Knowledge, Attitudes, and Practices Associated with COVID-19 Among Rickshaw Pullers of Dhaka, Bangladesh

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Abstract

Background: COVID-19 pandemic has brought a worldwide disaster, and Bangladesh also passes through so many challenges to face this unexpected suddenly arising health problem. On the other hand, rickshaw is the most common and a very convenient way of transport in Dhaka city. Dhaka's 2 million rickshaw pullers are vital to urban transport, but they are socioeconomically vulnerable. We assessed the knowledge, attitude, and practice (KAP) of rickshaw pullers of Dhaka city regarding COVID-19.

Methods: This descriptive cross-sectional study was conducted from 1st to 10th April 2021 among rickshaw pullers who came to Northern International Medical College and Hospital (NIMCH) with patients or passengers. Systematic random sampling was approached every 5th rickshaw puller during morning (06:00-09:00) and evening (17:00-20:00) peaks to select the study population, and the final sample size was 172. The knowledge, attitude, and practice (KAP) of rickshaw pullers regarding COVID-19 were assessed using 10, 5 and 4 questions respectively with a score of 1 for each correct or positive response and 0 for each incorrect or negative response. A score of $\geq$ 50% was considered good and a score of $<$ 50% was considered poor. The data were analysed via SPSS (version 22.0).

Results: In this study, the majority of the participants were 31-50 years of age (48.8%), married (79.1%), living with family members (58.7%) and Muslim (97.1%), while two-fifths (43.6%) could only sign their names. Almost all the participants (95.9%) learned about COVID-19 through television. Rickshaw pullers have poor level of knowledge (47.6% good & 52.4% poor), negative attitude (79.3%) and poor practice (43.8%) of safety protocols regarding COVID-19.

Conclusions: The findings of our study suggest that rickshaw pullers have poor level of knowledge regarding COVID-19, and their attitude towards it is negative, and also they practice COVID-19 safety protocols poorly.

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Introduction

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus. In January 2020, the disease spread worldwide, resulting in the COVID-19 pandemic. Most commonly the symptoms of COVID-19 include fever, cough, tiredness, loss of taste, loss of smell etc, while, headache, sore throat, diarrhoea are less common symptoms. This virus transmits by droplets from asymptomatic or oligosymptomatic and also symptomatic patients through aerosols. Infection with SARS-COV-2, leading to coronavirus disease 2019 (COVID-19) in humans, can result in respiratory syndromes ranging from an uncomplicated upper respiratory tract distress to severe viral pneumonia with multi-organ failure and death. Several COVID-19 vaccines have been approved and distributed in various countries, many of which have initiated mass vaccination campaigns. Other preventive measures include social distancing, quarantining, use of face mask and hand sanitizers etc.[1]

Bangladesh reported its first case on 8 March 2020 and by April 2021 had over 600,000 cases and 9,000 deaths.[2] Lockdowns and public health mandates vital to disease control and disrupt livelihoods, especially for informal workers like rickshaw pullers, who number 2 million in Dhaka and depend on daily earnings.[3, 4]

Rickshaw pullers often lack formal education and live/work in crowded settings, constraining their ability to absorb written health messages and adopt preventive measures. Prior studies among urban poor in Dhaka showed high awareness of key symptoms (fever > 80%, cough > 70%) but poorer practice (mask adherence 58-60%) and

significant vaccine hesitancy (42%).[5-7] However, direct evidence for rickshaw pullers has been lacking.

This study surveyed 172 rickshaw pullers on Dhaka's streets to quantify their COVID-19 KAP, including sources of information, symptom recognition, preventive behaviours, healthcare engagement, and vaccine attitudes. Findings will guide tailored interventions, peer education, distribution of comfortable masks, in-person healthcare navigation support, and mobile vaccination to protect this vital yet underserved grouping.

Materials and methods

A cross-sectional study was done in Northern International Medical College and Hospital (NIMCH), Dhaka from 1st to 10th April 2021. The study was conducted using a structured, pre-formed questionnaire containing the following 4 parts- socio-demographic profile, knowledge, attitudes, and practices regarding COVID-19 disease and its preventive measures. The questionnaire was translated into the native language "Bangla" by the first author. All Rickshaw pullers who had come to NIMCH with patients or passengers during the study period were the study population. Rickshaw pullers who were agreed and had time to take part in the study were included in this study. Systematic random sampling was approached every 5th rickshaw puller during morning (06:00-09:00) and evening (17:00-20:00) peaks to select the study population, and the final sample size was 172.

