

# Coverage of COVID-19 Vaccination at Rural Chattogram

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## ABSTRACT

**Background:** An outbreak of a COVID-19 pandemic disease, caused by a novel coronavirus SARS-CoV-2, has posed a serious threat to global human health. Bangladesh has also come under the attack of this viral disease. This work aimed to explore the educational status, the age group status, the socio-economic status, age and gender predisposition to COVID-19 vaccination program and to assess the knowledge, attitude vaccination status among the population of Anowara Upazilla, Chattogram and to identify the underlying causes associated with delayed and no vaccination and to find out the occurrence of adverse effect following immunization among the people.

**Materials and methods:** A descriptive type of cross-sectional study was conducted. The sample size was 136. It was selected by non-probability type of purposive sampling technique. Data were collected on 11th November, 2021 by face-to-face interview from the respondent with the help of a prepared mixed questionnaire.

**Results:** Among the respondents 59.56% population was immunized with COVID-19 vaccine and 40.44% population was not immunized with COVID-19 vaccine. 41.98% was male and 58.02% was female. Those who did not get vaccinated, the main reason was fear (About 36.36%). 27.27% population didn't get vaccinated because they were lactating mother or pregnant women, 10.91% of population had no NID/no birth certificate, 14.54% of population registered for vaccination but didn't get the SMS and last but not the least about 10.91% population didn't get vaccinated due to other personal causes. The population who were vaccinated, among them 93.83% didn't face any problem but 6.17% population faced some problem while getting vaccinated. Population who didn't get vaccinated, most of them were illiterate and of 18-27 years age group and those who were vaccinated of 28-37 years age group and literate.

**Conclusion:** The main reason is not to take vaccine is the fear and wrong information about vaccine. Literacy rate has an influence on vaccination. This study will help people to get knowledge about COVID-19 vaccination programme and it will encourage them to take vaccine soon that will help them to lead a healthy life.

**Key word:** COVID-19 vaccination program; Fear; General health problems; Superstition.

## Introduction

Bangladesh began COVID-19 mass vaccination campaign on February 7th and as of March 25th, 2021, approximately 5 million people had received their first dose of the vaccine. However, substantial disparities have been noticed regarding enthusiasm for vaccination among people from different socio-demographic contexts. Just a year after the virus was first detected in a Chinese city, the COVID-19 pandemic is an ongoing

global threat that has infected over 100 million individuals and caused more than 2 million deaths.<sup>1</sup> To mitigate the effect of COVID-19 by preventing or reducing the transmission, scientific communities around the world are putting their best efforts to develop vaccines against the virus. Looking beyond phase 3 COVID-19 vaccine trials, the findings showed demonstrated effectiveness and thus a few vaccines have been approved by at least one national regulatory body across countries for mass deployment.<sup>2</sup> These are RNA vaccines (From Pfizer-BioNTech and Moderna) conventional inactivated vaccines (From Sinopharm, Bharat Biotech, and Sinovac) and viral vector vaccines (From Gamaleya Research Institute and Oxford-Astra Zeneca) which are being used in recent vaccination programs of many countries, including the United States, the United Kingdom, Europe, China, Russia, and India.<sup>2</sup>

Bangladesh is also moving forward with its vaccination strategy and inoculation program. The country received

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the first consignment of the 5 million doses of Covishield vaccines from India under a procurement agreement on January 25, 2021.<sup>3</sup> Bangladesh has so far purchased 30 million doses from the Serum Institute of India through private Beximco pharmaceuticals under a tripartite agreement. To vaccinate 80% of the total adult population, the vaccination drive was inaugurated on 27th January, and countrywide inoculation commenced on 7th February 2021.<sup>3</sup> The Bangladesh government published a priority list for the first round of vaccine recipients, including frontline workers and older people aged 40 years and above. A compulsory app-based registration system is developed through which willing individuals from priority list categories will register their interest in vaccination against COVID-19.<sup>4</sup> The vaccines will be distributed primarily through tertiary healthcare centers in the capital city of Dhaka. Another proportion will be dispersed through district hospitals and Upazilla Health Complexes (1st referral center at primary healthcare level).

Bangladesh aims to implement a five-stage vaccination plan covering 130 million people.<sup>3</sup> To ensure the successful implementation of this countrywide mass vaccination program, it is essential to identify the barriers in the process. Several studies indicate that vaccine hesitancy, acceptance, and refusal would be the biggest challenge for many countries in achieving desired vaccination coverage.<sup>5, 6</sup> In 2019, the World Health Organization (WHO) identified vaccine hesitancy as one of the top ten global health threats. It defined vaccine hesitancy as the reluctance or refusal to vaccinate despite vaccines' availability.<sup>7, 8</sup> Several risk factors associated with vaccine hesitancy and rejection have been reported in studies across different countries focusing on vaccine acceptance; these comprise socio-demographic factors (Age, gender, marital status, employment status, income) cost, access to services, safety and effectiveness, level of health literacy, and trust in government, health care systems, and mass media.<sup>9-14</sup> This also applies to the COVID-19 vaccine, as several studies, including a global survey, found variances in vaccine acceptance across different socio-demographic groups.<sup>9, 15,16,17</sup>

Although evidence on encouraging vaccination in general is useful in the context of the current pandemic, COVID-19 vaccine acceptance and uptake pose an enormous challenge.<sup>18</sup> Sentiment that sows doubt and mistrust, as well as the viral dissemination of misinformation, are both leading to a community of vaccine reluctance.<sup>19</sup> The study offers a valuable baseline of confidence levels to assess willingness to vaccinate in the context of the COVID-19 pandemic and to help identify where further trust building is required to maximize adoption of new life-saving vaccines.

