctor	121	30.7
Resident Medical Officer	68	17.3
Nurse	80	20.3

Table II describes COVID-19 knowledge. A high rate of HCWs (85.8%) had sufficient knowledge, with the majority of them (More than 86.8%) knowing the pathogens, the way of COVID-19 transmission, common signs, specific treatment, medication as well as being aware of preventive measures, including wearing masks, hand washing, surface cleaning and keeping personal distance from others. Also, there remained a lower level ofknowledge about patient groups that are at a high risk of severe illness and death (69.0%).

Table II Knowledge toward COVID-19 (n=393)

Question (Correct Answer)	Frequency	Percentage (%)
Caused by SARS- CoV-2 (yes)	341	86.8
Transmission by close contact with an infected person through droplets (Yes)	381	96.9
Common signs (Fever or Cough or fatigue or sputum production or shortness of breath) (Yes)	381	96.9
Specific treatment medication (No)	366	93.1
Prevention of infection (Wear mask, hand washing, surfaces cleaning, keep distance from others) (Yes)	369	93.9
People with chronic illness at high risk of severity and death (Yes)	271	69.0
Overall knowledge toward COVID-19 (Sufficient)	337	85.8

Table III shows a rate of positive attitude, which accounted for 69.0%, with most of them ready to participate in COVID-19 management team (86.0%) accepting isolation if they contract COVID-19 (93.9%) preventing the spread of COVID-19 by washing hands and wearing a mask (93.9%) the hospital infection control programs can reduce the number of COVID-19 cases (94.9%) participants have already got a vaccination (83.0%) and a patient should be kept in isolation if contracting COVID-19 (93.9%). A lower rate was recorded for attitudes towards the likelihood of their family members becoming infected (70.0%) and had a positive attitude towards probably getting ill from COVID-19 (60.1%).

Table III Attitude toward COVID-19 (n=393)

Question	Frequency	Percentage (%)
I think I will probably get the illness	236	60.1
I am worried one of my family members may get an infection	275	70.0
If getting COVID-19, I will accept isolation in health facilities	366	93.1
Transmission of COVID-19 can be prevented by washing hands with soap frequently and wearing mask	369	93.9
Prevalence of COVID-19 infection can be reduced by the active participants of HCWs in hospital infection control programs	373	94.9
If a COVID-19 vaccine were available, I would have it	326	83.0
COVID-19 patients should be kept in isolation	369	93.9
I am ready to participate in the team to care the COVID-19 patients	338	86.0
Overall attitude toward COVID-19 (Positive)	271	69.0

The COVID-19 preventive practice is presented in Table IV. There was a high rate of good practices (92.1%), with over 90% of respondents answering all questions correctly, including washing hands, wearing masks, social distancing, and following the guidelines of the Ministry of Health if suspected of having the COVID-19 infection.

Table IV Practices of HCWs toward COVID-19 (n=393)

Question (Correct answer)	Frequency	Percentage
Washing hands frequently (Yes)	369	93.9
Washing hands with soap and water or alcohol hand sanitizer (Yes)	370	94.1
Average time for washing hands ≥20 seconds (yes)	366	93.1
Wearing mask when in public or exposing with others (Yes)	377	95.9
Wearing mask cover my mouth and nose (Yes)	354	90.1
Adhering to social distancing properly according to the Ministry of Health's instructions (Yes)	376	95.7
Practice careful removal of protective equipment	365	92.9
Following the guidelines of the Ministry of Health if a suspected Covid-19 infection (Yes)	385	98.0
Overall practice toward COVID-19 (Good)	362	92.1

We further assessed the factors associated with knowledge, attitude and practice towards COVID-19 among HCWs. The results show that physicians were more likely to have sufficient knowledge compared to nurses, HCWs who reported having post-graduate degree were more likely to have sufficient knowledge compared to those who did not. In terms of attitude, older participants (>40 years) were less likely to have a positive attitude towards COVID-19 compared to those aged 21-30 years. With regard to practices, physicians were more likely to have good practices towards COVID-19 compared to nurses (Table V).

Table V Factors associated with knowledge, attitude and practice toward COVID-19 among HCWs.

