

Knowledge of prevention of COVID-19 among the Nurses working in public hospitals in Dhaka, Bangladesh

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Abstract

Due to their intimate contact with sick patients, nurses working in public hospitals are more likely to catch COVID-19. They must, therefore, be well-versed in COVID-19 prevention strategies if they are to reduce the danger of the virus spreading to susceptible patients. Nurses are better prepared to give their patients safe and effective care if they are informed about the virus's mechanisms of transmission, symptoms, and how to utilize personal protective equipment (PPE). As a result, this study was carried out to evaluate the level of awareness of COVID-19 prevention among nurses working in Dhaka, Bangladesh's public hospitals. Three public tertiary hospitals in Dhaka, Bangladesh, were the sites of a descriptive type cross-sectional study with a sample size of 384 from October 2021 to December 2021. According to the study's findings, a total of 93.25 percent of respondents had strong knowledge, whereas 6.75 percent had low knowledge. The respondent's greatest degree of education and years of experience were substantially correlated with their level of expertise. According to the study's findings, Dhaka's public hospital nurses generally possess a high degree of expertise in COVID-19 prevention. To protect their safety and stop the spread of COVID-19, more training should be given on how to utilize PPE and disinfection techniques.

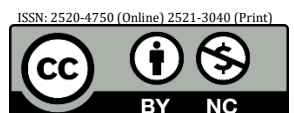


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Introduction

Millions of individuals around the world have faced an unprecedented threat to their health as a result of the COVID-19 epidemic (Wang et al., 2020). The SARS-CoV-2 coronavirus, which is what causes COVID-19, mainly spreads through respiratory droplets when an infected person coughs, sneezes, or talks (WHO, 2021). Another method of spreading the virus is through contacting contaminated surfaces and then touching one's mouth, nose, or face (WHO, 2021). Utilizing a variety of preventive measures, such as the use of face masks, hand cleanliness, respiratory and cough etiquette, and social seclusion, is the most efficient strategy to avoid COVID-19 (WHO, 2021). Nurses, as frontline healthcare workers, are playing a crucial role in responding to the pandemic, and their knowledge and understanding of COVID-19 prevention measures are crucial. Public hospitals, which are often the first point of contact for patients, are critical to mitigating the spread of the virus. It is, therefore, essential that nurses working in public hospitals have an adequate understanding of the prevention measures that need to be taken to protect themselves, and more importantly, their patients from COVID-19. Despite the critical nature of their role, some studies have suggested that some nurses lack comprehensive knowledge of COVID-19 prevention measures (Zhong et al., 2020). A cross-sectional survey conducted in China found that while most nurses had a good understanding of the symptoms of COVID-19, the majority had insufficient knowledge of the modes of transmission, measures to prevent transmission, and the proper use of PPE (Zhang et al., 2020). Another study conducted in the United States among nurses found that some nurses did not use proper PPE and did not adhere to the recommended COVID-19 prevention guidelines (Mohamed et al, 2023). A study in Sudan showed that the nurse's knowledge and attitude towards the prevention of COVID-19 is good (Mohamed et al, 2023). It is reasonable to believe that proper infection prevention and control practices will arise from solid understanding and a favorable attitude toward the use of non-public preventive measures. The lack of knowledge can be catastrophic and can accelerate the spread of the virus. The existing gaps in knowledge among nurses can be attributed to various factors, such as inadequate training, lack of access to up-to-date information, and inadequate supply of PPE. Addressing these gaps not only ensures the safety of nurses but also the safety of their patients. The consequences of inadequate knowledge of COVID-19 prevention measures among nurses in public hospitals can be severe, resulting in the transmission of the virus to vulnerable patients, which can lead to severe complications and even death. Considering the facts, this study was conducted to assess the level of knowledge of the prevention of COVID-19 among the nurses working in public hospitals in Dhaka, Bangladesh.