Inclusion Criteria: Male healthy Rickshaw pullers aged 20-60 years, working in Dhaka, fluent in Bangla, willingly gave consent to take part in the study.

Exclusion Criteria: Severe illness, communication barriers, below 20 or above 60 years of age.

Questionnaire: A 26-item instrument (socio-demographic, knowledge, attitude, practice, source of knowledge and reasons for not taking vaccines) was developed in English and translated into Bangla. Questionnaire was pre-tested on 10 rickshaw pullers before data collection. Demographic characteristics included age, marital status, religion, educational background, and living at Dhaka with family or not. The knowledge, attitude, and practice (KAP) of rickshaw pullers regarding COVID-19 were assessed using 10, 5 and 4 questions respectively with a score of 1 for each correct or positive response and 0 for each incorrect or negative response. A score of ≥ 50% was considered good and a score of < 50% was considered poor. Among the 21 questions regarding knowledge, attitude, and practice of rickshaw pullers associated with COVID-19, 2 questions (Fig. I and Fig. IV) were excluded from the scoring system. The data were entered into Excel and analysed via SPSS (version 22.0).

Data Collection and Ethics: Trained assistants conducted face-to-face interviews (10-15 min), following COVID-19 precautions. Verbal informed consent obtained. The Northern International Medical College Ethical Review Board approved the study.

Results

In this study, the majority of the participants were 31-50 years of age (48.8%), married (79.1%), living with family members (58.7%) and Muslim (97.1%), while two-fifths (43.6%) could only sign their names (Table-I). Almost all the participants (95.9%) learned about COVID-19 through television (Fig.-I).

Table I: Socio-demographic characteristics of the respondents (n =172)

Variable	Number	Percentage
Age group (in years)		
20-30	59	34.3
31-50	84	48.8
51-60	29	16.9
Marital status		
Married	136	79.1
Unmarried	36	20.9
Living at Dhaka		
With family	101	58.7
Without family	71	41.3
Religion		
Muslim	167	97.1
Hindu	5	2.9
Education		
Can sign only	75	43.6
Up to class 5	58	33.7
Up to class 8	25	14.6
SSC	12	6.9
Above SSC	2	1.2

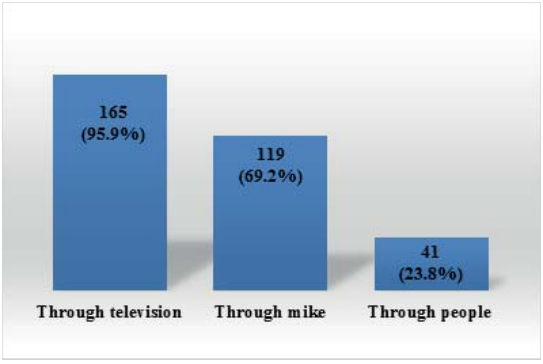

Fig. I: Source of knowledge about Covid-19 (n = 172)

All respondents (100%) who participated in this study had heard about coronavirus, and among them, two-thirds (65.7%) knew that it is a viral respiratory illness. None of the participants got infected with COVID-19 and got tested for any COVID-19 like symptoms till now. Majority of the participants (97.7%) never

experienced any COVID-19 symptoms in past 8-9 months. The majority of the participants (94.2% and 90.7%, respectively) have no knowledge of any special phone number for COVID-19 inquiries and the cost of a COVID-19 test. One-third of the participants (34.3%) know COVID-19 tests are conducted at Dhaka Medical College and Hospital (DMCH), while nearly half (48.3%) know COVID-19 treatment is available at DMCH (Table II). Less than half (47.6%) of the respondents had adequate knowledge regarding COVID-19, while more than half (52.4%) had poor knowledge. Therefore, it can be concluded that the rickshaw pullers had poor level of knowledge regarding COVID-19.

