

## Factors of Taking COVID-19 Vaccination: A Study on Urban Community Health Workers and Their Family Members in Bangladesh

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### Abstract

Coronavirus Disease 2019 (COVID-19) pandemic has turned into a global public health epidemic and an emergency. It is because the Human body develops immunity after receiving the Corona vaccine. But vaccine hesitancy was one of the top ten public health hazards. Vaccine hesitancy starts from public debates about medical, ethical, and legal issues. This study aimed to discover the underlying factors influencing COVID-19 vaccine uptake and vaccine hesitancy among Bangladeshi urban community health workers and their families.

The quantitative study used convenient sampling to collect data and used univariate and bivariate analysis to identify the underlying factors related to COVID-19 vaccine uptake. After that, some case studies have been done to learn more in-depth about the significant aspects.

In this report, older and married people were found to be more likely to receive vaccinations than younger people, and full-time workers were found to be more likely to receive vaccinations than others. Furthermore, In corona crises and corona prevention-related variables that were eager to be vaccinated vaccine enrollment, and family members who have been vaccinated were all found to be strongly related to vaccination receipt. Finally, in both the case study and the Likert scale review, it was discovered that people who were more aware of Corona-related prevention and vaccination were more likely to take the vaccine than others.

**Key Words:** Covid 19, Pandemic, Vaccine, Vaccine Hesitancy.

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## **1. Introduction**

The novel coronavirus disease 2019 (COVID-19) pandemic has become a public health crisis worldwide, and this pandemic has turned into a global public health emergency, wreaking havoc on health, the economy, and people's lives (Bishwajit, Tang, Yaya, & Feng, 2017) (Zhang et al., n.d.). However, COVID-19 prevention steps such as mask usage and social distancing effectively slow the virus's spread ("Advice for the public," 2021). In addition, the development and application of the Covid 19 vaccine could play a role in the long-term control of the epidemic.

The corona vaccine builds immunity in humans' bodies. The immune system in the human body helps to fight against coronavirus. As a result, people who get the Corona vaccine can be safe from corona disease and keep other people safe. It is because people who get the covid19 vaccine are less likely to infect other people. The government takes steps to cover those at high risk, like adult citizens and health care workers, from getting the corona disease (Bubar et al., 2021). Nearly one year after the onset of the COVID-19 pandemic, the Bangladesh government has delivered the first COVID-19 vaccines, and vaccinations have been started. It is a personal choice to receive the COVID-19 vaccine. There are different reasons for accepting or not receiving the government vaccine.

People have vaccine fear for a variety of personal, interpersonal, and socioeconomic reasons, according to the covid19 vaccination report. Vaccine anxiety derives largely from public debates regarding medical, ethical, and legal problems. Vaccine hesitancy, also known as anti-vaccination or anti-vax, is a reluctance or fear to obtain a vaccine. The vast scientific consensus on the safety and effectiveness of vaccinations is related to anti-vaccination arguments ("Communicating science-based messages on vaccines," 2017) (Lopez, 2016) (Ceccarelli, 2017). Vaccine hesitancy is one of the top ten public health risks, according to the World Health Organization ("Ten threats to global health in 2019," 2019) (WELCH, 2017).

Healthcare workers are being prioritized among the high-risk populations like adult people and healthcare providers to be identified for early vaccination. As a result, it's crucial to understand healthcare workers' attitudes toward COVID-19 immunization to help resolve vaccination barriers. The adoption of any COVID-19 vaccine by community health care providers was a significant challenge. According to a new study, community health care professionals were either unaware or did not plan to get the vaccine. Community health care services are a valuable source of vaccine knowledge, and contact can help people follow vaccination guidelines more closely (Wheeler & Buttenheim, 2013)(Salmon et al., 2005) (Wheeler & Buttenheim, 2013). As a result, community health care providers' vaccination becomes increasingly relevant in counseling patients and families and role modeling actions. Vaccine acceptance largely determined the success of a prospective COVID-19 vaccine. This study examines the expected use by health workers & their family members of a COVID-19 vaccine and the underlying factors related to vaccine reticence.

