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ASSESSMENT OF RICKSHAW PULLERS' KNOWLEDGE, ATTITUDE, AND SAFETY PRACTICES REGARDING COVID-19 INFECTION

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ABSTRACT

Background: The COVID-19 pandemic has prompted a comprehensive reevaluation of knowledge, attitudes and safety practices (KAsP) across diverse populations including rickshaw pullers. **Aim:** To assess the knowledge, attitude and safety practices regarding COVID-19 among rickshaw pullers. **Materials and Method:** A cross-sectional study was conducted among 187 rickshaw pullers in selected areas of Dhaka City from January to December 2020. Participants aged ≥18 years were conveniently sampled. Data were collected via face-to-face interviews using a pre-tested semi-structured questionnaire covering socio-demographics, COVID-19 knowledge, attitudes, and safety practices. **Results:** Most respondents revealed average levels of knowledge (45.5%) and safety practices (87.7%), but majority (94.1%) unveiled negative attitude. The level of knowledge was found to be statistically significantly associated with marital status, type of family, job loss due to the pandemic, and ownership of a homestead, with $p \leq 0.05$. Similarly, the level of practice showed significant associations with marital status, education, and monthly family income, with $p \leq 0.05$. The level of attitude was found to be statistically significantly associated with monthly family income, with $p \leq 0.05$. The correlations between knowledge, safety practices, and attitude regarding COVID-19 among rickshaw pullers findings indicate that a positive correlation exists between the level of knowledge and attitude ($p \leq 0.05$).Also a positive correlation was evident between attitude and knowledge levels ($p \leq 0.05$).**Conclusion:** The study revealed that majority of respondents had negative attitudes, while a significant number showed average levels of knowledge and safety practices. This study provided important insights for targeted interventions focused on improving rickshaw pullers' comprehension of COVID-19 safety measures.

Keywords: KAsP, COVID-19, Rickshaw pullers, Dhaka City, Bangladesh.

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INTRODUCTION

The development of the novel coronavirus disease 2019 (COVID-19) pandemic has caused a significant change in the worldwide landscape in recent years[1,2]. A thorough reevaluation of prevalent practices, behaviors, and attitudes across many cultures has been prompted by the virus's rapid spread and profound effects on public health systems, economics, and society dynamics[3,4]. Urban workers, especially rickshaw pullers, are among the many vulnerable populations severely impacted by the pandemic. Because of the nature of their work, they are at the intersection of economic necessity and increased vulnerability to the virus[5,6]. Dhaka City, Bangladesh's bustling capital is a dynamic yet densely populated urban hub that has been radically and visibly impacted by the pandemic.

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The city, known for its vibrant streets and complicated network of rickshaws, has become emblematic of the hardships encountered by laborers whose livelihoods rely on daily wages[7].Of these workers, rickshaw pullers make up a significant portion of Dhaka's informal economy. Their occupation requires them to be in direct contact with passengers from a variety of backgrounds, which may increase their susceptibility to Covid-19 transmission[8]. It is crucial to comprehend the safety measures, attitudes, and knowledge of rickshaw pullers regarding COVID-19, not only for their own welfare but also for the broader context of public health initiatives meant to slow the virus's spread[9,10]. Previous studies have provided little information about how to quantify the level of COVID-19 awareness, attitudes towards safety precautions, and the use of preventative measures in this particular occupational group[4,11-13]. In the perspective of the COVID-19 pandemic in Dhaka City, an effort must be made to close this information gap by exploring the complex experiences of rickshaw pullers[10,14].

Individuals should base their activities and practices on their knowledge and attitude towards COVID-19 in order to reduce the risk of infection[4,15]. Designing successful preventive measures requires a thorough understanding of COVID-19, including the methods of transmission[16-18].Prior research has shown that different demographic and geographic locations have varying levels of knowledge about COVID-19, with factors including education, information availability, and cultural attitudes affecting the depth of knowledge[19-25]. In addition, attitudes on the virus, including views on vulnerability, severity, and personal accountability, have been associated to practicing safety precautions[6,26,27].

