Community Survey on Wearing Mask to Prevent COVID-19, Bangladesh, 2021

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Authors' contributions

This work was carried out in collaboration among all authors. Author NMC designed the study, wrote the protocol, and wrote the first draft of the manuscript. Author MMOF performed the statistical analysis. Author CNH managed the primary data management and managed the literature searches and Author AH review the protocol and drafting manuscript. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Aims: To understand the mask wearing behavior of people, to identify why people do not wear masks, what obstacles are present, and what suggestions people have to increase mask wearing.
Study Design: It was a cross sectional study.
Place and Duration of Study: In the outpatient department of the government hospital, community clinics and expanded program for immunization centers in Sub district area Monohargonj Upazila (Sub district), Bangladesh from 21st November to 20th December 2020.
Methodology: Mask wearing was categorized as always wear mask in outside or not, reasons for not wearing mask, perception on prevention of COVID-19 and suggested punishment for not wearing mask. The researchers recruited people from 18 years and over from the Government Hospital, community clinics, and Expanded Immunization Program (EPI) centers in Monoharganj

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Upazila, Cumilla District, Bangladesh. The sample size of 384 assumed 50% mask wearing. However, 401 persons were participated in this study. A questionnaire was prepared in local language. Data were collected through face-to-face interview after obtaining verbal informed consent. Interviewers were doctors, nurses, health assistants and community health care providers.

Results: Of the 401 survey participants, 51% of the males always wear mask. Mask wearing was highest among in-service holders (68%), Hindus (67%) and students (61%) and increased with educational level and income. While 73% said a mask can prevent COVID-19 only 48% wore a mask. Of the people who don't wear masks, 39% said it was uncomfortable, 5% felt it did not prevent COVID-19, and 8% thought it did not look nice. Most participants agreed to fine or jail people who don't wear masks.

Conclusion: Wearing masks is a reasonable and economical intervention to prevent COVID-19 transmission. In Bangladesh, many people don't wear masks because its uncomfortable, unattractive, and not protective. The government should encourage people to wear masks and enforce the infection prevention law on wearing masks.

1. INTRODUCTION

In December 2019, the severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) was first identified in Wuhan China [1] and began its worldwide spread [2]. The route of transmission of COVID-19 is inhalation of fine droplets and aerosol particles from infected people [3]. Thus, the World Health Organization (WHO) recommended wearing a mask to prevent the spread of COVID-19 [4].

Non-pharmaceutical interventions such as mask wearing is an effective way to prevent transmission of COVID-19 and has been adopted by many countries [5]. In order to reduce the spread of COVID-19, Bangladesh and other countries motivated people to practice protective behaviors [6]. The Government of Bangladesh implemented a mass awareness program through mass media, health workers, and government services to village level [7] to encourage people to wear masks and social distance [8].

This cross-sectional community survey was conducted in Monohargani Upazilla which is a remote upazila (subdistrict) in Bangladesh. From May 2020 to October 2020, 534 people developed COVID-19 and 17 died. This was much lower than neighboring Upazilas (subdistricts) and attributed to early awareness programs, mask distribution, involvement of local political and religion leaders [9]. The researchers conducted this survey to identify why people do not wear masks, what obstacles are present, and what suggestions people have to increase mask wearing.

2. MATERIALS AND METHODS

This study was a community survey in Monoharganj Upazila of Cumilla District, Bangladesh. The survey was conducted in Monoharganj because this rural area may reflect the behavior and attitude of the people regarding wearing mask. The Upazila is surrounded by low land a rural area and 45 kilometers away from the district township. The income and education status are low in compare to other subdistricts. Residents are low in economic status and the education status is average.

The Upazaila has a population of 300,000 people. Majority of the residents are farmers and small businessmen like shop keeper or vendor. Current per capita income of Bangladeshis are 16660 take (200 USD) and in this Upazila is 10000 taka (120 USD) per month [10] which places it in a low-middle income category. Most of the area is swamp. Education and adaptation of modern facilities is not popular among the people.