## **2. Methodology**

The quantitative and case studies were used to determine the factors responsible for uptaking the COVID-19 vaccine among urban community health workers and their family members in Bangladesh. The quantitative data was collected from community health workers and their family members of Dhaka city. The Nari motor health complex in the Moghbazar area was visited for

collecting data. Community health workers and their family members who have access to vaccine facilities within five kilometers from the health complex were included.

The study was conducted univariate to describe the different factors and bivariate analysis to identify the factors responsible for up taking the COVID-19 vaccine among urban community health workers and their family members in Bangladesh. In addition, the bivariate analysis to examine the nature of the individual association between the factors and uptaking the COVID-19 vaccine by using the chi-square test. Some case studies have been done to discover more in-depth knowledge on the significant aspects of this study.

### **3. Results**

This study collected 51 community health workers' and their family members' data through telephone interviews. There were three types of factors related to covid19 vaccination: socio-demographic characteristics, Corona crisis, and associated prevention factors, and the opinions on covid19 vaccination of the participants. In a descriptive analysis of socio-demographic factors (Table 1), 51% of female respondents and 49% of male respondents. Here, 68.6% of the respondents were married, and 29.4% were single. In their educational status, 54.9 % of respondents completed their post-graduation, 21.6% completed their graduation, and 9.8% completed their secondary and higher secondary stage. And their employment status was 45.1% of respondents were full-time employed, 23.5% were students, and only 13.7 % were homemakers. In a bivariate analysis of socio-demographic factors with vaccination (Table 2), the factors significantly related to the corona vaccination have been discussed in the following part: Age was associated considerably with immunization. Age was the factor whose p-value is less than 0.05. Here 64% of 40-49 years old respondents have completed their vaccination, and 27% of 30-39 years aged respondents completed their vaccination. But 66% of 20-29 years old respondents have not completed their vaccination. So, it could be said that the aged respondents were more vaccinated compared with younger respondents. Marital status was also significantly related to vaccination. 95% of married respondents have completed their vaccination, but 52% of single respondents have not received the vaccination. Here it could be said that married respondents were more vaccinated compared with married or single respondents. The employment status of the respondents was also significantly related to vaccination. Here more than 68% of respondents were full-time employees who have completed the immunization. Therefore, it could be said that employed people were more vaccinated compared with the other occupied people.

In a descriptive analysis of corona and corona prevention-related factors (Table 3), 43.1% of respondents have completed their vaccine registration, and 82.4% of the total respondents' family members have not been vaccinated. In addition, 98% of respondents used masks in this study, and 76.5% washed their hands for at least 20 seconds. Here 92.2% of respondents maintained social distance, and 72.5% maintained family quarantine or isolation. In the bivariate analysis of coronavirus- related factors with vaccination (table 4), the p-value of less than 0.05 was significantly related to vaccination. Here 91% of vaccine registered people have received vaccination ( $p < 0.05$ ). About 95% of respondents have willingly been vaccinated after that have completed their vaccination. From this table 4, the respondents who are willing to be vaccinated and completed the vaccine registration were more likely vaccinated than other respondents.

In Likert scale analysis (Table 5), 42 (82%) respondents strongly agree that it was essential to maintain social distance to prevent covid-19. In addition, 41 (80%) respondents strongly agree that hand washing was necessary to avert covid-19. 42 (82%) respondents also strongly agree that where the Mask was essential to prevent covid-19. But only 8 (16%) respondents strongly agree that the covid vaccine develops the immune system in the human body. And only 4 (7.8%) respondents strongly agree that the covid vaccine has no side effects.

Only 4 (7.8%) respondents strongly agree that covid vaccination was the best solution to prevent this pandemic. On the other hand, 16 (31%) respondents strongly agree that getting vaccinated in Bangladesh was essential. Here the study has found two significant opinions related to vaccination (Table 6). The critical opinions are that the vaccine has no side effects and was necessary for the Bangladesh context.