Table II: Knowledge of the respondents regarding COVID-19 (n = 172)

Variable		Number		Percentage	
K1: Heard about coronavirus					
Heard		172		100	
Did not hear		0		0	
K2: Know COVID-19 is a viral respiratory illness					
Knows		113		65.7	
Does not know		59		34.3	
K3: Do you know about the symptoms of COVID-19? (If Yes, then asked the questions of Figure II)					
Yes		166		96.5	
No		6		3.5	
K4: Do you know about the safety protocols of COVID-19?					
(If Yes, then asked the questions of Figure III)					
Yes		172		100	
No		0		0	
K5: Got infected with COVID-19 till now					
Yes		0		0	
No		172		100	
K6: Any COVID-19 like symptoms in past 8-9 months					
Once or twice		4		2.3	
Never		168		97.7	
K7: Knowledge of any special phone number for COVID-19 like symptoms or other related query					
Yes		10		5.8	
No		162		94.2	
K8: Knowledge of any COVID treatment hospital					
Dhaka Medical College	Yes	83	96	48.3	55.9
Kurmitola General Hospital		5		2.9	
Azimpur Maternity		6		3.5	
Mugda Medical College		2		1.2	
No idea	No	76	76	44.1	44.1
K9: Hospitals for COVID-19 test					
Dhaka Medical College	Yes	59	70	34.3	40.7
Azimpur Maternity		4		2.3	
Mugda Medical College		7		4.1	
No idea	No	102	102	59.3	59.3
K10: Cost of COVID-19 test					
Tk. 200-500	Yes	14	16	8.1	9.3
Tk. 2000-3000		2		1.2	
No idea	No	156	156	90.7	90.7

Most of the participants identified fever (96.5%) and cough (94.2%) as common symptoms of COVID-19, while about two-thirds (68%) recognized sore throat as a common symptom as well (Fig.-II). Half of the participants (52.4%) had the knowledge about the preventive measures against COVID-19 like wear masks, wash their hands and maintain physical distance (Fig.-III).

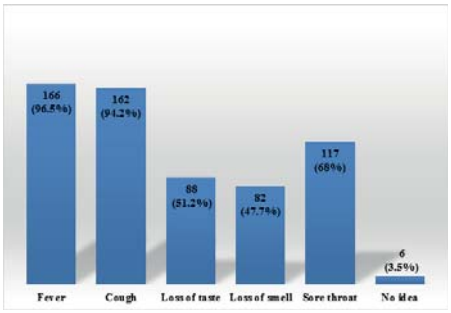

Fig.-II: Knowledge about the symptoms of COVID-19 (n = 172)

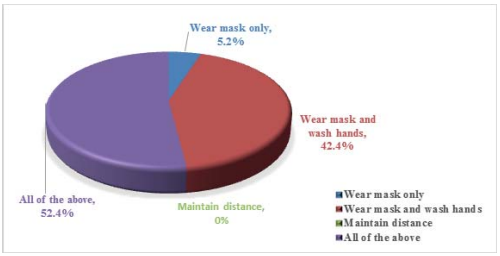

Fig.-III: Knowledge about the safety protocols of COVID-19 (n = 172)

Only 1.7% of participants took symptomatic treatment when symptoms were present, while none got tested for any COVID-19-like symptoms. More than two-fifths of the participants (43.6%) returned to their hometown when the government announced the lockdown, while nearly one-third (28.5%) wanted to but were unable to do so. More than half of the participants (53.5%) tried but could not maintain isolation. None of the participants is interested in taking the COVID-19 vaccine (Table III). Only one-fifth (20.7%) of the respondents have a positive attitude, while the rest (79.3%) have a negative attitude towards COVID-19.