Variables	Sufficient knowledge		Positive attitude		Good practice	
	%	OR (95% CI)	%	OR (95% CI)	%	OR (95% CI)
Age group						
21-30 years	81.4	Reference	83.4	Reference	90.5	Reference
31-40 years	85.0	1.03 (0.94-1.12)	78.1	0.91 (0.84-1.01)	92.2	1.01 (0.98-1.11)
>40 years	86.0	1.05 (0.95-1.16)	70.3	0.88 (0.79–0.98)*	91.0	1.01 (0.98-1.12)
Sex						
Female	84.3	Reference	67.1	Reference	92.0	Reference
Male	88.5	1.04 (0.95-1.13)	73.2	1.11 (1.01-1.41)*	93.1	1.01 (0.96-1.11)
Religion						
Islam	85.7	Reference	68.8	Reference	91.9	Reference
Others	85.9	1.01 (0.96-1.11)	69.9	1.02 (0.95-1.11)	92.2	1.02 (0.95-1.11)
Marital status						
Married	85.5	Reference	69.5	Reference	93.5	Reference
Unmarried	85.7	1.01 (0.98-1.09)	68.4	0.99 (0.98-1.02)	90.9	0.95 (0.90-1.15)
Level of education						
Bachelor and below	83.3	Reference	70.5	Reference	88.4	Reference
Higher education	87.4	1.11 (1.01-1.14)*	68.3	0.95 (0.90-1.13)	94.5	1.12 (1.04-1.14)
Job category						
Physicians	90.1	Reference	70.1	Reference	95.0	Reference
Nurse	80.5	0.91 (0.77-0.99)*	69.0	0.95 (0.90-1.15)	87.1	0.94 (0.87-0.99)*

OR: Odds Ratio, CI: Confidence Interval, * p-value < 0.05.

Discussion

In this study among HCWs in three COVID dedicated hospitals in Chattogram, Bangladesh, we found that 85.8% of the participants had sufficient knowledge of COVID-19. This is higher than the 69.0% observed in a previous KAP survey among HCWs at four University teaching hospitals in Uganda.[16] The latter study was conducted relatively early in the pandemic, hence the observed difference may be attributed to the limited information on COVID-19 at the time. In additional research in Vietnam, HCWs in a hospital setting exhibited a higher knowledge level (Over 88% had adequate knowledge) even though it was conducted earlier in the pandemic.[20]

In the current study it was found that 69% of the study participants had a positive attitude towards COVID-19. This is much higher than the 21% previously reported in among HCWs in Uganda and may indicate improvement in attitudes as HCWs learn more about COVID-19.[16] We, however, found that older participants (>40 years) were less likely to have a positive attitude towards COVID-19 compared to those in the youngest age group (21-30 years). This finding is consistent with the results of a study in Nigeria but not others in which either attitude improved with increasing age.[21,22,23] These contradictory findings may be due to unique contextual factors that require further investigation.

In line with the high overall knowledge and attitude scores observed in this study, participants in this study had overall good COVID-19 prevention practices, including washing hands, wearing masks, social distancing and following the guidelines of the Ministry of Health, if suspected of having a Covid-19 infection. From the perspective of scientific prevention and control, HCWs should place a high value on correct removal of protective equipment. When removing contaminated equipment such as gowns, gloves, medical masks and eye protection worn in contaminated or high-risk environments, it is necessary to prevent further contamination and infection.[24] In this study, careful removal of protective equipment was reported to be practiced by 62.6% of the HCWs. However, regarding practice physicians reported comparatively good preventive practice compared to nurses in the present study. Zhang et al found that good practice was found to be positively associated with a higher education level and negatively with median work experience.[17]

Limitations

This study has some limitations. The survey was conducted in only three hospitals, so the results may not be generalizable to other hospital HCWs. Additionally, the measurement of KAP may be imprecise due to the limited number of items. Since the sampling was done conveniently there could be some selection bias.

Conclusions

In conclusion the study findings demonstrated sufficient knowledge and good preventive practice towards COVID19, however, positive attitude was lower. Therefore, it is a firm requirement to keep on with further refresher training strategies to get a better understanding and positive way of looking at the pandemic for all HCWs.

Recommendations

To promote uptake of and adherence to COVID-19 prevention measures within hospital and community settings in Bangladesh, COVID-19 prevention and control programs that target all HCWs should be instituted. These programs should pay special attention to nurses who are likely to be least knowledgeable on the prevention and control of infectious diseases and thus most vulnerable.

Acknowledgement

The authors would like to acknowledge the study participants of different hospitals for participating in this study.

Contribution of authors

BB-Conception, aquisation of data, drafting & final aproval.

MKD-Design, aquisation of data, interpretation of data, critical revision & final aproval.

RR-Data analysis, critical revision & final aproval.

HN-Acquisation of data, interpretation of data, critical revision & final aproval.

SB-Interpretation of data, drafting & final aproval.

Disclosure

The authors declared no conflict of interest.

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