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Knowledge Assessment Of COVID-19 Among Outpatients In Dhaka

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Abstract

Background: *The COVID-19 pandemic has exposed significant gaps in public knowledge and adherence to preventive measures, particularly in low- and middle-income countries. This study aimed to assess the knowledge, attitudes, and preventive practices regarding COVID-19 among outpatients at the Combined Military Hospital (CMH), Dhaka Cantonment.*

Methods: *This descriptive cross-sectional study included 71 outpatients attending the CMH OPD from July 1, 2020, to December 31, 2021. Participants were selected through informed consent and were aged between 18 and 89 years. Data were collected via face-to-face interviews using a semi-structured, pretested questionnaire and were analyzed using SPSS version 23.0. The questionnaire captured participants' knowledge of COVID-19, preventive practices, and comorbidity status.*

Results: *The mean age of the participants was 35.18 years. Females comprised 59.15% of the sample, with 76.06% residing in urban areas. Regarding comorbidities, 16.90% had a history of COVID-19, while 15.49% had hypertension or diabetes mellitus. Although 88.7% of participants knew that wearing a face mask could prevent infection, only 39.4% recognized coughing and sneezing as transmission routes, and just 36.6% acknowledged the importance of social distancing. In terms of overall knowledge, 35.21% had "Good" knowledge, while 8.45% exhibited "Poor" knowledge.*

Conclusion: *Significant gaps in knowledge and adherence to preventive measures were identified, particularly regarding COVID-19 transmission and social distancing. Targeted health education efforts are needed to improve knowledge and practices, particularly among vulnerable groups with comorbidities.*

Keywords: *COVID-19, Knowledge Assessment, Preventive Practices, Outpatients, Dhaka*

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I. Introduction

The COVID-19 pandemic, first identified in December 2019 in Wuhan, China, rapidly escalated into a global health crisis of unprecedented scale. Within months, the virus had spread across the globe, leading the World Health Organization (WHO) to declare it a pandemic in March 2020. Since then, the novel coronavirus has significantly impacted global health systems, economies, and societies, infecting millions and overwhelming healthcare infrastructures worldwide (1,2). Healthcare systems, even in well-resourced countries, faced significant challenges as hospitals reached capacity, and non-COVID-19 healthcare services were often suspended or delayed. These issues were exacerbated in low- and middle-income countries (LMICs), where healthcare systems were already stretched thin, and the pandemic underscored existing vulnerabilities (3). Bangladesh, with its high population density and limited healthcare resources, has faced substantial challenges in managing the COVID-19 pandemic. The country's first confirmed case was reported in March 2020, and since then, it has seen fluctuating infection rates, with several waves of outbreaks overwhelming the healthcare system (4). The Bangladeshi government and healthcare institutions have implemented various measures, including lockdowns, social distancing mandates, and public health campaigns, to curb the spread of the virus (5). However, these measures' effectiveness largely depends on public adherence to preventative practices and the healthcare system's ability to manage and treat COVID-19 cases. Dhaka, home to millions of people, many of whom live in informal settlements, experienced widespread transmission, exacerbated by the limited capacity of healthcare services to manage both COVID-19 cases and routine health conditions. Studies suggest that Bangladesh's healthcare system, already burdened with systemic inefficiencies, was further weakened by governance issues

