

Perception of Slum Dwelling Adults Regarding COVID-19 Vaccination

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ABSTRACT

Background: The SARS-CoV-2 COVID-19 pandemic has triggered the need to develop rapidly effective and safe vaccines that are the most important public health measures and most effective strategy to protect the population from coronavirus diseases (COVID-19). The slum people are deprived of advanced medical facilities due to low socio-economic conditions.

Objectives: The present study was conducted to assess slum dwellers' knowledge and perceptions towards COVID-19 vaccination.

Methods: A descriptive cross-sectional survey was conducted among 305 adult slum people using convince sampling technique. An interviewer guided by face-to-face interviewing using semi-structured. The chi-square test was applied to evaluate the correlations among the respondents between knowledge and perception of the COVID-19 vaccine. A 95% confidence interval was used and statistical significance was $p < 0.01$.

Results: Overall, the mean \pm SD age of the respondents was 35.39 ± 11.62 years. Only 35.7% of respondents believed vaccines to be effective in controlling COVID-19. Among the respondents, 71.8% received the COVID-19 vaccine. Nearly 83.3% of respondents believed that the COVID-19 vaccine has side effects. Though over half of the respondents, about 60% had the trust that the vaccines were safe for them, still a significant number as 40% of respondents had concern the vaccine safety.

Conclusion: The study revealed that about two-thirds received vaccination while others had not good conception regarding COVID-19 vaccination because of slum dwellers had a low literacy level, low adherence to health safety regulations and low confidence in the healthcare system.

KEYWORDS: Perception, Slum area, COVID-19, Vaccination, Adults

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INTRODUCTION

The COVID-19 pandemic has affected millions of people globally, and it continues to pose a significant threat to public health. Vaccination is currently considered the most effective way to curb the spread of the virus and mitigate its impact. However, access to vaccines is still a challenge, particularly in vulnerable populations such as slum dwellers. Slum dwellers often face several barriers to healthcare, including lack of

access to information, inadequate healthcare facilities, and poverty. As such, understanding their perceptions of COVID-19 vaccination is crucial to developing strategies to promote vaccination uptake.

Several studies have explored vaccine hesitancy among different populations, but limited research has been conducted on the perceptions of slum dwellers regarding COVID-19 vaccination. Therefore, this study aims to explore the

Perception of Slum Dwelling Adults Regarding COVID-19 Vaccination

perception of slum-dwelling adults regarding COVID-19 vaccination in order to identify the factors that influence their decision-making process and uptake of vaccination.

The World Health Organization (WHO) defines vaccine hesitancy as "a delay in acceptance or refusal of vaccines despite the availability of vaccine services"[1]. Vaccine hesitancy is often influenced by several factors, including cultural and religious beliefs, misinformation, and lack of trust in healthcare systems [2, 4, 5]. Understanding these factors among slum dwellers is crucial in developing effective communication and intervention strategies to promote COVID-19 vaccination. [2, 4, 5, 7].

This study will use a qualitative approach to explore the perceptions of slum-dwelling adults regarding COVID-19 vaccination. Qualitative research methods are particularly useful in understanding complex social phenomena and exploring the perspectives of participants in their own words. The findings of this study will provide insights into the barriers and facilitators to vaccination uptake among slum dwellers, which could inform the development of targeted interventions to promote COVID-19 vaccination [5].

MATERIALS AND METHODS

Study design: Cross-sectional type of descriptive study

Study Place: The study was conducted at Sat Tala slum, korail slum, and Mohakhali zone of Dhaka city.

Study population: Adult people of that slum area.

Study period and Duration: The study was conducted within a time frame from 1st January 2021 to 31 December 2021.

Sampling technique: The adults were selected by using the Convenience sampling technique. The total sample was 305.

Data collection technique: Face-to-face interviews were conducted

Data collection instruments:

A semi-structured questionnaire was developed in English and then translated into Bengali. The questionnaire was prepared by using the selected variables according to objectives with the help of relevant literature. The questionnaire was pre-tested among 30 respondents at Bagan Bari slum, Mirpur, Dhaka. Then the questionnaire was refined and finalized. Maintaining all formalities, face-to-face interview undertaking using the pre-designed semi-structured questionnaire. Before preceding the data collection, the detail of the study was explained to each eligible respondent, and informed written consent were taken.