Rickshaw pullers are in close personal contact with their passengers all the time during work, which greatly increases their risk of contracting the infection[14]. Following safety precautions including hand washing, social separation, and face mask use can help stop the disease from spreading[4,7,28]. In the exclusive urban setting of Dhaka, this research was done to provide an extensive understanding regarding the knowledge, attitudes and safety practices of rickshaw pullers with regards to COVID-19. By a detailed assessment into these aspects, the study aims to put through valuable insights which can guide public health policies and intervention strategies which will be particularly designed for this vulnerable population. Through this scholarly inquiry, the goal is to bridge the existing knowledge gap concerning the experiences of rickshaw pullers during the pandemic, thereby facilitating evidence-grounded measures to ameliorate their well-being and to contribute harmoniously to the overarching objective of curbing the propagation of COVID-19.

MATERIALS AND METHOD

This cross-sectional study carried out to assess the knowledge, attitudes, and safety practices related to COVID-19 among rickshaw pullers. Dhaka City, the capital of Bangladesh, was purposefully selected as the study location due to its high population density and the extensive use of rickshaws as a primary mode of transportation. Data were collected from various areas within the city, including Rayerbazar, Old Dhaka, Bosila, and Kamrangirchar.

A total of 187 individuals were conveniently selected from the specified areas of Dhaka City. The selection criteria included individuals aged 18 and older who were actively engaged in rickshaw pulling and willing to participate in the study.

Data were collected through face-to-face interviews using a pre-tested semi-structured questionnaire from January to December 2020, based on the respondents'

convenience. The questionnaire was optimized in collaboration with public health experts from the National Institute of Preventive and Social Medicine[29,30]. The questionnaire was divided into four sections: socio-demographic characteristics, knowledge about COVID-19, attitude towards COVID-19, and safety practices related to COVID-19. The knowledge section included multiple-choice questions assessing respondents' awareness of symptoms, transmission mechanisms, and preventive measures. Attitudes that were examined included participants' views on the severity of the disease and their role in preventing its spread. Safety practices were assessed by asking about the participants' adherence to mask-wearing, hand hygiene, and physical distancing. The levels of knowledge, attitude, and practice were categorized according to Bloom's cut-off points: good (80–100%), average (60–79%), and poor (<60%)[31].

Data was entered, curated, and analyzed using IBM SPSS Version 26 (New York, USA). Descriptive statistics were expressed as frequency (percentage) and mean (±standard deviation, or SD) for categorical and continuous data, respectively. Chi-square test and Fisher exact test were used to assess the significance of associations between two nominal variables.A *p*-value of <0.05 at a 95% confidence interval (CI) was considered significant for all statistical tests.

Prior to participating in the study, each participant obtained written informed permission. Participants were assured of the secrecy and anonymity of their responses. Ethical approval for the study was granted by the National Institute of Preventive and Social Medicine (NIPSOM), Dhaka 1212, Bangladesh (Reference: NIPSOM/IRB/2020/1225).

RESULTS

Table 1 presents the socio-demographic characteristics of the respondents. The majority (46.0%) were aged between 31 and 43 years. Most respondents were illiterate (40.6%), married (92.5%), and part of nuclear families (67.4%) with four or fewer members (44.4%). A large majority (96.3%) reported experiencing a decline in income due to the COVID-19 pandemic, although 75.9% did not lose their jobs. (Figure 1) Regarding technology usage, 95.7% of respondents owned mobile phones, but 87.2% did not use the internet on their devices. Additionally, 73.8% of participants reported having access to television (Figure 2).

Table 2 indicates that the majority of participants were aware that COVID-19 was a contagious disease (98.4%) and that it spreads through coughing, sneezing, infected individuals, and contaminated surfaces. However, there were some knowledge gaps, as only 62.6% understood that COVID-19 does not spread through Chinese products. Most respondents were familiar with the symptoms of the virus and believed there was no specific treatment (79.7%) or vaccine (80.7%) available. Furthermore, 99.5% acknowledged the importance of hand-washing in preventing the disease. However, misconceptions persisted, such as the belief that the virus is transmitted by mosquitoes (82.4%) or flies (84%).