The study was conducted from 21st November to 20th December 2020. A questionnaire was prepared, translated to local language including twenty-one questions and piloted in a bazar and revised. The final questionnaire collected demographics, religion, family size and income. Education levels were classified as illiterate, primary school certified (PSC), junior school certified (JSC), secondary school certified (SSC), higher secondary school certified (HSC) and above. Mask wearing was categorized as always wear mask in outside or not, reasons for not

wearing mask, perception on prevention of COVID-19 and suggested punishment for not wearing mask. The researchers recruited people 18 years and above who attended the Government Hospital, community clinics, and Expanded Immunization Program (EPI) centers in Monoharganj Upazila, Cumilla District, Bangladesh. As the questions were more perception based and related to the attitude and behavior, the study does not include the children. Assuming the 50% people wear mask, this study use the prevalence formula to calculate the sample size. Which come out with 384 numbers. However, 401 people participated in this study in different areas. Data processing was done accordingly. Data were entered in MS excel.

Data cleaning and duplication were detected and addressed.

3. RESULTS

The survey had 401 respondents and no refusals. Average age of respondents was 40±13 (SD) years. Most participants were male (72%), 28 to 37 years of age group (35%) and Muslim (93%) (Table 1). The common occupations were businessmen (22%), housewife (22%) and service holders (Government worker, teacher, banker, etc.) (21%). Education level varied from 11% illiterate, 20% above higher secondary. Family size averaged 5 members and ranged from 5-8 members.

Table 1. Demographic comparison in between respondents who wear mask always and who do not in the community survey on wearing mask in Monoharganj Sub-district in Bangladesh, November- December 2020

Demographic characteristics	Mask (always) N (%) N=192	Mask (not always) N (%) N= 209	Total N (%) N= 401
Gender			
Male	147 (51.2)	140 (48.8)	287 (71.6)
Female	45 (39.5)	69 (60.5)	114 (28.4)
Age Groups			
18-27 years	32 (45.1)	39 (54.9)	71 (17.7)
28-37 years	66 (47.5)	73 (52.5)	139 (34.7)
38-47 years	47 (52.8)	42 (47.2)	89 (22.2)
48-57 years	28 (51.9)	26 (48.1)	54 (13.5)
≥58 years	19 (39.6)	29 (60.4)	48 (11.9)
Occupation			
Businessmen	46 (52.3)	42 (47.7)	88 (21.9)
Housewife	25 (29.1)	61 (70.9)	86 (21.5)
Service holder	58 (69.1)	26 (30.9)	84 (21.2)
Student	14 (60.9)	9 (39.1)	23 (5.7)
Others	68 (46.3)	79 (53.7)	119 (29.7)
Religion			
Islam	182 (47.2)	204 (52.9)	386 (96.3)
Hindu	10 (66.7)	5 (33.3)	15 (3.7)
Education			
Illiterate	12 (26.7)	33 (73.3)	45 (11.2)
PSC	23 (23.8)	66 (74.2)	89 (22.2)
JSC	25 (35.7)	45 (64.3)	70 (17.5)
SSC	37 (58.7)	26 (41.9)	63 (15.7)
HSC	38 (69.1)	17 (30.9)	55 (13.7)
Above HSC	57 (72.2)	22 (27.9)	79 (19.7)
Family Member			
≤4	55 (43.7)	71 (56.4)	126 (31.4)
5-8	117 (49.6)	119 (50.4)	236 (58.9)
>8	20 (51.3)	19 (48.7)	39 (9.7)
Mean Expenditure (Taka)	22890 (± 10940)	17885 (± 9204)	

Table 2. Reasons for not wearing mask among those who do not wear mask in the community survey on wearing mask in Monoharganj Sub-district in Bangladesh, November- December 2020

Reasons	Number	Percentage (%)
Not comfortable	15	38.5
It does not work	2	5.1
Not looking nice	3	8.0
Others	19	4.9
Wear alternate method	7	
Limited outside movement	4	
Breathing problem	4	
Others	4	
Total	39	100