Table III: Attitude of the respondents regarding COVID-19 (n = 172)

Variable		Number		Percentage	
A1: Treatment if symptoms were present					
Hospital treatment	Positive	0	3	0	1.7
Symptomatic treatment		3		1.7	
No treatment	Negative	169	169	98.3	98.3
A2: Got tested for any COVID-19 like symptoms					
Yes (Positive)		0		0	
No (Negative)		172		100	
A3: What did you do after the government announced the lockdown?					
Returned to hometown	Positive	75	124	43.6	72.1
Wanted to but could not		49		28.5	
Stayed at Dhaka	Negative	48	48	27.9	27.9
A4: Isolation of 14 days of the ones who returned to hometown (n = 75)					
Maintained	Positive	11	51	14.7	68
Tried but could not		40		53.3	
Did not maintain	Negative	24	24	32	32
A5: Will you take the COVID-19 vaccine?					
Yes (Positive)		0		0	
No (Negative)		172		100	

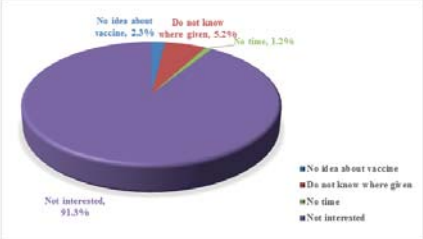

Figure-IV: Reasons for not taking vaccine (n = 172)

Almost one-third of the participants (29.1%) wear masks perfectly, while two-fifths (38.9%) never wear masks. Among 105 participants who wear masks, the majority (68.6%) change or wash their masks daily, while only 3.7% never do so. Three-fourths (74.3%) reported using masks every day, while only one-tenth (13.3%) use them rarely. The majority of the participants (84.3%) always wash their hands (Table-IV). More than half (56.2%) of the respondents practices safety protocols of COVID-19 on a regular basis, while less than half (43.8%) rarely or never do so. Based on this result we can suggest that rickshaw pullers practices safety protocols of COVID-19 poorly.

Table-IV: Practice (maintaining the safety protocols) of the respondents regarding COVID-19 (n = 172)

Variable		Number		Percentage	
P1: Wears mask (n = 172)					
Perfectly	Good	50	92	29.1	53.5
Partially correct		42		24.4	
Incorrect	Poor	13	80	7.6	46.5
Never		67		38.9	
P2: Change or wash mask (n =105)					
Daily	Good	72	72	68.6	68.6
Once a week		20		19.1	31.4
Rarely	Poor	9	33	8.6	
Never		4		3.7	
P3: Mask usage (n = 105)					
Every day	Good	78	78	74.3	74.3
Sometimes	Poor	13	27	12.4	25.7
Rarely		14		13.3	
P4: Wash hands (n = 172)					
Always	Good	145	145	84.3	84.3
Sometimes	Poor	27	27	15.7	15.7
Never		0		0	

Discussion

COVID-19 infections in Bangladesh have continued to rise exponentially with widespread community transmission, placing the country among the top 20 worldwide with the highest rates of COVID-19 spread.[8] Amid this catastrophic situation, low-income groups and the poorest, particularly rickshaw pullers in Bangladesh remain the most vulnerable.[9]

No studies have been conducted on the knowledge, attitude, and practice of rickshaw pullers regarding COVID-19 to date. However, some studies among slum dwellers and lower-middle- and lower-income groups have been conducted, which are similar to our study.

The present study was conducted to assess the level of KAP regarding COVID-19 among rickshaw pullers at Dhaka city in Bangladesh. A similar study assessing KAP regarding COVID-19 was conducted in Dhaka city among slum dwellers.[10] Our study found that, less than half (47.6%) of the respondents had adequate knowledge regarding COVID-19, while more than half (52.4%) had poor knowledge. It implies that rickshaw pullers have poor level of knowledge regarding COVID-19. This finding is expected, as rickshaw pullers belong to a marginalized section of society, characterized by limited education and low economic status.[11]

The study revealed that mass media (e.g., television, radio) served as the primary source of knowledge about COVID-19. This contrasts with recent KAP studies among the general population in Bangladesh, where social media platforms (e.g., facebook) were reported as the most common source of information.[12,13] This finding can be justified by the fact that the majority of the rickshaw pullers do not have internet access as a result very few rickshaw pullers relying on social media such as Facebook to gather information regarding COVID-19.[10]

According to the findings of this study, most respondents (79.3%) showed a negative attitude towards COVID-19. However, a study conducted on slum dwellers reported the opposite result, where the majority (87.9%) showed a positive attitude towards COVID-19 [10]. Another study on KAP towards COVID-19 among Bangladeshi people showed a similar result.[14]

Just like the respondents' poor knowledge regarding COVID-19, their practice of safety protocols is also poor (56% good practice vs 43.8% poor practice). The study conducted on slum dwellers showed that, a notable proportion (81.7%) of the slum dwellers in Bangladesh had good preventive practices to COVID-19.[10]

Limitations

1. Self-reported data may overestimate desirable behaviours; street-based sampling excludes night-shift pullers.

2. Attitudes and practices may have evolved since survey.

3. The study was conducted only in Dhaka over a short period of time with a relatively small sample size, so this study may not reflect the picture of the entire country.