The distribution of respondents based on their attitude toward COVID-19 reveals that nearly all participants had heard of the virus (99.5%). However, only a small percentage was inclined to self-diagnose a COVID-19 infection (3.2%) or get tested for the virus (9.1%). Similar patterns were observed regarding their attitude toward other family members. Additionally, 82.9% stated they would seek medical assistance at a hospital if needed, while 48.7% mentioned they would purchase antibiotics over-the-counter, often without a prescription.

The participants demonstrated strong adherence to safety practices. Most followed proper cough etiquette (99.5%), washed their hands (100%), used hand sanitizers (80.2%), wore face masks (98.4%), and maintained social distancing (89.8%). However, some gaps were identified, such as not using tissues when coughing or sneezing (94.1%) and not sanitizing their mobile phones (93.6%). While respondents maintained hygiene at home, their safety practices outdoors were found to be more limited.

Table 3 indicates that most respondents demonstrated average levels of knowledge (45.5%) and safety practices (87.7%), yet a striking majority (94.1%) exhibited negative attitude.

In Table 4, the level of knowledge was found to be statistically significantly associated with marital status (p=0.032), type of family (p=0.027), job loss due to the pandemic (p=0.040), and ownership of a homestead (p=0.001), with $p \leq 0.05$. Similarly, the level of practice showed significant associations with marital status (p=0.020), education (p=0.005), and monthly family income (p=0.038). The level of attitude was found to be statistically significantly associated with monthly family income (p=0.006), with $p \leq 0.05$ (Table 5).

Table 6 presents the correlations between knowledge, safety practices, and attitude regarding COVID-19 among rickshaw pullers. The findings indicate no significant correlation between respondents' level of knowledge and safety practices. However, a positive correlation exists between the level of knowledge and attitude. Similarly, no correlation was observed between safety practices and attitude, but a positive correlation was evident between attitude and knowledge levels.

Table 1: Socio-demographic characteristics of the rickshaw pullers (n=187)

Characteristics		n(%)
Age (in years)	18-30	71(38.0)
	31-43	86(46.0)
	44-56	21(11.2)
	>56	9(4.8)
	Mean±SD	35.0±11.1
Education	Illiterate	76(40.6)
	Primary	65(34.8)
	Secondary	37(19.8)
	Higher secondary (HS)& above	9(4.8)
Marital status	Single	14(7.5)
	Married	173(92.5)
Type of family	Nuclear	126(67.4)
	Joint	61(32.6)
Number of family members	≤4	83(44.4)
	5-6	76(40.6)
	>6	28(15.0)
	Mean±SD	5.2±2.4
Monthly family income (BDT)	≤18,000	163(87.2)
	18,001-32,000	21(11.2)
	>32,000	3(1.6)
	Mean±SD	11,855.6±7,431.0
Having own homestead	Yes	139(74.3)
	No	48(25.7)