Literature review

The COVID-19 virus has been dubbed a global pandemic by the World Health Organization. Nurses, who are crucial to the provision of healthcare, are more susceptible to infection because of their constant contact with infected patients. In Bangladesh, public hospital nurses are taking the initiative in the fight against the pandemic. Making sure that these nurses have access to trustworthy information regarding COVID-19 prevention is essential. To gauge nurses' knowledge of COVID-19 prevention at public hospitals in Dhaka, Bangladesh, several pieces of research have been carried out. In one such study, Kabir et al. (2020) discovered that the majority of nurses actively looked for information about COVID-19, with the internet and social media serving as their primary resources. Only 51% of the nurses, however, were able to name three or more virus symptoms, and 24% were unaware of any. Another study by Haque et al. (2020) assessed nurses' knowledge and COVID-19 preventative strategies. According to the survey, the majority of nurses had a solid understanding of how the virus spread and how to stop it. But there was a lack of understanding of the usage of personal protective equipment (PPE) to stop transmission. The study suggested that protocols and guidelines be created for

the proper use of PPE. In a separate study, Ferdous et al. (2020) evaluated nurses' knowledge of and attitudes toward COVID-19. The study's conclusions showed that nurses had a good awareness of and habits for using COVID-19 preventive techniques. Regarding the administration of COVID-19 patients and the use of PPE, there was, however, a lack of information. For nurses to increase their knowledge and skills, the study suggested offering training courses and workshops.

Methodology

Between October 2021 and December 2021, three public tertiary hospitals in Dhaka, Bangladesh, undertook a descriptive-type cross-sectional study. All of the nurses employed by the chosen institutions made up the study population. The statistical formula " $n=z^2pq/d^2$ " was used to compute the sample size, which came to 384, with a 95 percent confidence interval and a 5 percent level of significance. The samples for this investigation were chosen using a systematic random sampling procedure. Face-to-face interviews and a pre-tested, semi-structured questionnaire were used to gather the data. The data was periodically verified for quality assurance. With the help of the Statistical Package for Social Science, data were imported into the computer (SPSS 26.0, Chicago). Stata 13.0 was used for the data analysis. A grade was assigned to each participant's response to a knowledge-related question. For each question with a correct response, one point was given. The total scores for these questions were calculated, and the scores were assigned a standard value. Good knowledge was defined as having more than 60% of the correct answers, and poor knowledge as having fewer than 60% of the correct answers. The Faculty of Allied Health Sciences of Daffodil International University approved the research protocol as ethical, and each respondent gave their informed consent before any data were gathered from them.

Results

The majority (58.60%) of the respondents were aged between 20 to 30 years followed by 32.87% of respondents who were aged between 31 to 40 years. Among all, 96.20% of respondents were female. A total of 72.23% of respondent's highest education attainment was BSc (Nursing) followed by 22.92% of respondents who had completed a Diploma. About two-thirds of the respondents (60.59%) were married and 35.79% of respondents were unmarried. About three-fourths (74.23%) of the total respondents were staff nurses, 76.77% were involved in clinical nursing, and among all, most of the respondents (43.47%) were experienced up to 5 to 10 years. Most of the respondents (26.45%) were working in the general ward followed by ICU (23.38%) and isolation ward (21.23%) respectively (Table 01).

Table 01: Socio-demographic characteristics of the respondents (n=384)

Socio-demographic variables	Frequency	Percentage
Age group		
20 to 30 years	225	58.60
31 to 40 years	126	32.87
41 to 50 years	18	4.60
More than 50 years	15	3.93
Sex		
Male	15	3.80
Female	369	96.20
Highest education attainment		
BSc (Nursing)	277	72.23
Diploma (Nursing)	88	22.92
MS/Higher	19	4.85
Marital status		
Married	233	60.59
Unmarried	137	35.79
Widow	6	1.45