and inadequate infrastructure during the pandemic (6). In response, the government implemented a series of public health interventions, including lockdowns, mass testing, and eventually vaccination campaigns. However, these measures were not uniformly effective, particularly in densely populated urban centers like Dhaka, where enforcing social distancing and other preventive measures was logistically difficult (7). A critical component in controlling the spread of COVID-19 has been the public's knowledge, attitudes, and practices (KAP) regarding the virus. Public knowledge about COVID-19, including its transmission, symptoms, and preventive measures, has been shown to directly influence individual behaviors, such as mask-wearing, social distancing, and hand hygiene. In South Korea, a study found that higher levels of knowledge were associated with better attitudes and more consistent preventive practices, including the use of masks and social distancing (8). Similarly, in Hong Kong, knowledge gaps among ethnic minorities were linked to lower adherence to recommended practices, such as wearing masks in public and maintaining social distance, underscoring the need for targeted health education in vulnerable populations (9). This aligns with findings from Bangladesh, where inconsistent knowledge and attitudes contributed to varying levels of adherence to public health guidelines, further complicating efforts to control the spread of the virus (10). Effective health communication and education have been central to increasing public adherence to COVID-19 preventive measures. In the United States, studies have shown that individuals with higher eHealth literacy, or the ability to find and interpret health information online, were more likely to follow protective behaviors, such as mask-wearing and avoiding crowded places (11). Conversely, misinformation and conspiracy theories have significantly undermined public health efforts in many parts of the world, including Bangladesh, where widespread myths about COVID-19 and vaccines have hampered vaccination campaigns and other preventive measures (12). Research from Iraq demonstrates the importance of structured health education programs in improving KAP, with government employees showing significant improvements in COVID-19 preventive behaviors following targeted interventions (13). These findings highlight the need for comprehensive and culturally appropriate health education programs, particularly in LMICs, where misinformation can have a more pronounced impact due to limited access to accurate health information (14). In Bangladesh, the role of health education has been critical in shaping public attitudes and behaviors. One study in Duhok City, Iraq, demonstrated that government-led health education initiatives significantly improved KAP toward COVID-19 among public sector employees, leading to higher compliance with preventive measures like mask-wearing and social distancing (13). In the context of Dhaka, such interventions could be particularly impactful, given the challenges of high population density, limited healthcare access, and widespread misinformation (7,15). In addition, a community-based study in Yemen found that intermediate levels of public knowledge about COVID-19 were linked to poor prevention practices, with only 11% of participants consistently wearing masks or practicing social distancing (16). This reflects a broader trend observed in LMICs, where gaps in public knowledge and access to accurate health information can significantly hinder efforts to control the spread of the virus. The COVID-19 pandemic has also underscored the importance of addressing the social determinants of health in pandemic management. In Bangladesh, where many people live in poverty and rely on daily wages, lockdown measures disproportionately affected low-income communities, exacerbating existing inequalities and making it more difficult for individuals to adhere to preventive measures (6). In addition, the urban poor, particularly those living in Dhaka's slums, faced significant barriers to accessing healthcare services and information, further complicating efforts to manage the pandemic in these areas (17). As such, understanding the KAP of specific populations, such as outpatients in Dhaka, is essential for developing targeted interventions that can effectively address these challenges and reduce the spread of COVID-19. This study aims to assess the knowledge, attitudes, and practices related to COVID-19 among outpatients in Dhaka, Bangladesh. By understanding the gaps in public knowledge and identifying the factors that influence adherence to preventive measures, this research will provide valuable insights for public health authorities and policymakers. These findings can inform future health education campaigns and help design more effective interventions to control the spread of COVID-19 in densely populated urban areas like Dhaka.

II. Methods

This descriptive cross-sectional study was conducted to assess the knowledge and preventative practices regarding COVID-19 among patients attending the outpatient department (OPD) at the Combined Military Hospital (CMH), Dhaka Cantonment. The study population consisted of 71 patients who attended the OPD from July 1, 2020, to December 31, 2021. Patients were selected based on the following inclusion criteria: provision of informed written consent, age between 18 and 89 years, irrespective of sex and religion. Patients were excluded from the study if they exhibited non-cooperative behavior, had psychological abnormalities, or were suffering from severe illness. Data collection occurred between May 6, 2021, and May 19, 2021, through face-to-face interviews. A semi-structured, pretested questionnaire was used to gather data on participants' knowledge of COVID-19, their preventative practices, and their comorbidity status. The questionnaire was designed to capture information on key areas such as COVID-19 transmission, symptoms, and prevention methods, as well as personal

protective measures like mask-wearing, social distancing, and hand hygiene. Participants' comorbidity status was also assessed to understand its potential influence on their knowledge and practices. After collection, the data were checked for completeness and consistency. Any incomplete or inconsistent data entries were addressed before the analysis. The data were then coded and entered into Statistical Package for the Social Sciences (SPSS) version 23.0 for further analysis. Descriptive statistics were used to summarize the demographic characteristics of the study population, as well as their knowledge and preventative practices regarding COVID-19.

