Knowledge and Self-Reported Practice of Face Mask Utilization among Outdoor Patients during the Covid-19 Pandemic

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Abstract

Introduction: COVID-19 has been declared a global pandemic by the World Health Organization (WHO) on 11 March 2020.

Objective: To find out the Knowledge and self-reported practice of face mask utilization among outdoor patients during the covid-19 pandemic.

Materials and Methods: This cross-sectional descriptive type of study was undertaken to assess the state of knowledge and self-reported Practice of face mask utilization among the patient attending the out-patient department at Dhaka Medical College and Hospital, from January 2020 to December 2020. A semi-structured questionnaire was developed in English and then translated into Bengali. A total of 224 respondents were interviewed with age range from 18 to 60 years. The participants were selected by using a convenient sampling technique. SPSS 25 version was used for data analysis.

Results: In this study, 33% of respondents belonged to the age group of 18 to 30 years and the majority of respondents (61.20%) were female. It was found that 32.6% of respondents completed a secondary level of education, 29% completed a higher secondary level, whereas 8% has no formal education. The majority (62.10%) of the respondents was from the urban area and 37.90% were from the rural area. According to this study, 63.4% of respondents had good knowledge and only 20.5% of respondents had a good practice in face mask utilization. The mean score of knowledge was found 9.86 out of 12 where the Standard deviation was ±2.35. A statistically highly significant (p<0.05) association was found between the educational level of the respondents and respondents' knowledge of face mask utilization. Another association was found between the level of knowledge and level of practice on face mask utilization, which was also statistically significant (p<0.05) that is knowledgeable people had opined on practice for better protection from infectious diseases like COVID-19.

Conclusion: In the current study practice of people wasn't found up to the mark compared with knowledge regarding face masks.

Keywords: Knowledge, Self reported Practice, Face mask, Covid-19.

INTRODUCTION

Considering the immense escalation of infection, Coronavirus disease (COVID-19) has been declared a global pandemic by the World Health Organization (WHO) on 11 March 2020.[1] Current evidence claimed that the COVID-19 virus is primarily transmitted during close unprotected contact between an infector and infected via respiratory droplets and fomites.[1] Droplet transmission occurs when a person is in close contact (within 1 meter) with an infected person and exposure to potentially infective respiratory droplets occurs through coughing, sneezing or very close personal contact resulting in the inoculation of entry portals such as the mouth, nose, or conjunctivae (eyes).[2] As there is no specific treatment rather than newer antiviral drugs are under investigation, management is primarily symptomatic and supportive, though preventive measures are necessary to control infection caused by corona virus.[3] Preventive measures which include the use of face masks, hand hygiene, maintaining the physical distance of at least 1 meter, quarantine and isolation are all necessary to prevent SARS-CoV-2 transmission from person to person.[4-5] Using a face mask and practicing hand hygiene combinedly can mitigate the spread of infection.[7] One Study found in Bangladesh, the effectiveness of surgical masks and N-95 masks in blocking the transmission of the SARS virus.[8-9] The government of Bangladesh made it mandatory for people to wear masks from 22 July 2020.[6] A study has been conducted among physicians in Bangladesh to investigate the role of personal protective measures in the prevention of COVID-19 spread and found that improper use of personal protective measures enhances the risk of getting infected by the virus.[10] The general patient must have intimate knowledge regarding protective measures to ensure effective practice and optimum preparedness to mitigate the spread of infection during pandemic situations because they have to go to the hospital for various purposes. This study would be very useful in identifying gaps in knowledge and substandard practices regarding face mask utilization to enhance the development of appropriate strategies to promote protective measures.