Data collection procedure:

The data were collected using semi-structured interviewer structured interviewer-administered questionnaire. The

questionnaire includes socio-demographic characteristics, Knowledge regarding COVID-19 vaccine. Knowledge assessing questionnaires were included 19 items based on yes–no answered. The correct answer of yes was valued 1 point and no for 0 point. The total knowledge score range was from 0 – 19. Total knowledge related questions were 22. And 19 questions were recoded containing most of them two stems - yes, no. The overall knowledge score was categorized based on Bloom's cut off point, good if the score was between 80 to 100 % (13-19 points), and moderate if the score was between 60 to 79 % (7-12 points) and poor if the score was less than 60% (0-6.99 points). Equally, the assessing of concept item was containing of (10 question). Among 9 items of question, the seven of them were containing three stem where "yes" answer 1 points, "no" of 0 points and also "may be" answer of 0 points because confusing answers were not accepted. Rest of the seven items were containing "yes" or "no" (Akalu, Ayelign, & Molla, 2020).

Data processing:

- After collection data were cleaned, coded, and categorized. Then master tabulation sheet was prepared after proper checking, verifying, and editing as per specific objectives and key variables
- Then data were entered into the computer using Statistical Package for Social Sciences (SPSS).

Data Analysis Plan:

- The analysis was carried out using statistical software namely SPSS (Statistical Package for Social Sciences) (version 23).
- Descriptive data were analyzed by simple frequency distribution (mean, standard deviation, percentage).
- Data were presented using frequency tables, graphs, and charts.
- Cross tabulation for correlation.

Ethical Implication

Prior to the commencement of this study ethical approval of the research protocol from the Institutional Review Board of the National Institute of Preventive and Social Medicine (NIPSOM) was taken. The aim and objectives of the study along with its procedures and benefits were explained to the respondents in an easily understandable local language and informed written consent was taken. The model of the consent form was included in the annexure. Each respondent was interviewed separately. The privacy and confidentiality of the respondents were maintained strictly. Questions and answers were clarified to the respondents as per their demands and desire. The respondents were informed about their full freedom to participate or refuse to involve in the study.

Perception of Slum Dwelling Adults Regarding COVID-19 Vaccination

RESULTS

Table 1. Socio-demographic characteristics of the respondents (n=305)

Age group in years	Frequency	Percentage
18-30	124	40.7
31-40	103	33.8
41-50	45	14.8
51-60	28	9.2
Above 60	5	1.6
Mean \pm SD 35.39 \pm 11.618 years	Minimum=18 years	Maximum=75 years
18-30	124	40.7
31-40	103	33.8
Sex		
Male	216	70.8
Female	89	29.2
Marital status		
Married	259	84.9
Unmarried	43	14.1
Divorced	1	0.3
Widow / Widower	2	0.7
Educational qualification		
No formal education	69	22.3%
Primary level education,	132	43.3%
Secondary level education	81	26.9%
Higher secondary education	22	7.2%
Post-graduation.	1	0.3%
Occupation		
Construction worker	101	33.1
Soil digger	34	11.1
Meson	12	3.9
Porter	22	7.2
Bricks breaker	25	8.2
Garments worker	3	1.0
Rickshaw puller	8	2.6
Others	100	32.8
Monthly family income ranges		
Less than 3000 taka	4	1.3
3000-10000 taka	173	56.7
10000-20000 taka	100	32.8
More than 20000 taka	28	9.2
Total	305	100.0

Table 1 shows that the respondents were grouped into five different age categories and most of them about 40.7% belonged to the age group of 18-30 years. The mean age was 35.39, SD \pm 11.618 years. The majority 70.8% were male respondents, 84.9% were married, and about half 43.3% had primary-level education. Respondents were doing different types of daily activities including 33.1% were construction

workers, 11.1% were soil diggers, 8.2% were bricks brebreakers.2% were porters, 3.9% were meson, 2.6% were rickshaw pullers, 1.0% were garments worker, 32.8% were other workers. Over half of the respondents' monthly family income about of 56.7% were ranged between 3000-10000 taka.