In the case of studies, the participants who were indifferent to wearing masks, adhering to social distances, and not maintaining other hygiene rules have contracted Corona. Those who have been infected once were more likely to be vaccinated. Also, those who were more aware of the corona pandemic are interested in vaccination. At first, people were afraid of the vaccine, but later, when everyone started taking the vaccine, and no side effects were seen, everyone became interested in getting the vaccine.

#### **4. Discussion**

In this study, some significant factors have been found which are related to vaccination. In socio-demographic characteristics, Age and marital status are significantly associated with vaccination. Older and married people are more likely to take vaccination compared to younger people. In the primary stage, the government of Bangladesh provides a restriction that only 40+ aged people will be vaccinated. This study also revealed the same findings of Age and vaccination.

In this study, the full-time employee is more likely to take the vaccine compared with others. It is because the Bangladesh government provides special privileges to the health sector workers to take vaccination first. Therefore, the health sector workers were full-time employees. For this reason, the full-time employee was more likely to take the vaccine compared with others. In corona crises and corona prevention-related factors that were willing to be vaccinated, vaccine registration, family members vaccinated were significantly related to receiving the vaccination. Here the study has found that the people eager to be vaccinated and completed their vaccine registration were the proxy indicators of the vaccination. The other studies also found similar results that vaccine registration was an essential factor in receiving the vaccination.

In Likert scale analysis, the study has taken the opinions on the Corona crisis and vaccination. Some of the views of the respondents were significantly related to their vaccination. Here we have found that the people who agree that vaccines have no side effects and vaccination was important for Bangladesh are more likely to have completed their vaccination. In the case study, we found similar results that those who were more conscious of Corona-related prevention and vaccination were more likely to take the vaccine than other people.

#### **5. Conclusion**

This study has identified some key factors significantly related to the vaccination and found real-life insight about those factors. According to the study result, full-time employed people are more

conscious about the vaccination, but the people were not fully aware of the effectiveness of vaccination. Government and decision-makers can use this knowledge to make decisions on corona-related vaccination or prevention programs.

As per study findings, the number of vaccinations will increase further if the government removes the age limit for immunization. If the vaccine registration process is easy and accessible for everyone, everyone will be interested in vaccination. Government should take the initiative to educate the mass population about the effectiveness of vaccination. Then people will be more aware of vaccination programs, and the uptake of immunization will be increased. However, the study has been done on very few numbers of people by using convenient sampling. For this reason, further research needs to be done on this subject in Bangladesh and requires more health workers' data and their experience and learn from each other so that government and decision-makers can use that information in future corona-related vaccination or prevention programs.

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## Appendix

**Table 1**  
*Socio Demographic Factors*

Characteristic	N = 51
Sex	
Female	26 (51%)
Male	25 (49%)
Age	
10 year - 19 year	1 (2.0%)
20 year - 29 year	21 (41%)
30 year - 39 year	10 (20%)
40 year - 49 year	19 (37%)
Marital status	
Divorced	1 (2.0%)
Married	35 (69%)
Single	15 (29%)
Education	
Graduation	11 (22%)
Higher Secondary	5 (9.8%)
Post graduation	28 (55%)
Primary	2 (3.9%)
Secondary	5 (9.8%)
Occupation	

Full-time employment	23 (45%)
Home-maker	7 (14%)
Part-time employment	3 (5.9%)
Retired	2 (3.9%)
Self-employed	3 (5.9%)
Student	12 (24%)
Unemployed	1 (2.0%)
Family Member	
3 - 4 Person	23 (45%)
5 - 6 Person	14 (27%)
7 - 8 Person	13 (25%)
9 - 10 Person	1 (2.0%)
Family Income	
0 - 20,000 Tk	1 (2.0%)
100,000/100,000+ Tk	11 (22%)
20,000 - 40,000 Tk	15 (29%)
40,000 - 60,000 Tk	10 (20%)
60,000 - 80,000 Tk	8 (16%)
80,000 - 100,000 Tk	6 (12%)
Use internet	
No:	4 (7.8%)
Yes:	47 (92%)
Have mass media	
No:	25 (49%)
Yes:	26 (51%)
Use social media	
No:	8 (16%)
Yes:	43 (84%)