III. Results

Table 1: Distribution of participants by baseline demographics (N=71)

Variables	Frequency	Percentage
Age		
18-27	19	26.76%
28-37	32	45.07%
38-47	6	8.45%
48-57	11	15.49%
58 above	3	4.23%
Mean±SD	35.18±12.95	
Gender		
Male	29	40.85%
Female	42	59.15%
Religion		
Islam	65	91.55%
Hindu	5	7.04%
Christian	1	1.41%
Marital Status		
Married	62	87.32%
Unmarried	9	12.68%
Educational Status		
No Formal Education	4	5.63%
Primary	8	11.27%
SSC	30	42.25%
HSC	16	22.54%
Graduate and above	13	18.31%
Occupation		
Active Servicemen	26	36.62%
Retired	9	12.68%
Housewife	35	49.30%
Business	1	1.41%
Residence		
Urban	54	76.06%
Rural	6	8.45%
Sub-Urban	11	15.49%

A total of 71 participants were included in the study, with a mean age of 35.18 years (SD ±12.95). Most participants (45.07%) were aged 28-37 years, followed by 26.76% aged 18-27 years. Only 4.23% were 58 years or older. Females made up 59.15% of the participants, while males accounted for 40.85%. Regarding religion, 91.55% of participants were Muslim, 7.04% were Hindu, and 1.41% were Christian. Most participants (87.32%) were married, with 12.68% being unmarried. In terms of education, 42.25% had completed secondary school (SSC), 22.54% had completed higher secondary education (HSC), and 18.31% had a graduate degree or higher. Only 5.63% had no formal education. Occupationally, 49.30% were housewives, 36.62% were active servicemen, and 12.68% were retired. Only 1.41% were engaged in business. Most participants (76.06%) lived in urban areas, 15.49% in suburban areas, and 8.45% in rural areas.

Table 2: Distribution of comorbidities among the participants (N=71)

Co-Morbidity Status	Frequency	Percentage
COVID-19	12	16.90%
Bronchial Asthma	8	11.27%
COPD	4	5.63%
Hypertension	11	15.49%
Diabetes Mellitus	11	15.49%
Coronary Heart Disease	2	2.82%

Among the 71 participants, 16.90% had a history of COVID-19 infection. Other prevalent comorbidities included hypertension and diabetes mellitus, each affecting 15.49% of participants. Bronchial asthma was present in 11.27% of the participants, while 5.63% had Chronic Obstructive Pulmonary Disease (COPD). Additionally, 2.82% of participants reported having coronary heart disease.

Table 3: Distribution of knowledge of the respondent about COVID-19 by different Variables

Variables	True n (%)	False n (%)
COVID-19 is a dangerous disease.	59 (83.1%)	12 (16.9%)
The common symptoms of COVID-19.	42 (59.2%)	29 (40.8%)
Using face mask can prevent infection.	63 (88.7%)	8 (11.3%)
Washing hands with soap water at least 20 seconds can prevent COVID-19.	38 (53.5%)	33 (46.5%)
Spread by coughing, sneezing, talking.	28 (39.4%)	43 (60.6%)
Touching eyes, nose or mouth.	21 (29.6%)	50 (70.4%)
Using hand gloves can prevent infection.	55 (77.5%)	16 (22.5%)
Using hand sanitizer.	65 (91.5%)	6 (8.5%)
Social distance is required for prevention.	26 (36.6%)	45 (63.4%)
Chance of COVID-19 into bus, train journey.	19 (26.8%)	52 (73.2%)
Communal food consumption source of infection of COVID-19.	31 (43.7%)	40 (56.3%)