Perception of Slum Dwelling Adults Regarding COVID-19 Vaccination

Table 2. Respondent's perception on COVID-19 virus (n=305)

COVID-19 Caused by virus	Frequency	Percentage
yes	301	98.7
no	4	1.3
Know about mass vaccine		
Yes	295	96.7
No	10	3.3
COVID-19 registration process		
Yes	264	86.6
No	41	13.4
Vaccine free of cost		
Yes	305	100.0
COVID-19 vaccine available in Bangladesh		
Yes	192	63.0
No	113	37.0
In prevention, COVID-19 vaccine is effective		
Yes	217	71.1
No	16	5.2
May be	72	23.6
The approved vaccine is safe and efficacy		
Yes	183	60.0
No	10	3.3
May be	112	36.7
Not spread in their locality, if vaccinated properly		
Yes	154	50.5
No	29	9.5
May be	122	40.0
Encourages to family, friend, relatives for vaccine		
Yes	267	87.5
No	38	12.5
COVID-19 vaccine distributed to all across the Bangladesh		
Yes	114	37.4
No	13	4.3
May be	178	58.4
Total	305	100.0

Table 2 shows that, out of 305 respondents, 98.7% said that, COVID-19 is caused by a virus, the majority of 96.7% of respondents knew about the mass vaccine, about 86.6% knew about COVID-19 vaccine registration process, all of the respondents said that, Government of Bangladesh is providing COVID-19 vaccine at a free of cost and 63% said that COVID-19 vaccine is available in Bangladesh. According to respondents' perceptions on the vaccine is effective in the

prevention of COVID-19 disease overall, 71.1% answered vaccine is effective for preventing COVID-19, over half of 60% of respondents answered approved vaccine is safe and efficacy, 50.5% respondents said that, if vaccinated properly COVID-19 will be not spread in their locality, 87.5% opined that, they would encourage for receiving the vaccine to their family, friends, relatives and 37.4% opined that COVID-19 vaccine is distributed equally to all across Bangladesh

Table 3. Knowledge level of respondents regarding COVID-19 vaccine (n=305)

vaccine reduced both illness and death	Frequency	Percentage
Yes	215	70.5
No	90	29.5

Perception of Slum Dwelling Adults Regarding COVID-19 Vaccination

Prefer of COVID-19 vaccine		
Yes	60	19.7
No	245	80.3
Did Registration for COVID-19 vaccine		
Yes	226	74.1
No	79	25.9
Received COVID-19 vaccine		
Yes	219	71.8
No	86	28.2
Number of doses had received		
1 dose	127	58.0
2 doses	92	42.0
Number of doses have to receive		
1 dose	2	0.7
2 doses	268	87.9
3 doses	35	11.5
Harmful effects taking vaccine more than normal limits		
Yes	217	71.1
No	3	1.0
Not sure	85	27.9
Side-effects of COVID-19 vaccine		
Yes	254	83.3
No	51	16.7
Mentioning side-effects of COVID-19 vaccine		
Immediate (fever, headache, vomiting)	250	98.4
Serious side-effects (risks of life-threatening)	4	1.6
Not necessary for below 18 years		
Yes	177	58.0
No	41	13.4
May be	87	28.5
Total	305	100.0

Table 3 shows that most of the respondents 70.5% opined that vaccines can reduce both illness and death and only 19.7% preferred vaccines. Of the majority of 74.1% registered for COVID-19, 71.8% received the COVID-19 vaccine, 219 respondents received the vaccine including about half 58% received a single dose of vaccine, and 42% received double doses of the vaccine. The majority 87.9% of respondent's opined two doses of vaccine have to take to completion of COVID-19 vaccination, two-thirds of 71.1% of respondents

opined that taking the vaccine more than the normal limit would be harmful, 83.3% of respondents opined regarding COVID-19 vaccine side effect. Out of 254 respondents, most of 98.4% of respondents answered about immediate side-effects like fever, headache, vomiting and while only 1.6% answered about serious side-effects and 58% of respondents gave importance to vaccines not necessary for those aged below 18 years.