Conclusion

Findings from this study revealed that the majority of the rickshaw pullers have limited knowledge, negative attitude and poor practices towards COVID-19. These are not satisfactory they are still in a life-threatening condition due to their cramped housing condition where preventive practices such as personal

hygiene and maintaining physical distancing are unrealistically impossible. Therefore, immediate implementation of and culturally sensitive health education together with better housing and providing adequate facilities favourable for precautions against COVID-19 is desperately needed to help people encourage an even more positive mindset and maintain appropriate preventive practices and combat against this pandemic.

References

1. WHO Coronavirus Dashboard, 2021
2. IEDCR Bangladesh COVID-19 Updates. 2021
3. Yasmin F, Aurora A. Attitude and Knowledge towards COVID-19 Vaccination among Women in Chattogram, Bangladesh. Chatt Maa Shi Hosp Med Coll J [Internet]. 2022 May 19 [cited 2025 Sep. 11];21(1):26-30.
4. Anwar S, Araf Y, Newaz Khan A, Ullah MA, Hoque N, Sarkar B, Reshad RAI, Islam R, Ali N, Hosen MJ. Women's Knowledge, Attitude, and Perceptions Toward COVID-19 in Lower-Middle-Income Countries: A Representative Cross-Sectional Study in Bangladesh. Front Public Health. 2020 Nov 17; 8:571689.
5. Talukder A, Islam MN, Sarker M, Goswami I, Siddiqua RR, Akter F, Chowdhury S, Chowdhury IA, Rahman AU, Latif M. Knowledge and practices related to COVID-19 among mothers of under-2 children and adult males: a cross-sectional study in Bangladesh. BMJ Open. 2022 May 27;12(5):e059091.
6. Kumar B, Pinky SD, Nurudden AM. Knowledge, attitudes and practices towards COVID-19 guidelines among students in Bangladesh. Soc Sci Humanit Open. 2021;4(1):100194.
7. Kabir AA, Akhter F, Sharmin M, Akhter K, Begum MB, Saha AK, et al. Knowledge, Attitude and Practice of Staff nurses on Hospital Acquired Infections in tertiary care Hospital of Dhaka city. Northern Int. Med. Coll. J. [Internet]. 2018 Dec. 20 [cited 2025 Sep. 11];10(1):347-50.
8. World Health Organization. WHO Coronavirus Disease (COVID-19) Dashboard. 2020 [20 September 2020]. Available from: https://covid19. who.int/
9. Banik R,Rahman M, Sikder Tetal.SARS-CoV-2 pandemic: an emerging public health concern for the poorest in Bangladesh. Public Heal Pract 2020; 100024.
10. Islam S, Emran GI, Rahman E, Banik R, Sikder T, Smith L, Hossain S. Knowledge, attitudes and practices associated with the COVID-19 among slum dwellers resided in Dhaka City: a Bangladeshi interview-based survey. J Public Health (Oxf). 2021 Apr 12;43(1):13-25.
11. Rokanuzzaman M, Ali M, Hossain M et al. Study on livelihood status of slum dwellers in the North Dhaka City Corporation. J Environ Sci Nat Resour 2015;6(2):89–95.
12. Farhana DKM. Knowledge and perception towards novel coronavirus (COVID-19) in Bangladesh. Int Res J Bus Soc Sci 2020;5(2):76–87.
13. Banik R, Rahman M, Sikder DM et al. Investigating knowledge, attitudes, and practices related to COVID-19 outbreak among Bangladeshi young adults: a web-based cross-sectional analysis. Res Sq 2020.
14. Ferdous MZ, Islam MS, Sikder MT et al. Knowledge, attitude, and practice regarding COVID-19 outbreak in Bangladeshi people: an online-based cross-sectional study. medRxiv 2020.