n=number of participants

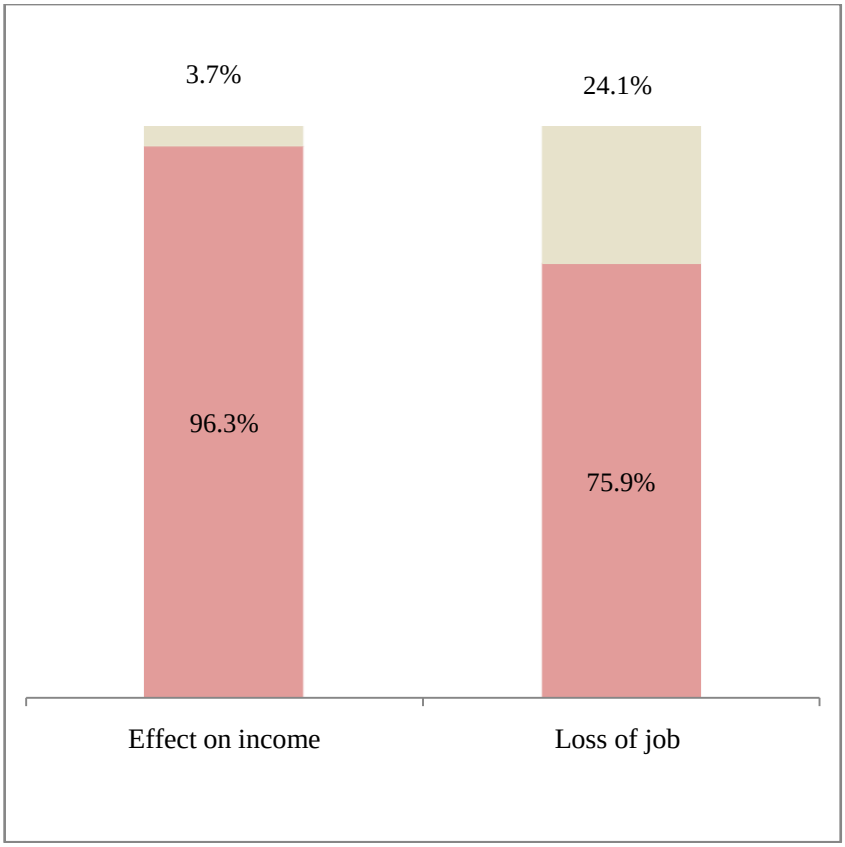

Figure-1: Effect of COVID pandemic (n=187). n=number of participants

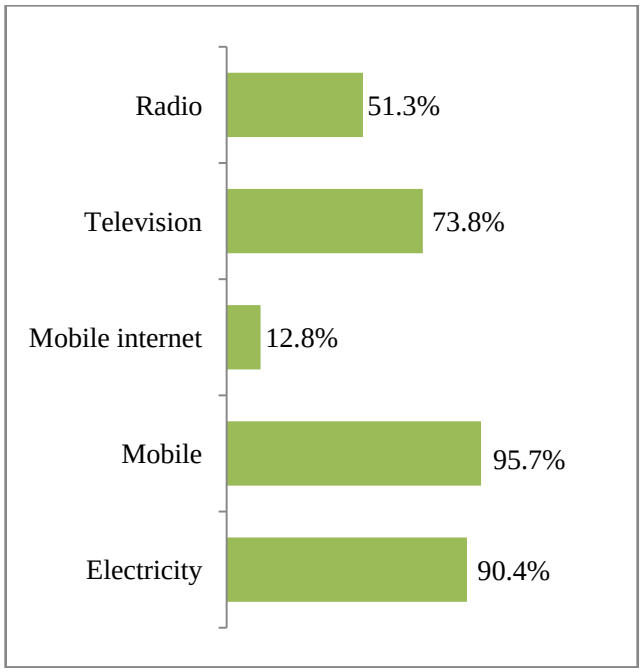

Figure-2: Utilization of technology (n=187).n=number of participants

Table 2: Knowledge, attitude and safety practices on COVID-19 (n=187)