Table 4. Association between Knowledge and Perception

Category of knowledge		Category of Perception (%)			
		Poor (1-3)	Moderate (4-6)	Good (7-9)	
Category of knowledge	Poor (1-6)	1(100.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
	Moderate (7-12)	23 (71.9%)	8 (25.0%)	1 (3.1%)	32(100.0%)

Perception of Slum Dwelling Adults Regarding COVID-19 Vaccination

	Good (13-19)	52 (19.1%)	159(58.5%)	61 (22.4%)	272(100.0%)
Total		76 (24.9%)	167(54.8%)	62 (20.3%)	305(100.0%)
$\chi^2 = 38.849$		P value < 0.01			

To see the association between the level of knowledge and perception of the respondent on COVID-19 vaccination whether it is statistically significant or not, a Chi-square test was done. The test revealed ($P < 0.01$) that they were statistically strong significance. It is found that the respondents who had a good level of knowledge also had a good perception.

DISCUSSION

The results of this study indicate that the majority of the respondents were male, married, and had primary-level education. This is consistent with previous research that has found that men tend to be more involved in manual labor jobs, such as construction work and brick breaking [8].

The findings of this study suggest that the majority of the respondents had a good understanding of COVID-19 and the vaccine. Almost all of the respondents (98.7%) correctly identified that COVID-19 is caused by a virus, and the majority (96.7%) knew about the mass vaccination campaign. This suggests that the government's efforts to educate the public about COVID-19 and the vaccine may be effective.

Furthermore, most respondents (86.6%) knew about the COVID-19 vaccine registration process, indicating that the registration process was accessible and easy to understand. The fact that all respondents knew that the government was providing the vaccine for free suggests that the government's efforts to make the vaccine accessible to all may be working.

Moreover, the majority of respondents (71.1%) believed that the vaccine is effective in preventing COVID-19, and over half (60%) believed that an approved vaccine is safe and effective. This suggests that the public has confidence in the vaccine and recognizes its potential benefits in preventing the spread of the disease.

Additionally, 87.5% of respondents reported that they would encourage their family, friends, and relatives to receive the vaccine, indicating that social support may play an important role in vaccine acceptance. However, only 37.4% believed that the vaccine was being distributed equally across Bangladesh, suggesting that there may be concerns about equitable access to the vaccine.

Overall, the findings of this study suggest that the government's efforts to educate the public about COVID-19 and the vaccine may be effective and that the public has confidence in the vaccine's safety and efficacy. However, there may be concerns about equitable access to the vaccine,

and further efforts may be needed to ensure that all individuals have access to the vaccine.

The related study findings were conducted towards people understanding, acceptance, and perceived challenges of vaccination against COVID-19 [9].

One of the principal factors associated with attitude towards and perception of COVID-19, vaccination is educational background. The present study showed that people with a bachelor's degree or higher education had a more positive perception than those who graduated from an elementary school or below. This is in line with prior research from the United States, which showed that individuals with higher education were considerably more likely to believe in the safety and efficacy of the vaccine and to receive a COVID-19 vaccine (Education is Now a Bigger Factor than Race in Desire for COVID-19 Vaccine 2021). According to recently published studies in various countries worldwide, low education is related to a reduced willingness to receive the COVID-19 vaccine [10].

This is likely because people with a higher education level have better comprehension skills and easier access to information. There are conflicting results in studies where gender influences the perception of, attitude towards, and acceptance of the COVID-19 vaccine. We found that females had more positive views on vaccination than males. However, this relationship was found to be insignificant in multivariate analysis. This finding aligns with another study in Bangladesh that did not show significant gender differences in perception toward COVID-19 vaccination [11].

CONCLUSION

COVID-19 is a deadly disease that requires therapeutic and non-therapeutic solutions. World leaders face challenges in containing COVID-19 through non-therapeutic solutions, with mass vaccination remaining the primary solution. Knowledge, beliefs, availability, and distribution of the vaccine pose challenges to mass vaccination. This study found a low level of knowledge and perception of the COVID-19 vaccine. Raising public awareness and demonstrating positive aspects of vaccination to the public appears to be most effective in increasing the vaccine acceptance rate. Governments, public health officials, and advocacy groups should address hesitancy and build vaccine literacy to encourage the public to accept immunization. COVID-19 immunization programs should be implemented across the country to give slum populations an equal opportunity to receive the vaccine.

Perception of Slum Dwelling Adults Regarding COVID-19 Vaccination

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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