Source: Sample Survey 2021

**Table 2**  
*Bi variate analysis with socio demographic factors with vaccination*

Characteristic	N	Not Complete Vaccination:, N = 29	Complete Vaccination:, N = 22	p-value
Age	51			<0.001



10 year - 19 year		1 (3.4%)	0 (0%)	
20 year - 29 year		19 (66%)	2 (9.1%)	
30 year - 39 year		4 (14%)	6 (27%)	
40 year - 49 year		5 (17%)	14 (64%)	
<b>Marital status</b>	51			<0.001
Divorced		0 (0%)	1 (4.5%)	
Married		14 (48%)	21 (95%)	
Single		15 (52%)	0 (0%)	
<b>Occupation</b>	51			0.020
Full-time employment		8 (28%)	15 (68%)	
Home-maker		4 (14%)	3 (14%)	
Part-time employment		3 (10%)	0 (0%)	
Retired		2 (6.9%)	0 (0%)	
Self-employed		1 (3.4%)	2 (9.1%)	
Student		10 (34%)	2 (9.1%)	
Unemployed		1 (3.4%)	0 (0%)	

Source: Sample Survey 2021

**Table 3**  
*Vaccine related factors and prevention related factors*

Characteristic	N = 51
Vaccinated	
No:	29 (57%)
Yes:	22 (43%)
Completed the vaccine registration	
No:	29 (57%)
Yes:	22 (43%)
Willing to be vaccinated	
No:	11 (22%)
Yes:	40 (78%)
Vaccinated Family	
No:	42 (82%)
Yes:	9 (18%)
Family_Member Vaccinated	
1 person	8 (16%)
2-3 person	26 (51%)

4-5 person	3 (5.9%)
6/6+ person	1 (2.0%)
No: one	13 (25%)
Use Mask	
No:	1 (2.0%)
Yes:	50 (98%)
Maintain social distancing	
No:	4 (7.8%)
Yes:	47 (92%)
Wash hands for at least 20 seconds	
No:	12 (24%)
Yes:	39 (76%)
Wash your hands properly after coming back home from outside	
No:	1 (2.0%)
Yes:	50 (98%)

Source: Sample Survey 2021

**Table 4**  
*Bi variate analysis with corona related factors with vaccination*

Characteristic	N	Not Vaccination, N = 29	Complete Vaccination ;, N = 22	p-value
<b>Completed the vaccine registration</b>	51			<0.001
No:		27 (93%)	2 (9.1%)	
Yes:		2 (6.9%)	20 (91%)	
<b>Willing to be vaccinated</b>	51			0.015
No:		10 (34%)	1 (4.5%)	
Yes:		19 (66%)	21 (95%)	
<b>Family Member Vaccinated</b>	51			0.003
1 person		3 (10%)	5 (23%)	
2-3 person		14 (48%)	12 (55%)	
4-5 person		0 (0%)	3 (14%)	
6/6+ person		0 (0%)	1 (4.5%)	
No: one		12 (41%)	1 (4.5%)	

**Table 5**  
*Likert scale analysis*

Characteristic	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Covid vaccination is the best solution to prevent this pandemic situation.	9 (18%)	4 (7.8%)	20 (39%)	14 (27%)	4 (7.8%)
It is important to get vaccinated in Bangladesh context	7 (14%)	2 (3.9%)	12 (24%)	14 (27%)	16 (31%)
Covid vaccine has no side effects	10 (20%)	12 (24%)	17 (33%)	8 (16%)	4 (7.8%)
The covid vaccine develops immunity in the human body	6 (12%)		19 (37%)	18 (35%)	8 (16%)
It is important to wear a mask to prevent Covid-19	3 (5.9%)		2 (3.9%)	4 (7.8%)	42 (82%)
Hand washing is essential to prevent Covid-19	3 (5.9%)	1 (2.0%)	1 (2.0%)	5 (9.8%)	41 (80%)
It is important to maintain social distance to prevent Covid-19	3 (5.9%)	1 (2.0%)	1 (2.0%)	4 (7.8%)	42 (82%)