Attributes		**Correct responses**
Knowledge regarding COVID-19		**f (%)**
COVID-19 is a contagious disease		184 (98.4)
COVID-19 spread from	Coughing	183 (97.9)
	Sneezing	183 (97.9)
	Infected person	183 (97.9)
	Infected animals	144 (77.0)
	Touching contaminated surface	174 (93.0)
	Not isolating infected individuals	181 (96.8)
	Contaminated food	171 (91.4)
	Eating on a common plate	108 (57.8)
	Touching the mouth with contaminated hands	186 (99.5)
	Touching nose with contaminated hands	186 (99.5)
	Touching eyes with contaminated hands	179 (95.7)
	Going to a crowded place	186 (99.5)
	Mosquitos	33 (17.6)
	Flies	30 (16.0)
	Using Chinese products	70 (37.4)
		*Multiple responses
Symptoms of COVID-19	Fever	185 (98.9)
	Cough	185 (98.9)
	Sore throat	180 (96.3)
	Difficulty in breathing	179 (95.7)
		*Multiple responses
Currently any treatment available for the disease		38 (20.3)
Currently any vaccine available for the disease		36 (19.3)
The disease is more severe in people with	Cancer	155 (82.9)
	Diabetes	166 (88.8)
	Asthma	177 (94.7)
		*Multiple responses
Hand-washing is important for preventing this disease		186 (99.5)
Alcohol-based sanitizer alone can kill the virus		43 (23.0)
Soap water alone can kill the virus		80 (42.8)
Detergent alone can kill the virus		71 (38.0)
Bleaching powder alone can kill the virus		65 (34.8)
Chlorinated water alone can kill the virus		47 (25.1)
Water alone can kill the virus		19 (10.2)
COVID-19 only affects humans		68 (36.4)
Attitude toward COVID-19		
Heard of COVID-19 pandemic		186(99.5)
Ever infected by COVID-19		6(3.2)
Ever undergone COVID-19 (RT-PCR) test		17(9.1)
Monitor fever after being a COVID-19 suspected case		171(91.4)
Take antibiotics from a pharmacy without prescription being a COVID-19 suspected case		91(48.7)
Go to the doctor being a COVID-19 suspected case		151(80.7)
Go to the hospital being a COVID-19 suspected case		155(82.9)
Go to local/ traditional healers being a COVID-19 suspected case		18(9.6)
Do test being a COVID-19 suspected case		164(87.7)
Won't you go out being a COVID-19 suspected case		42(22.5)
Will hide from others being a COVID-19 suspected case		23(12.3)
Any family member ever gets infected by COVID-19		9(4.8)

Table 2: Continued

Knowledge regarding COVID-19		f (%)
Any family member has ever undergone COVID-19 (RT-PCR) test		16(8.6)
Safety practices on COVID-19		
Ways of preventing COVID-19	Maintain cough etiquette	186(99.5)
	Hand washing with soap water	187(100.0)
	Using hand sanitizer	150(80.2)
	Using facemask	184(98.4)
	Maintain social distancing	168(89.8)
	Avoid unnecessary outing	14(7.5)
	Avoid frequent touching mouth	186(99.5)
	Avoid frequent touching nose	186(99.5)
	Avoid frequent touching eyes	185(98.9)
	Eating well cooked foods	186(99.5)
		*Multiple responses
Maintenance of personal hygiene	Creating awareness among people	185(98.9)
	Use of tissue/ handkerchief during coughing, sneezing	11(5.9)
	Clean mobile phone with sanitizer	12(6.4)
	Change of dress while coming from outside	140(74.9)
Maintenance of a healthy lifestyle	Sleeping for 6-8 hours	175(93.6)
	Avoiding smoking	41(21.9)
	Avoiding Drug addiction	158 (84.5)
	Maintaining balanced diet	159 (85.0)
		*Multiple responses
Precautions taken for safeguarding family	Temporary closure of outsider entry	130 (69.5)
	Arrange hand washing with soap in indoor	145 (77.5)
	Arrange hand washing with soap on outdoor	55 (29.4)
		*Multiple responses