However, data on vaccine acceptance from Low-and-middle Income Countries (LMIC) mainly from Central and South Asia, is substantially limited.<sup>20,21</sup> This indicates a need for specific research in these regions to explore the factors that determine the acceptance, hesitancy and refusal of vaccines, as evidence from developed countries will not be applicable here due to the significant differences in social, cultural, and economic contexts. Therefore, this study aims to identify national trends in the public's intent to take vaccine by socio-demographic, clinical and regional differences among Bangladeshi adults to understand the gap in formulating a comprehensive nation-wide vaccination plan.

### Materials and methods

A community study among the rural population was done in Dakshin Bandar, Moholkhan Bazar, Anowara Upazilla, Chattogram. It was descriptive type of cross sectional study. The sample size was 136. It was selected by non probability type of purposive sampling technique. Data were collected from population above 18 years of both sexes using mixed type of questionnaire. After establishing a rapport, our aims and objectives were told to the respondents. Then oral consent was taken from them before data collection. Neither any intervention nor any invasive procedure was undertaken. Data processing and analysis for quantitative data were done using SPSS version 21. Thematic analysis was done for qualitative information.

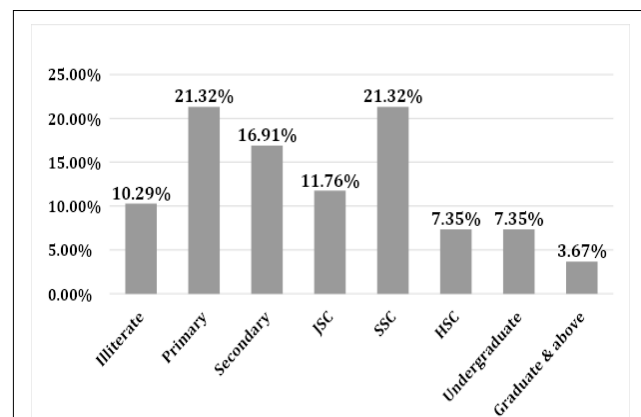
#### Inclusion criteria

- Population (>18 years age)
- Both male and female population

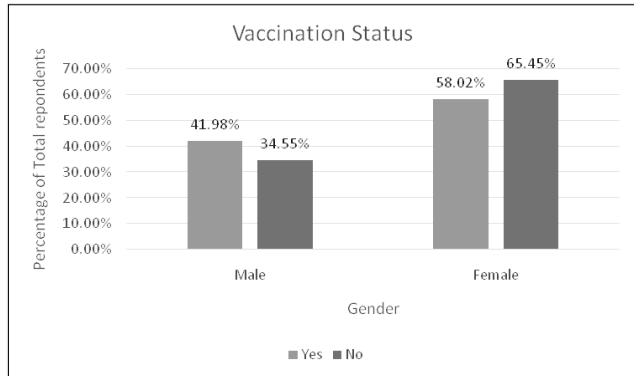
#### Exclusion criteria

- Population less than 18years
- Not willing to participate

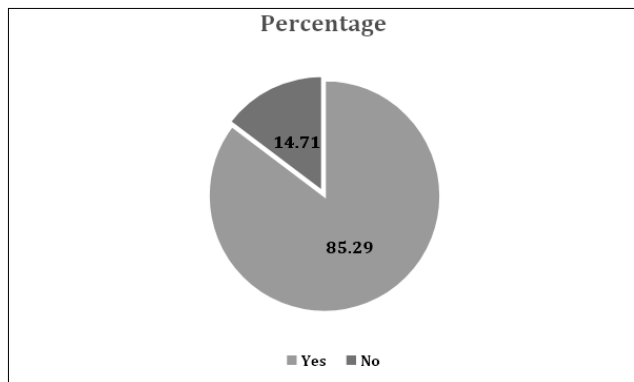
### Results



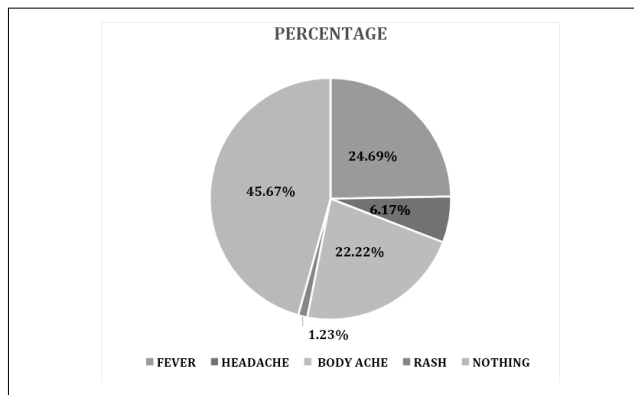
**Figure 1** Bar diagram showing the educational status of the respondents