Regarding participants' knowledge of COVID-19, 83.1% correctly identified COVID-19 as a dangerous disease, while 16.9% did not. Most participants (88.7%) understood that using a face mask can prevent infection, and 91.5% were aware that using hand sanitizer helps prevent COVID-19. However, only 53.5% recognized that washing hands for at least 20 seconds could prevent the virus, and just 39.4% knew that COVID-19 spreads through coughing, sneezing, and talking. Less than half of the participants (36.6%) knew that social distancing is required for prevention, and only 26.8% believed that traveling by bus or train increased the chance of contracting COVID-19. Similarly, 43.7% recognized communal food consumption as a possible source of infection, while 77.5% were aware that wearing hand gloves could prevent infection. However, only 29.6% understood the risks associated with touching their eyes, nose, or mouth.

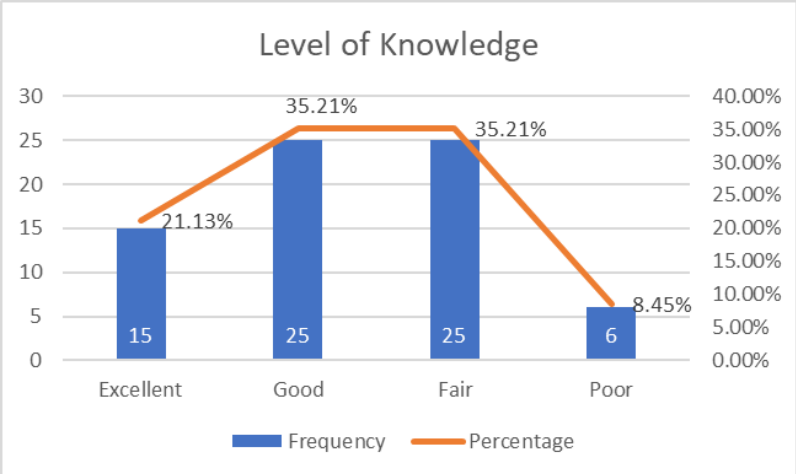

Figure 1: Distribution of the respondents by category of knowledge on COVID-19

The distribution of participants' knowledge levels regarding COVID-19, as shown in Figure 1, reveals that 35.21% of participants had a "Good" level of knowledge, while an equal percentage (35.21%) exhibited a "Fair" understanding. Additionally, 21.13% of participants demonstrated "Excellent" knowledge, whereas only 8.45% had "Poor" knowledge of COVID-19.