n=number of participants

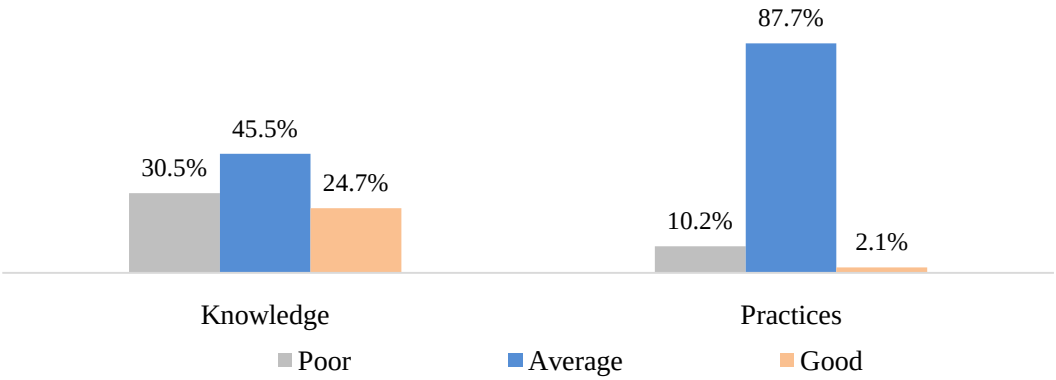

Figure-3: Level of knowledge, and safety practices on COVID-19 (n=187).n=number of participants

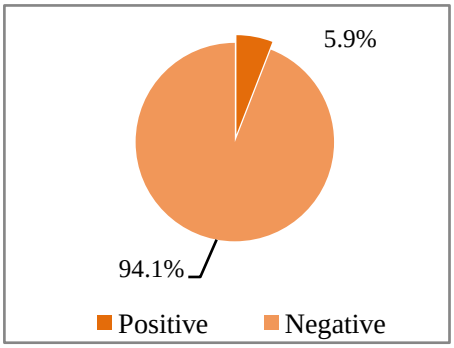

Figure - 4: Level of attitude on COVID-19 (n=187). n=number of participants

Table 4: Association between level of knowledge and safety practices with different variables

Variables		Total	Level of knowledge			*p*-value
			Poor	Average	Good	
			n (%)	n (%)	n (%)	
Marital status	Single	14	0(0.0)	9(64.3)	5(35.7)	†0.032
	Married	173	5(2.9)	151(87.3)	17(9.8)	
Type of family	Nuclear	126	5(4.0)	102(81.0)	19(15.1)	†0.027
	Joint	61	0(0.0)	58(95.1)	3(4.9)	
Job lost due to pandemic	Yes	44	1(2.2)	34(75.6)	10(22.2)	†0.040
	No	142	4(2.8)	126(88.7)	12(142)	
Having Homestead	Yes	139	0(0.0)	122(87.8)	17(12.2)	†0.001
	No	48	5(10.4)	38(79.2)	5(10.4)	
Monthly family income (BDT)	≤18,000	163	5(3.1)	141(86.5)	17(10.4)	0.390
	18,001-32,000	21	0(0.0)	16(76.2)	5(23.8)	
	>32,000	3	0(0.0)	3(100)	0(0.0)	
			Level of practices			
			Poor	Average	Good	
			n(%)	n(%)	n(%)	
Marital status	Single	14	2(14.3)	10(71.4)	2(14.3)	†0.020
	Married	173	17(9.8)	154(89.0)	2(1.2)	
Education	Illiterate	76	3(3.9)	72(94.7)	1(1.3)	†0.005
	Primary	65	7(10.8)	57(87.7)	1(1.5)	
	Secondary	37	7(18.9)	29(78.4)	1(2.7)	
	HS & above	9	2(22.2)	6(66.7)	1(11.1)	
Monthly family income (BDT)	≤18,000	163	1811.0)	143(87.7)	2(1.2)	†0.038
	18,001-32,000	21	1(4.8)	19(90.5)	1(4.8)	
	>32,000	3	0(0.0)	2(55.7)	1(33.3)	

Chi-square test and †Fisher exact test done, $p<0.05$ considered as statistically significant value.

Table 5: Association between levels of attitude different variables

Variables		Total	Level of attitude		*p*-value
			Negative	Positive	
			n(%)	n(%)	
Age group (years)	18-30	71	68(95.8)	3(4.2)	†0.925
	31-43	86	83(96.5)	3(3.5)	
	44-56	21	20(95.2)	1(4.8)	
	>56	9	9(100)	0(0.0)	
Marital status	Single	14	13(92.9)	1(7.1)	0.425
	Married	173	167(96.5)	6(3.5)	
Type of family	Nuclear	126	121(96.0)	5(4.0)	0.816
	Joint	61	59(96.7)	2(3.3)	
Having Homestead	Yes	139	135(97.1)	4(2.9)	0.289
	No	48	45(93.8)	3(6.3)	
Number of family members	≤4	83	81(97.6)	2(2.4)	0.769
	5-6	76	72(94.7)	4(5.3)	
	>6	28	27(96.4)	1(3.6)	
Monthly family income (BDT)	≤18,000	163	130(79.8)	33(20.2)	0.006
	18,001-32,000	21	13(61.9)	8(38.1)	
	>32,000	3	1(33.3)	2(66.7)	