MATERIALS AND METHODS

A cross-sectional type of descriptive study was conducted to find out the state of knowledge regarding face mask utilization among outdoor patients. This study was carried out at Dhaka Medical College and Hospital. It is a public medical college and hospital located in Dhaka city. It started on 1st January 2020 and ended on 31st December 2020. The study population was general patients who attended the outpatientdepartment of Dhaka Medical College and Hospital during the time of data collection. The participants were selected by using a convenient sampling technique. Data will be collected through a face-to-faceinterview.Asemi-structuredquestionnaire was developed in English and then translated into Bengali. The questionnaire was prepared by using the selected variables according to objectives. Before preceding the data collection, the detail of the study was explained to each eligible respondent and written consent was taken.

After collection data were cleaned, coded, and categorized. Then master tabulation sheet was prepared after proper checking, verifying, and editing as per specific objective and key variable. The analysis was carried out by using the Software Package for Social Science (SPSS) (Version 25). Analysis was done according to the objectives. Before the commencement of this study, the research protocol was approved by the institutional review board of the National Institute of Preventive and Social Medicine (NIPSOM). The inclusion criteria were the respondents' age should have between18 years to 60 years. Respondents who gave written consent were included and respondents who did not want to participate willingly in the study were excluded.

Scoring of knowledge

The knowledge section had 12 questions. Each question was answered on a yes/no basis. "Yes" was considered the correct answer and "no" was considered an incorrect answer. Each correct answer was scored 1 and the incorrect answer 0. So the total score of knowledge was 12 which were equalized to 100%. The respondents who had scored from 80% to 100% (9.6-12 points) were considered to have good knowledge, who had scored below 60% (<7.2 points) were considered to have poor knowledge and the respondents who had scored in between 60% to 79% (7.2-9.5 points) was considered having moderate knowledge.[11]

Scoring of Practice

In this study, the practice was assessed by face-to-face interviews. A self-reported practice list was

incorporated into the questionnaire with three different responses. The questions assessing practice were answered "always", "sometimes" and "never". Here, "always" was assigned 2 points; "sometimes" was assigned 1 point, and "never" was assigned 0 points. The overall practice score was categorized into good, moderate, and poor. So the total points were 10 which were equalized to 100%. If the total score was between 80% to100% (8-10 points), it was considered good practice, as moderate practice if the total score was between 60% to 79% (6-7.9 points) and poor if the total score was below 60% (<6 points).[11]

RESULT

Out of 224 respondents, this study found that 33% of respondents belonged to the age group of (18 to 30) years, 25.4% belonged to (31-40) years of age, whereas 15.2% of respondents belonged to the (51 to 60) years, age group. The mean age of the respondents was 37.16 (SD ±11.15). The majority of the respondents were female (61.20%). Among the respondents, 32.6% completed secondary level, whereas 8% has no formal education. Majority of respondents (62.10%) were from urban areas. The demographic characteristics of the respondents are depicted in Table 1.

Table 1. *Demographic characteristics among the respondents*

Variables	Frequency (%)	Mean ±SD
Age in years		
18-30	74(33)	
31-40	57(25.4)	
41-50	59(26.3)	37.16± 11.15
51-60	34(15.2)	
Gender		
Male	87(38.80)	
Female	137(61.20)	
Residency		
Urban	139	
Rural	85	
Education		
No formal education	18(8)	
Primary completed	44(19.6)	
Secondary completed	73(32.6)	
Higher secondary completed	64(28.6)	
Graduation/post-graduation	25(11.2)	

Almost all of the respondents (98.7%) reported that a face mask can give protection from infection (Table-2).

Table 2. *Distribution of the respondents' knowledge about the importance of Face masks (n=224)*

Role of Facemask	Yes	No
	Frequency (%)	Frequency (%)
Face mask protect from infection	221(98.7)	3(1.3)
Importance of masks for sick and healthy people	220(98.2)	4(1.8)
Effectiveness of cloth mask	135(60.3)	89(39.7)

This study showed 90.2% of respondents knew that a face mask should cover the mouth, nose, and chin, 87.1% knew the taking off the process of the mask, 86.2% knew hands should be washed after disposing of, 79.9% knew that appropriate size of the mask should be used. The majority of the respondents (83%) correctly addressed the process of disposing of the used mask, 69.2% of respondents told that hands should be washed before wearing the mask (Table 3).