Divorcee	5	1.30
Others	3	0.87
Position		
Staff Nurse	285	74.23
Attending Nurse	82	21.24
Chief/Head Nurse	17	4.53
Specific role		
Clinical nursing	295	76.77
Nursing management	51	13.39
Other	38	9.84
Years of experience		
<5 years	107	27.85
5-10 years	167	43.47
11-15 years	69	17.86
>15 years	42	10.82
Working department		
Isolation ward	82	21.23
General ward	102	26.45
ICU	90	23.38
Emergency	28	7.29
Laboratory/imaging	11	2.93
Others	72	18.72

Among all the respondents, 98.66% respondents have heard about the novel coronavirus and the related terms COVID-19 or 2019-nCoV, 92.03% responded that COVID-19 is a viral infection whereas 91.15% responded that COVID-19 can be transmitted through close contact with infected people and infected animals. More than 90% of the respondents said that fever, sore throat, cough, and shortness of breath are possible symptoms of COVID-19 infection, and 98.13% of respondents said that there are laboratory tests to confirm the presence of COVID-19 infection. A total of 97.36% and 97.37% of respondents said that the incubation period of COVID-19 infection is 1–2 weeks and COVID-19 infection can be caught by a person who presents no symptoms and has recently visited the affected area (Table 02).

Table 02: Distribution of the respondents according to their knowledge of the prevention of COVID-19 among the nurses (n=384)

Statement	Answer options					
	Yes		No		Don't know	
	n	%	n	%	n	%
Become aware of the new coronavirus and associated terminology 2019-nCoV or COVID-19	379	98.66	0	0	5	1.34
A viral infection is a COVID-19 illness	353	92.03	25	6.43	6	1.54
COVID-19 can spread through intimate contact with infected people and animals	350	91.15	15	3.98	19	4.87
Shortness of breath, coughing, sore throat, and fever are possible signs of COVID-19 infection	363	94.49	14	3.73	7	1.78
The novel coronavirus resembles the SARS-CoV and MERS-CoV viruses	345	89.77	23	5.89	17	4.34
COVID-19 is the infection of the same illness as the flu or cold	342	88.97	28	7.27	14	3.76
There is a lab test that can be used to determine whether someone has a COVID-19 infection	377	98.13	0	0	7	1.87
The COVID-19 infection takes 1-2 weeks to incubate	374	97.36	0	0	10	2.64
A person who exhibits no symptoms and has recently been to the infected area can get a COVID-19 infection	374	97.37	3	0.67	8	1.96
Older adults and those with weakened immune systems are more likely to contract the virus	356	92.83	18	4.81	9	2.36
Patients who have comorbid conditions are more likely to get the infection	358	93.27	11	2.76	15	3.97
Hospitalized patients and healthcare personnel who are close to infected individuals are more likely to contract the virus	341	88.85	26	6.86	16	4.29
People are more likely to contract the disease when they are in crowded areas	334	86.96	29	7.64	21	5.40
To prevent the spread of infection to other persons, patients with COVID-19 infection should be immediately isolated	367	95.61	12	3.16	5	1.23

According to the scoring, 93.25% of respondents' level of knowledge was good and 6.75% of respondents' level of knowledge was poor (Table 03).

Table 03: Distribution of the respondents according to their level of knowledge on the prevention of COVID-19 among the nurses (n=384)

Level of knowledge	Frequency	Percentage
Good	358	93.25
Poor	26	6.75
Total	384	100.00