Chi-square test and †Fisher exact test done, $p<0.05$ considered as statistically significant value

Table 6: Correlation between level of knowledge, attitude and safety practice (n=187)

			Level of knowledge	Level of practices	Level of attitude
Level of knowledge	Posterior	Mode		0.015	0.104
		Mean		0.015	0.102
		Variance		0.005	0.005
	95% CI	Lower Bound		-0.126	-0.038
		Upper Bound		0.157	0.242
Level of practices	Posterior	Mode	0.015		-0.118
		Mean	0.015		-0.116
		Variance	0.005		0.005
	95% CI	Lower Bound	-0.126		-0.256
		Upper Bound	0.157		0.025
Level of attitude	Posterior	Mode	0.104	-0.118	
		Mean	0.102	-0.116	
		Variance	0.005	0.005	
	95% CI	Lower Bound	-0.038	-0.256	
		Upper Bound	0.242	0.025	

$p<0.05$ considered as statistically significant value. n=number of participants

DISCUSSION

The study uncovered a mixture of accurate and insufficient knowledge among rickshaw pullers regarding COVID-19. While a substantial proportion was aware about the contagious nature of the disease and recognized common transmission modes, certain misconceptions about transmission through Chinese products, mosquitoes and flies were found. Similar knowledge gaps were also observed in previous studies conducted in Bangladesh[2,6,10], focusing the need for targeted educational awareness programs to eliminate misconceptions and ensure accurate information dissemination. Moreover, the recognition of symptoms such as fever, cough, and difficulty in breathing was significant[17,21,32], suggesting that rickshaw pullers were aware of potential signs of infection[18,19].

The attitudes of rickshaw drivers toward COVID-19 reflected a mix of hesitancy and ignorance[13]. While most respondents were aware of the pandemic, only a few recognized the importance of getting tested and diagnosed, possibly due to limited access to laboratories and healthcare facilities[14,33]. On a positive note, there was some responsiveness to health concerns, as many were willing to seek medical assistance and visit a physician if they suspected an infection. However, a concerning trend was the tendency to purchase over-the-counter antibiotics for self-treatment, raising concerns about antimicrobial resistance and the irrational use of medications.[7,19,34]

The findings of this study also revealed that rickshaw pullers generally adhered to certain safety precautions, such as hand-washing, wearing masks, and maintaining social distancing. These practices reflect a level of awareness about preventive measures and align with health authority guidelines. However, other important practices, such as using tissues when coughing or sneezing and sanitizing their cell phones, were notably absent. Financial constraints and the irregular nature of their work may limit the ability of rickshaw pullers to fully implement these practices[13,14]. The lack of provisions for outdoor safety measures further emphasizes the need for community-based actions and facilities.

CONCLUSION

This study provides valuable insights into the safety practices, attitudes, and knowledge of rickshaw pullers in Dhaka City in the context of COVID-19. The findings underscore the importance of tailored interventions that address the specific challenges faced by this population, aiming to enhance their safety behaviors, attitudes, and understanding. By considering these factors, such interventions could help reduce COVID-19 transmission across Dhaka City and beyond.

AUTHOR'S CONTRIBUTION

Conceptualization, methods and literature reviews: Kairy R, and Hossain I; Data collection: Kairy R; Statistical analysis: Kairy R, and Nurunnabi M; Draft manuscript: Kairy R, Nurunnabi M, and Hossain I. All the authors work and approved the final manuscript.

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CONFLICT OF INTEREST

There is no conflict of interest.

FINANCIAL DISCLOSURE

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