Table 3. Perception of punishment for those who don't wear mask in the community survey on wearing mask in Monoharganj Sub-district in Bangladesh, November- December 2020

Type	Frequency	Percentage (%)
Jail	11	3.6
Fine	257	83.2
Jail and Fine	28	9.1
Others	13	3.2
Total	309	100

Table 4. Perception on wearing mask to prevent COVID-19 in compare to those who wear mask always and those who do not always wear a mask in the community survey on wearing mask in Monoharganj Sub-district in Bangladesh, November-December 2020

Perception on wearing mask to prevent COVID-19	N	Mask (always) (N=192)	Mask (not always) (N=209)
Completely	210	112 (53.3)	98 (46.7)
Sometimes	81	47 (58.0)	34 (46.7)
Rare	63	22 (34.9)	41 (65.1)
Not sure	27	4 (14.8)	23 (85.2)
Never	17	7 (41.2)	10 (58.8)

Table 5. Perception on wearing mask to prevent COVID-19 in compare to educational levels in the community survey on wearing mask in Monoharganj Sub-district in Bangladesh, November-December 2020

Perception on wearing mask to prevent COVID	Education						
	Illiterate	PSC	JSC	SSC	HSC	Above HSC	Total
Completely	19 (44.2)	55 (62.5)	27 (38.6)	40 (63.5)	25 (45.5)	44 (55.7)	210 (52.8)
Sometimes	7 (16.3)	11 (12.5)	14 (20.0)	16 (25.4)	15 (27.3)	18 (22.8)	81 (20.4)
Rarely	6 (14.0)	11 (12.5)	19 (27.1)	5 (7.9)	10 (18.2)	12 (15.2)	63 (15.8)
Not sure	6 (14.0)	7 (8.0)	8 (11.4)	2 (3.2)	3 (5.5)	1 (1.3)	27 (6.8)
Never	5 (11.6)	4 (4.6)	2 (2.9)	0 (0.0)	2 (3.6)	4 (5.1)	17 (4.3)
Total	43 (100)	88 (100)	70 (100)	63 (100)	55 (100)	79 (100)	398 (100)

Among the participants, 51% of the males and 40% of the females always wear mask. Mask wearing was highest among service holders (68%) and students (61%). There was little difference in always or not always wearing mask between the ages of 18-57 years and in the 58

years and above group, there more elderly people (60%) who did not always wear mask. Only 30% of the housewives always wear mask. Among the Hindu religious followers 67% wear mask always and 47% for Muslims. Mask wearing increase with increasing educational level and income.

Of the 39 participants who did not wear mask, the reasons for not wearing a mask were that the mask was uncomfortable (39%), that the mask does not look nice (8%), and the perception that the mask does not prevent COVID-19 (5.1%) (Table 2).

All participants agreed that people who don't wear mask should be fined (83%) or jailed (9%). (Table 3) There were 210 people who believed that masks can completely prevent COVID-19 but only 53% always wear mask. 17 people believe that mask does not prevent COVID-19. (Table 4) Among the illiterates, 44% people completely believe that mask can prevent them from getting infected by COVID-19, while 11.6% never believe on it. Among the higher education people (above HSC passed) 55.7% believe that mask can prevent COVID-19 but 5.1% stated that it cannot (Table 5).

4. DISCUSSION

In this rural area in Bangladesh, most people wear a mask but not always. People wear mask because government policy and feel masks are protective but people who do not wear mask because the masks are uncomfortable, unattractive, and not protective.

In this study most males would always wear mask when they get outside of their home but females do not practice this. In Bangladesh, the culture is that males spend more time outside the house than females and have a greater exposure outside the house [11]. Major activity for females outside the house is marketing and don't wear mask because have perception they traditionally use neqab (Veil) which covers all the face except the eyes. Females feel that this acts as a mask but does not protect as a mask.