Discussion

The COVID-19 pandemic has posed significant challenges to healthcare workers globally. The frontline healthcare providers, particularly nurses, have been at the forefront of patient care throughout the pandemic. Nurses play a vital role in hospitals as they form the largest group of healthcare workers and are usually involved in direct patient care. In Bangladesh, nurses working in public hospitals in Dhaka have played a crucial role in combating the pandemic. However, the knowledge of the prevention of COVID-19 among these nurses has been a subject of debate. It is imperative for healthcare workers, including nurses, to be well-equipped and informed about COVID-19 prevention measures. Nurses are at a higher risk of contracting COVID-19 due to their close contact with patients who have the virus. Hence, their knowledge of COVID-19 prevention measures is crucial to reduce the spread of the virus and keeping themselves and their patients safe. In this study, more than 90% of the selected nurses were found to have a good level of knowledge. A study conducted in Bangladesh showed that 81% of nurses knew face mask use, hand hygiene, and self-isolation; however, only 14.5% of nurses knew quarantine measures, which is essential in preventing the spread of the virus (Harun et al., 2022). The World Health Organization (WHO) has outlined numerous COVID-19 prevention measures, including the use of Personal Protective Equipment (PPE), hand hygiene, physical distancing, and quarantine measures. The study conducted by Harun et al. (2022) also revealed that most healthcare workers had knowledge of the WHO prevention guidelines and had adequate PPE (Harun et al., 2022). However, the study highlighted a gap in knowledge regarding infection control measures, including the proper use and disposal of PPE, and identifying respiratory symptoms of the virus accurately. Huynh et al. (2020) revealed that 88.4% of participants have an appropriate understanding of COVID-19, which is consistent with the current findings of good knowledge among nurses. Additionally, according to Nemati et al. (2020), 89.51 percent of healthcare professionals reported having strong knowledge.

Table 04: Association of the level of knowledge of the respondents with their socio-demographic characteristics (n=384)

Socio-demographic characteristics	Frequency	Level of knowledge		P value
		Good (358)	Poor (26)	
Age group				
20 to 30	225	211	14	0.068
31 to 40	126	120	6	
41 to 50	18	14	4	
More than 50	15	13	2	
Sex				
Male	15	12	3	0.096
Female	369	346	23	
Highest education attainment				
BSc (Nursing)	277	261	16	0.031
Diploma (Nursing)	88	80	8	
MS/Higher	19	17	2	
Marital status				
Married	233	220	13	0.076
Unmarried	137	129	8	

Widow	6	4	2	
Divorcee	5	3	2	
Others	3	2	1	
Position				
Staff Nurse	285	273	12	0.081
Attending Nurse	82	72	10	
Chief/Head Nurse	17	13	4	
Specific role				
Clinical Nursing	295	277	18	0.123
Nursing management	51	46	5	
Other	38	35	3	
Years of experience				
<5 years	107	99	8	0.023
5-10 years	167	156	11	
11-15 years	69	65	4	
>15 years	42	39	3	
Working department				
Isolation ward	82	78	4	0.137
General ward	102	94	8	
ICU	90	84	6	
Emergency	28	25	3	
Laboratory/imaging	11	10	1	
Others	72	68	4	

Table 04 represents the association of the level of knowledge of the respondents with their socio-demographic characteristics. The findings show that there is a significant association between the level of knowledge with the highest educational attainment and year of experience. No significant association was found between the level of knowledge with other socio-demographic characteristics. This implies that inadequate knowledge of COVID-19 prevention measures among nurses working in public hospitals in Dhaka can lead to the risk of infection and the spread of the virus. A study conducted in Ethiopia highlighted that inadequate training and knowledge of COVID-19 among healthcare workers led to a higher risk of contracting the virus (Zenbaba et al. 2022). This also indicates that intensive training on COVID-19 prevention measures and regular updates about the pandemic is essential to control the spread of the virus. There is a need for regular training and updates to ensure that nurses working in public hospitals in Dhaka have adequate knowledge of COVID-19 prevention measures. A study conducted in China highlighted the importance of continuous education and training regarding COVID-19 prevention measures to improve the knowledge and performance of healthcare workers (Huang et al. 2020). In addition, the study suggests that nurses should be empowered to participate in decision-making and be provided with adequate support during the pandemic. This approach can improve the nurses' morale and contribute to better patient care, which ultimately reduces the risk of contracting COVID-19.