Table 3. *Distribution of the respondents' knowledge on usage of face mask (n=224)*

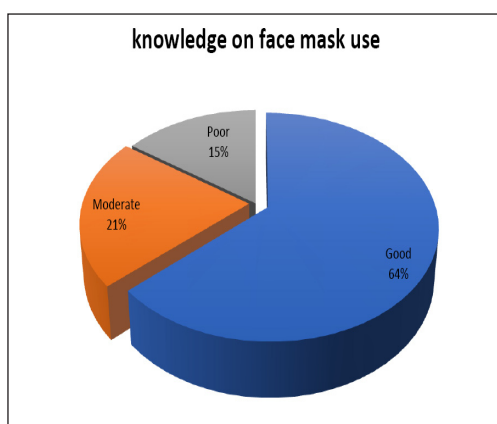| Face mask usage related variables	Yes	No
	Frequency (%)	Frequency (%)
Before wearing mask, hand washing is important	155 (69.2)	69 (30.8)
Appropriate size of mask should be used	179 (79.9)	45 (20.1)
Colored side of surgical mask facing outward	168 (75.0)	56 (25)
Metallic strip over mask should be pressed	167 (74.6)	57 (25.4)
Face mask should cover mouth, nose and chin	202 (90.2)	22 (9.8)
Outer side of the mask should not be touched	188 (83.9)	36 (16.1)
Only the elastic bands should be touched while taking mask off	195 (87.1)	29 (12.9)
Used mask should be disposed in a lidded dustbin	186 (83.0)	38 (17)
Hand should be washed after disposing the mask	193 (86.2)	31 (13.8)

Figure 1. *Categorical representations of respondent's knowledge on face mask use*

In this study revealed that majority of the respondents (63.40%) were good knowledge on face mask use followed by moderate knowledge (21.40%) and poor knowledge (15.20%) respectively. (Figure-1)

The findings of the study depicted that more than half of (54.5%) respondents reported as they always clean their masks, 45.1% of respondents reported as they sometimes disposed of masks in a dustbin whereas 25.9% of respondents never practiced that. 54.9% of respondents reported that they sometimes take off masks while talking and also reuse masks whereas 27.7% never reuse the mask. 68.3% of respondents reported they touch the outside of the mask sometimes. (Table 4)

Table 4. *Distribution of the respondents' practice of using face mask (n=224)*

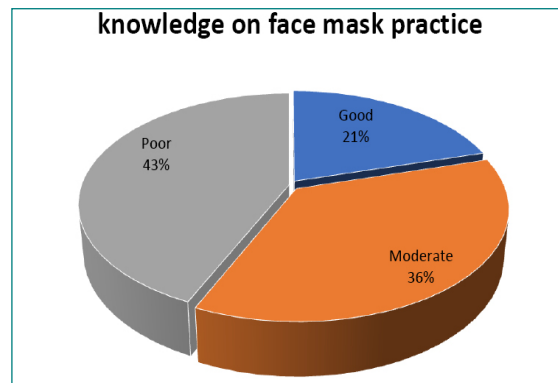| Statement	Always	Sometimes	Never
	Frequency (%)	Frequency (%)	Frequency (%)
Washing hands before wearing face mask	122 (54.5)	96 (42.9)	6 (2.7)
Properly disposed a used mask in a covered bin after use	65 (29.0)	101 (45.1)	58 (25.9)
Take off mask while talking with doctors or others	20 (8.9)	123 (54.9)	81 (36.2)
Reuse face mask	39 (17.4)	123 (54.9)	62 (27.7)
Touch the outside of the mask	32 (14.3)	153 (68.3)	39 (17.4)