IV. Discussion

The findings of this study offer important insights into the knowledge and preventive practices regarding COVID-19 among outpatients in Dhaka, Bangladesh. The demographic characteristics of the study population revealed a predominance of females (59.15%), with a mean age of 35.18 years. This is consistent with the findings from similar studies in other regions, such as the Philippines, where younger populations and females also constituted a large proportion of study participants, reflecting the accessibility and willingness of these groups to engage in public health-related studies (18). In the current study, a large proportion of participants (91.55%) were Muslim, with smaller percentages identifying as Hindu (7.04%) and Christian (1.41%), which aligns with the religious demographics of Bangladesh, although this specific context adds unique cultural implications for public health communication strategies. One of the notable findings of this study was the prevalence of comorbidities among participants, with 16.90% having a history of COVID-19 infection, 15.49% having hypertension and diabetes mellitus, and 11.27% suffering from bronchial asthma. This high prevalence of comorbidities highlights the vulnerability of the outpatient population to severe outcomes from COVID-19, a concern echoed in other studies that examined the link between chronic conditions and COVID-19 severity. For instance, research conducted by Gupta et al. emphasized the critical need for self-care and preventive strategies among individuals with comorbidities like diabetes and hypertension, which further supports the importance of targeted health education for at-risk groups in Dhaka (19). The study also revealed significant gaps in the knowledge and understanding of COVID-19 transmission and preventive measures. While 83.1% of participants correctly identified COVID-19 as a dangerous disease, only 39.4% were aware that the virus could be transmitted through coughing, sneezing, and talking, and just 29.6% recognized the risk of transmission through touching the face. These findings are considerably lower compared to those reported in Nigeria, where 94% of participants identified respiratory droplets as the primary mode of transmission (20). Similarly, a study conducted in the Philippines found that 89.5% of respondents recognized coughing and sneezing as transmission routes (11). This discrepancy suggests that there is a critical need to enhance communication efforts in Bangladesh to address the misconceptions and knowledge gaps regarding the modes of COVID-19 transmission. Preventive practices such as wearing face masks and using hand sanitizers were well understood by the majority of participants, with 88.7% and 91.5%, respectively, acknowledging their effectiveness. However, knowledge about other key preventive behaviors, such as handwashing and social distancing, was comparatively lower. Only 53.5% of participants were aware that washing hands for at least 20 seconds could prevent the spread of the virus, and just 36.6% recognized the importance of social distancing. This is in stark contrast to studies conducted in other LMICs, such as in Northeast Ethiopia, where 63.9% of respondents practiced social distancing and 93.5% maintained proper hand hygiene (21). The findings from Kolkata further reveal similar challenges, where knowledge about handwashing was limited, but awareness about other preventive measures, such as mask-wearing and social distancing, was relatively higher (22). These comparisons underscore the need for a more comprehensive and effective public health strategy in Bangladesh that reinforces the importance of both individual preventive practices and broader community-level interventions, such as social distancing. Another important observation from this study is the general level of knowledge regarding COVID-19. While 35.21% of participants had "Good" knowledge and another 35.21% had "Fair" knowledge, a significant proportion (8.45%) exhibited "Poor" knowledge. This finding is in line with similar studies from Bangladesh and elsewhere, which highlighted varying levels of awareness among different demographic groups. For instance, a study in Bangladesh reported that only 6.9% of university students had good knowledge of COVID-19, while a study in the UAE found that knowledge levels were higher among individuals with better education and more frequent exposure to reliable sources of information, such as healthcare professionals and traditional media (23,24). This variation in knowledge levels points to the need for targeted educational campaigns that address the specific needs and knowledge gaps of different segments of the population. Furthermore, the role of media and information dissemination in shaping public perceptions and practices cannot be overlooked. Studies from Nigeria and the Philippines highlighted the critical role of traditional media, such as television and radio, in disseminating accurate information about COVID-19 (20,25). In contrast, in Bangladesh, there is a need for a more structured and widespread dissemination of reliable information to counter misinformation and improve public understanding of the virus. This is particularly important in a context where a significant portion of the population resides in urban areas (76.06%) and is more likely to have access to diverse sources of information, including social media, which can both inform and mislead. In conclusion, the findings from this study highlight several critical areas where public health interventions need to be strengthened in Bangladesh. The gaps in knowledge about COVID-19 transmission and preventive measures, particularly

regarding social distancing and hand hygiene, indicate that targeted education and communication strategies are urgently required. Comparative analyses with studies from other regions show that Bangladesh lags behind in terms of public awareness, particularly among populations with high levels of comorbidities. Addressing these gaps through comprehensive health education programs, tailored to the specific needs of vulnerable populations, will be crucial in mitigating the impact of future waves of COVID-19 and improving overall public health resilience.

Limitations of The Study

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

V. Conclusion

This study highlights significant gaps in knowledge and preventive practices regarding COVID-19 among outpatients at the Combined Military Hospital in Dhaka. While most participants were aware of the importance of using face masks and hand sanitizers, knowledge of COVID-19 transmission routes and the necessity of social distancing remained limited. The high prevalence of comorbidities, such as hypertension, diabetes, and bronchial asthma, underscores the vulnerability of this population to severe COVID-19 outcomes. These findings suggest that targeted health education programs focusing on COVID-19 transmission, preventive measures like social distancing, and the importance of comprehensive hygiene practices are urgently needed to improve public health responses. Efforts should also be made to address the specific needs of vulnerable groups, including those with preexisting comorbidities, to enhance both knowledge and adherence to preventive measures.

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