In this study, majority of the most groups with lots of interactions with people like businessmen, students and service holders do not wear mask always. Those who are directly related with the public were more vulnerable for affected by COVID-19, but wearing mask is not practice by all [12]. However, this study found a similar distribution in occupation like businessmen, house wives and service holders. That may raise the issue of rapid spread of disease from the public places and or social gatherings. In this study, majority of the Hindu religion followers wear mask always but the number is less among the Muslims. A study in Ethiopia reported that religion is one of the factors associated with practicing precautionary measures for COVID-19 prevention such as mask wearing [13].

In this study, the percentage of wearing mask gradually increased from illiterate to above higher secondary school. Other studies show that higher years of education is associated with higher use of mask [14]. In addition, in our study, people who do not wear mask always, has less household income than those who wear mask always. That may reflect the similar findings of this study [13]. The Bangladesh Government encourages people to wear masks but has a limited supply of masks to give free. The cost of surgical masks 5 Taka, cloth masks – 15-20 Taka and may be too expensive for people with low income for daily use.

There is much information on why people don't wear masks. In Canada and the USA, if anyone wears a mask, people think they are sick [15]. In the middle-east countries, their culture emphasized showing their face to recognize the person and avoid wearing a mask because it hinders their freedom [16]. People complain that mask wearing causes difficulty in breathing and hearing [17]. Wearing mask is common practice in Asian countries before the COVID-19 [18] but in South Asian countries wearing mask will be a behavioral change and may need time for adaptation. In Bangladesh, people did not wear a mask before COVID-19 pandemic. However, people with asthma that live in large cities with air pollution may wear masks. Currently, most people wear mask because of fear of illness and death and government requirement of "no mask no service" (sic) where service includes government or private service health care, administrative, or banking [19]. This study and many other studies showed that older people were less likely wear mask than younger people, [20] that mask wearing differed with age, income, occupation, and that men were less likely to wear mask. [21].

This study verified that mask wearing is not a common practice and that's why people don't wear masks in a rural area in Bangladesh. More importantly, this study documented that all the

participants agreed upon giving punishment to those who don't wear masks. The fine should be appropriate for those who do not wear mask. A newspaper article in Bangladesh reported that people who don't wear a mask should be fined 5000 taka [22].

This and other studies demonstrate that wearing a mask can prevent COVID-19 transmission. This primary intervention is cheap and easily achieved, and involves individuals' actions rather than avoiding social gathering, community and business lockdowns, and vaccination.

Mass masking for source control, social distancing and hand hygiene during the COVID-19 pandemic shifts the focus from self-protection to altruism, actively involves every citizen, and is a symbol of social solidarity in the global response to the pandemic[23].

The basic public health practice in response to prevention of SARS-CoV-2 infection is essential to be followed [24]. Every country gives the priority of this behavioral practice regarding this. Wearing mask is one of the major public health interventions among them. Therefore, to prevent the rapid spread, Bangladesh government advised every citizen to follow the public health instructions and to wear mask.

5. CONCLUSION

This study found that, people wear mask to keep themselves protected from COVID-19. However, the major factors that hinders this basic public health practice (wearing masks) are uncomfortable, unattractive, and not protective. Males are predominant who always wear mask. Religion and education have good impact on practicing wearing mask. Majority of the most groups with lots of interactions with people like businessmen, students and service holders do not wear mask always. Participants of this study agreed upon giving punishment to those who don't wear masks. There was no conflict of interest.

6. LIMITATIONS

The study had limitations. The Questionnaire was not validated by the experts. People under the age of 18 was not included in this survey. In this survey was conducted in a very limited scale due to budget constrain.

Comorbidity was not included and could affect mask wearing behavior. The researchers did not collect information on maintenance of mask which would affect the ability of the mask to prevent transmisison. The researchers relied on self-report of mask wearing and not observing mask wearing.

CONSENT

Informed written consent was obtained from the participants after the study objectives and procedures where clearly explained to them.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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