**Table 6**  
*Likert scale factors with vaccination status*

Characteristic	N=51	Not Complete Vaccination; N = 29	Complete Vaccination; N = 22	p-value
<b>It is essential to get vaccinated in the Bangladesh context</b>				0.028
Strongly Disagree		6 (21%)	1 (4.5%)	
Disagree		1 (3.4%)	1 (4.5%)	
Neutral		7 (24%)	5 (23%)	
Agree		10 (34%)	4 (18%)	
Strongly Agree		5 (17%)	11 (50%)	
<b>The covid vaccine has no side effects</b>				0.045
Strongly Disagree		8 (28%)	2 (9.1%)	
Disagree		8 (28%)	4 (18%)	
Neutral		9 (31%)	8 (36%)	

Agree		1 (3.4%)	7 (32%)	
Strongly Agree		3 (10%)	1 (4.5%)	

### Case Studies

#### **Naimul Islam, age 35**

Naimul Islam is an NGO worker. During the coronation period, he was involved in health-related activities at the field level. He used to be careful about Corona while traveling to the office. He used a mask when traveling outside and maintained social distance. After returning home from the outing, he used to be very clean and careful. Unfortunately, there is a second wave of Corona in Bangladesh.

He was well aware of the benefits of vaccines in the context of working as an NGO and health worker. But due to various adverse reports in the media about the Indian vaccine, there was disagreement on whether to accept the vaccine. After that, he completed the vaccine registration and received two doses of the vaccine. But his other colleagues were receiving the vaccine. He did not experience any side effects after receiving the vaccine.

#### **NurNahar Begum, age 65**

Nurnahar Begum is a housewife. During the Corona period, she and her husband traveled to various hospitals for treatment due to illness. When traveling to the hospital, they used to wear masks, maintain social distance and take other coronary precautions—used App's car for travel. After returning home from the hospital, he would take a bath and wash her clothes with soap water. At present, the number of new corona patients in Bangladesh is increasing again, so she thinks that in addition to praying to the Creator, everyone needs to be clean and careful during Corona and vaccination.

One of her children works in the health sector, and she is aware of the vaccine's benefits. She has also learned about it through TV. Although she has heard some negative comments about the vaccine in people's mouths, she is still interested in getting vaccinated to reduce the risk of infection.

#### **Shahida Islam, age 43**

Shahida Islam is a housewife. Her husband is an employee, and her children are all students. She always does all the markets in his family by herself. During the Corona period, she always did the market like other times. Unfortunately, due to a lack of proper precautions, she and almost all family members became infected with Corona in April-May 2020. She and her family members were hospitalized at the time. About 15 days later, she and her family members recovered and returned home. After returning home healthy, she used Mask for other reasons, including maintaining social distance. After that, when the incidence of Corona in Bangladesh decreased a bit, she again refrained from following the hygiene rules related to Corona.

Currently, there is a second wave of corona infection in Bangladesh. Since she first contracted Corona, she has been re-vaccinated against corona infection. She did not suffer from any side effects. She is now again using cleanliness and caution after learning of many people being infected through television and mobile phones. She is encouraging other members of her family to get vaccinated.

**Sumaiya Islam, age 22**

Somaiya is a student. During the pandemic situation, she used to go to her university only. She used to be careful about Corona stuff while traveling to the university. She wears a mask when traveling outside and maintains social distances as well. Coming from outside, she used to clean her hands and only then conduct other activities. Everybody should be more careful now because Corona's second wave is currently flowing. So people should follow hygiene rules during these pandemics. She thinks it's essential to get vaccinated also.

But everybody can't get vaccines because we have a shortage of vaccines, and only a selected number of people can be vaccinated. The government has declared that certain aged people can be vaccinated. She knows about the vaccination process and its benefits, but she can't take the vaccine because she does not fit the criteria. If there is an opportunity, she'll take the corona vaccine for sure.