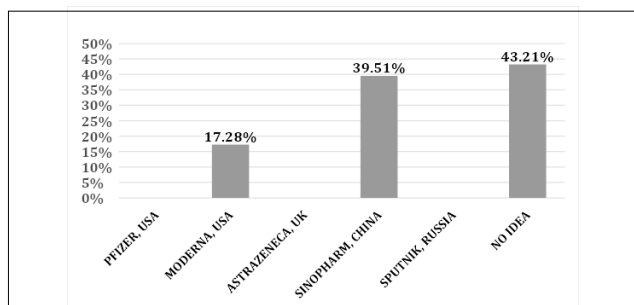
**Figure 2** Vaccine coverage among male and female respondents



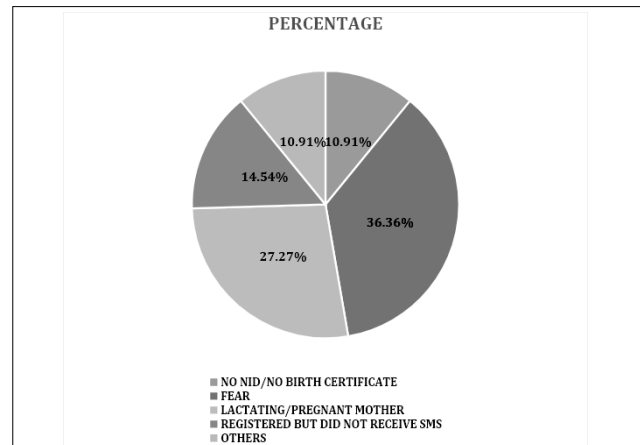
**Figure 3** Percentage of population having knowledge about COVID-19 vaccination program



**Figure 4** Adverse effect among the respondents following COVID-19 vaccination



**Figure 5** Types of vaccines received by the respondents



**Figure 6** Reasons of non-compliance for COVID-19 vaccine intake

**Discussion**

Data collectively indicate that, educational status of maximum of the respondents were up to SSC level (21.32%). On the other hand, 10.29% of respondents were illiterate. Among 136 people, only 5 people were graduate, which was only 3.67%.

Among the whole study population, it was observed that 29.63% of the vaccinated people (Which is highest) were aged between 28-37 (Among them 8 were male and 16 were female). And 68-77 aged group people had the lowest percentage of vaccination 2.44% (Among them 2 were male with no female).

Among the respondents, 85.29% of people had the knowledge about the COVID-19 vaccination and unfortunately 14.71% of respondents had no idea about it.

Interestingly, most of the people (52.21%) got their Knowledge about COVID-19 vaccination from television. 16.91% of people got knowledge from social media, 16.18% of people from newspaper, 9.56% of people from their friends and only 5.15% of people got their information from family members.

It is a good sign that, most of the people had no adverse effect after COVID-19 vaccination (45.67%). But unfortunately, 24.69% of people got fever, 22.22% of people got body ache, 6.17% of people got headache and only 1.23% of people got rash after COVID-19 vaccination.

Most of the people (About 39.51%) got Sinopharm vaccine, whereas Moderna vaccine is 2<sup>nd</sup> priority (17.28%)

According to a survey, the hesitancy or reluctance towards getting COVID-19 vaccination in the study population prevailed about 34.56%, which was lower than 44.73% which was the hesitancy rate found in a

similar study of rural community of India.<sup>22</sup> And according to that same study more than 50% of the respondents of the rural community of India) had positive attitudes towards the COVID-19 vaccines. While in the study 67.9% of the vaccinated respondent had positive attitudes towards the effectiveness of COVID-19 vaccine.<sup>22</sup>

Among the people, who are not vaccinated, most of the people do not get vaccinated due to fear (About 36.36%), 27.27% of them hesitated to vaccinate as they were lactating/pregnant mother, 14.54% were registered but did not receive SMS, 10.91% of the population did not have the birth certificate and rest of the have other problems.

According to the, opinion on Prioritization of vaccination, maximum people had given priority to old age people (About 34.55%). According to the, opinion on profession prioritization, most of the population told to give priority to health workers (Around 36.02%).

### Conclusion

The study was done in Anowara, Chattogram .Aim of this study was to educate people about COVID-19 vaccination and to check the mind set of people about vaccination program. This will help to prevent COVID-19 pandemic. The study population was both males and females of the rural population of Anowara, Chattogram. Some of villagers had knowledge about COVID-19 vaccination.

### Acknowledgement

The baseline survey indicated that, most of the people have an idea about COVID-19 but only a half of people are vaccinated. Special thanks to the respondents of Anwara Upazila and of 3<sup>rd</sup> year students of Southern Medical College whose active participation made this study possible.

### Disclosure

All the authors declared no competing interest.

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