Figure 2. *Categorical representations of respondent's knowledge on face mask practice*

In this study revealed that highest of the respondents (43.30%) were poor knowledge on face mask practise followed by moderate knowledge (36.16%) and good knowledge (20.53%) respectively. (Figure-2)

A statistically highly significant (p<0.05) association was found between the educational level of the respondents and respondents' knowledge of face mask utilization. (Table-5)

Table 5. *Association between educational levels of the respondents and respondents' Knowledge on (n=224)*

Educational Level	Respondent Type based on Knowledge Frequency (%)			Total
	Good	**Moderate**	**Poor**	
No formal education	1 (5.56%)	5 (22.22%)	12 (72.22%)	**18**
Completed Primary level	14 (22.73%)	18 (54.55%)	12 (22.73%)	**44**
Completed Secondary level	51(67.12%)	15 (24.66%)	7 (8.22%)	**73**
Completed Higher secondary level	53 (78.13%)	8 (14.06%)	3 (7.81%)	**64**
Graduate/Post graduate	23 (88%)	2 (12%)	0 (0%)	**25**
Total	**142**	**48**	**34**	**224**
X²=82.19	**P-value = 0.000**			

Table 6 revealed that an association was found between the level of knowledge and level of practice on face mask utilization, which was also statistically

significant (p<0.05) that is knowledgeable people had opined on practice for better protection from infectious diseases like COVID-19.

Table 6. *Association between level of knowledge and practice of the respondents on face mask utilization (n=224)*

Knowledge Category	Practice Category Frequency (%)			Total
	Good	**Moderate**	**Poor**	
Good	44 (15.91%)	58 (68.94%)	40 (15.15%)	**142**
Moderate	2 (3.45%)	18 (32.76%)	28 (63.79%)	**48**
Poor	0 (0%)	5 (8.82%)	29 (91.18%)	**34**
Total	**46**	**81**	**97**	**224**
X² = 49.66	**P-value = 0.000**			

Discussion

As the COVID-19 pandemic situation is going on, everybody must take personal protective measures to prevention from the coronavirus. Personal protective measures have achieved the reputation of being a convenient means of preventing communicable diseases. Though it is get necessary to know how the

proper methods of taking personal protective measures to reduce the chance of COVID-19. A cross-sectional descriptive type of study was conducted to assess the state of patients' knowledge and practice on face mask utilization attending the out-patient department of Dhaka Medical College and Hospital. This study also finds out the socio-demographic characteristics of the

respondents and determines the association between knowledge and other characteristics.

According to this study, 33% of respondents belonged to the age group of (18 to 30) years, 25.4% belonged to (31-40) years of age, 26.3% of respondents were from (41-50) age group whereas 15.2% respondents belonged to the (51 to 60) years age group, so most of the respondents were young. The mean age of the respondents was 37.16 (SD ±11.15). The minimum age of the respondent was 19 and the maximum age was 59. Among the respondents, females were 61.20% and males were 38.80%. Another study related to the assessment of knowledge of prevention of coronavirus showed that a total of 1549 participants were interviewed in a cross-sectional study in Bangladesh. Of them, the majority of respondents 897 (57.9%) were male and 646 (41.7%) were female.[12] Similar findings were reported in the study related to knowledge and practice of PPM in Saudi Arabia done by Bazaid et al, (2020) showed that the majority of respondents were young (66.3% aged below 37 years) with the maximum in the age group of 28–37 years old and the majority of respondents were female (58.4%).[13]