Conclusion

In conclusion, knowledge of COVID-19 prevention measures among nurses working in public hospitals is critical to mitigating the spread of the virus. Nurses must be adequately trained and have access to up-to-date information regarding prevention measures. Moreover, access to PPE and adherence to recommended guidelines are critical to ensuring the safety of healthcare workers and their patients. By enhancing the knowledge and understanding of COVID-19 prevention measures among nurses, the spreading of the virus can be prevented and ultimately lives can be saved. Future research is also needed to assess the effectiveness of educational programs in improving the nurses' knowledge and performance regarding COVID-19 prevention measures.

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Competing interests

For this study, the authors reported that they had no competing interests.

Permission to publish

This article's writers have all given their approval for it to be published.

References

- Ferdous, M. Z., Islam, M. S., Sikder, M. T., Mosaddek, A. S. M., Zegarra-Valdivia, J. A., & Gozal, D. (2020). Knowledge, attitude, and practice regarding COVID-19 outbreak in Bangladesh: An online-based cross-sectional study. medRxiv.
- Haque, M., Islam, M., Khan, K. A., Zeb, M. S., Rahman, M., Hossain, M. S., ... & Jahangir, H. (2020). Knowledge and practices of Bangladesh nurses toward COVID-19: A cross-sectional study. *Journal of Multidisciplinary Healthcare*, 13, 903-909.
- Harun MGD, Anwar MMU, Sumon SA, Abdullah-Al-Kafi M, Datta K, Haque MI, Chowdhury ABMA, Sharmin S, Islam MS. (2022) Pre-COVID-19 knowledge, attitude, and practice among nurses towards infection prevention and control in Bangladesh: A hospital-based cross-sectional survey. *PLoS One*. Dec 1;17(12): e0278413.
- Huang, L., Lin, G., Tang, L. et al. (2020) Special attention to nurses' protection during the COVID-19 epidemic. *Crit Care* 24, 120. <https://doi.org/10.1186/s13054-020-2841-7>
- Huynh NG, Ngoc T, Nguyen TNH, Tran K, Ngan V, Vo T,Pham LA. (2020) Knowledge and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City. *Asian Pacific Journal of Tropical Medicine*; 13
- Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected (2021) [https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-\(ncov\)-infection-is-suspected-20200125](https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125) (accessed April 11, 2021)
- Kabir, A., Rahman, M. S., Ferdous, M. Z., Chowdhury, F. J., Ahmed, S. T., Hoque, M. A., ... & Hossain, M. S. (2020). COVID-19 outbreak and its preparedness in Bangladeshi public hospitals. *Journal of Global Health*, 10(2), 020503.
- M. Zhang, M. Zhou, F. Tang, Y. Wang, H. Nie, L. Zhang, G. You. (2020) Knowledge, attitude, and practice regarding COVID-19 among Healthcare workers in Henan, China, *Journal of Hospital Infection*, Volume 105, Issue 2, Pages 183-187, ISSN 0195-6701.
- Mohamed, M., Mohamed, F. and Taha, N. (2023) Nurses' Knowledge, Attitude, and Practice Regarding Personal Protective Equipment for the Prevention of COVID-19 in Public Hospitals Khartoum State Sudan 2022. *Open Journal of Nursing*, 13, 181-195.
- Nemati M, Ebrahimi B, Nemati F. (2020) Assessment of Iranian Nurses' Knowledge and Anxiety toward COVID-19 during the current Outbreak in Iran. *Arch Clin Infect Dis* (In press)
- Wang C, Horby PW, Hayden FG, Gao GF. (2020) A novel coronavirus outbreak of global health concern. *The Lancet*;395(10223):470-3
- Zenbaba D, Sahiledengle B, Beressa G, et al (2022) Healthcare workers' compliance with COVID-19 preventive measures, and associated factors, in Ethiopia: A systematic review and meta-analysis *BMJ Open*;12: e060681. doi: 10.1136/bmjopen-2021-060681
- Zhong BL, Luo W, Li HM, Zhang QQ, Liu XG, Li WT, LiY. (2020) Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *International journal of biological sciences*;16(10):1745-52

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