In this study 32.6% of respondents completed secondary level, 29% completed higher secondary level, whereas 8% has no formal education and 19.60% of respondents completed primary education, and 11.2% completed graduation/postgraduation. Contradictory results found from another study among Bangladeshi people showed that among the respondents only 1% were illiterate, 4% completed primary education, 15% completed secondary education, and 57% completed their graduation degree or post-graduation.[12] It might be for the data collection method which was based on the online interview as educated people are more familiar with it. This study showed that 62.10% of respondents were from an urban area and 37.90% were from rural areas considering the hospital is located in the capital city of Bangladesh, though it is a tertiary level hospital people used to come there throughout the country. Other similar findings were found in the study regarding KAP towards coronavirus by Rahman SMM et al., (2020) among the total study population of 1549, 87.9% were from cities followed by only 6.8% from villages.[12]

This study showed 98.7% of respondents said that face masks give protection from infection and 98.20% said

it is important to wear a mask for all in the hospital. Similar findings were found in the study regarding face masks 95.5% of respondents said using a face mask is important to tackle infection and 94% said it is important to wear a mask even if you are not ill.[14] A study from Pakistan also revealed that 91% of general people marked face masks as an important preventive measure to tackle COVID-19 infection.[15-16] In this study, 60.30% of respondents agreed that a cloth mask is as effective as a surgical mask and 39.70% did not agree. Dissimilar findings were found in another study by Ahmed et al., 2020 that 82.76% of respondents agreed that a surgical mask is more effective than a cloth mask[14], because the respondents are healthcare providers, not general people.

Following this study 90.2% of respondents knew that a face mask should cover the mouth, nose, and chin, 87.1% knew the taking off the process of the mask, 86.2% knew hands should be washed after disposing of, 79.9% knew that appropriate size of the mask should be used, 75% knew that color side of the mask should be faced outward, 74% knew that metallic strip should be pressed. Also, 83% of respondents knew the process of disposing of used mask and 69.2% of respondents knew that hands should be washed before wearing a mask. Similar findings were found in the study of Ahmed et al., 2020 in which 86.21% of respondents knew that a face mask should cover the mouth, nose, and chin and 100% knew that a metallic strip should be pressed as the respondents were healthcare providers.[14]

Usually, practice is assessed by observation. But in this study due to some limitations, it was not possible to observe each of the respondents' practices. In response to preventative measures, participants were asked to self-report practice. This current study showed that 54.5% of respondents reported that they always clean their hands before wearing a mask. But this result is utterly contradictory to the result found in another study conducted in Hong Kong which mentioned only 8.5% of respondents performed hand hygiene before wearing a mask.[17] The logic behind this mismatched result might be that the current study was conducted during the COVID-19 pandemic and in this situation, people become more health conscious than prior. Only one-third of the participants (29.0) reported that they always disposed a used mask in a lidded bin whereas 25.9% of respondents never

practiced that. A similar kind of results was depicted in a study regarding the practice and technique of using masks.[17] Another study regarding Knowledge and practice towards Covid-19 among chronic disease patients showed that 78.4% of respondents reused masks.[11] However, the present study found that half of the respondents (54.9%) reused sometimes whereas 27.7% never reused face masks.

This study's findings ascertain that the average state of knowledge about face masks was profound, especially among the educated respondents, the reason might be the availability of abundant information disseminated through social media and electronic media during a pandemic, but the practice level wasn't found sufficient enough. To see the association between educational level and knowledge, a chi-square test was performed, and it was found highly significant. Similar findings had shown in a study which was conducted at 93 locations across four Asian countries that knowledge and taking preventive measures were low among disadvantaged socio-economic groups of people.[18]

Conclusion

During the pandemic, Bangladesh faces challenges in multiple sectors like health, economic and social. Nevertheless, the extreme lockdown was responsible for the economic downturn. So, the economic burden can be minimized by the proper utilization of protective measures in the workplace. By which people will be used to with new normal life. In the current study practice of people wasn't found up to the mark compared with knowledge regarding face masks.

Recommendation

In this study, the target group had been revealed from the participants. So health promotional and educational activities should be tailored enough focusing the target audience to cover the knowledge gaps. Improving health education with practical demonstration among the lower socio-economic group of people through mass media as well as engaging the health workers across the country.

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