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Perception and Attitudes towards COVID-19 Vaccination in Bangladesh: A Cross-sectional Analysis

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Abstract

Background: Vaccination is now considered the most effective measure to prevent the harm resulting from the SARS-CoV-2. Mass vaccination has been started in different regions of the world, including Bangladesh. **Objective:** The present work has been done to discover the Bangladeshi people's attitude, perception towards COVID-19 vaccines, and their willingness to be vaccinated. **Methodology**: This cross-sectional analysis was performed from the online survey data collected from 01 August 2021 to 17 august 2021 from Bangladeshi people over 21 years old at the Department of Pharmacy, Northern University Bangladesh. **Results:** Among the total participants (517), the majority (60.74%) gave a positive response for being vaccinated. The reasons for unwillingness to be vaccinated were listed as adverse effects of the vaccine (46.04%), complex procedures of vaccination (18.32%), doubtfulness about the vaccine's efficacy (15.35%), reduced risk perception about COVID-19 (15.35%) and needle phobia (4.95%). **Conclusion:** It is revealed from the current study that education and media can motivate a person's attitude towards vaccination. To bring mass people under the vaccination program, it is necessary to broadcast proper and authentic information about vaccines. Besides, the procedure of getting vaccines should be simpler. [*Bangladesh Journal of Infectious Diseases, December 2023;10(2):65-70*]

Keywords*:* COVID-19; Vaccination; Perception; Bangladesh; people; analysis

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Introduction

Following the Spanish flu pandemic in late December 2019, a new coronavirus strain known as SARS-n-CoV-2 was discovered in China's Hubei Province, resulting in the emergence of a new pandemic in the twenty-first century[1]. 276,436,619 confirmed cases of COVID-19, including 5,374,744 deaths, have been reported to the World Health Organization (WHO) by 222 countries and territories worldwide. Notable outbreaks have been documented in South Africa, Brazil, Russia, India,

Mexico, Peru, Western Europe, and the United States[2]. Since January 3, 2020, WHO has received reports from Bangladesh detailing 1,582,368 confirmed cases of COVID-19 and 28,054 deaths[3].

The most promising strategy for containing the pandemic is the vaccination against SARS-CoV-2, which is why it is being actively pursued. A vaccine is a small weakened or inactive part of the disease-causing microorganism that will be administered into the host body to boost up the host's immune system. The altered immunity will fight against the invading pathogens to keep the host safe. A number of vaccinations were made accessible for usage globally by the end of 2020. A current list of potential vaccines is kept up to date by the WHO[4,5]. Beginning with a trial program involving 500 health professionals, Bangladesh started administering COVID-19 vaccines on January 27, 2021. Mass vaccinations followed on February 7, 2021[6]. Bangladesh started a trial run of its immunization program on Wednesday, January 27, 2021, and Runu Veronica Costa, a senior staff nurse at Kurmitola General Hospital in Dhaka, is the first individual in the country to get the Covid-19 vaccine[7]. Massive immunizations have yielded initial data that suggests these vaccines are a useful tool in the pandemic fight[8]. Vaccine reluctance, however, poses a serious threat to the effective pandemic mitigation and COVID-19 vaccine distribution[9]. Reluctance to vaccinate can be caused by a number of broad variables, such as prior vaccination experience, education and knowledge level, perception of danger and trust, perceived importance of vaccination, subjective norms, and moral and religious convictions[10]. Gender, age, education, and occupation were among the sociodemographic factors linked to vaccine acceptance in the COVID-19 instance. factors such perceptions of the risk of contracting COVID-19, faith in authority, and the effectiveness and safety of vaccinations. The average vaccination acceptance rate recorded globally in March 2020 was 86%; this fell to 54% in July 2020, and then to 72% in September 2020. The average rate of vaccine hesitancy worldwide was 21% in April 2020, rising to 36% in July 2020, and then falling to 16% in October 2020. Extensive fluctuations in vaccination uptake and elevated vaccine reluctance may impact the endeavors to eradicate COVID-19[11,12]. A study examining vaccine acceptance in 15 survey samples encompassing 10 Low- and Middle-Income Countries (LMICs) in Asia, Africa, and South America, as well as Russia, an upper-middle-income nation, and the US revealed that LMICs were significantly more willing to receive the COVID-19 vaccine (mean 80.3 percent; median 78 percent; range 30.1 percentage points) than the US (mean 64.6 percent) and Russia (mean 30.4 percent)[13,14].

In order to conduct efficient and customized interventions to achieve maximum vaccine coverage, it will be imperative to address the obstacles and enablers related to vaccines. In this present study we investigate the underlying reasons and factors beneath the vaccine acceptancy.

Methodology

Study Design and Population: This cross-sectional study was conducted in the department of Pharmacy at the Northern University Bangladesh, Dhaka, Bangladesh from 01 August 2021 to 17 august 2021. Bangladeshi people of more than 21 years old were eligible to take part in the study. A semi-structured questionnaire was used to collect the response from the participants.

Statistical analysis: The responses were compiled in a Microsoft Excel Sheet and further analysis was performed using SPSS 20 (IBM Corporation). Descriptive statistics was used to analyze the demographic data of the respondent. The hesitancy of vaccination was then analyzed against different group parameters: age, sex, education, occupation, influence of media. Significance test was executed at 95% confidence level ($p<0.05$) using Odds Ratio (OR) determination.

Ethical approval: This study was approved by the NUB Institutional Review Board (Ref. DoP/RC/EC/2021/07/01OL) and informed consent was obtained from subjects before the conduct of the study.

Results

Demographic Data: Among 600 respondents a total of 517 completed the survey form with a response rate of 86.17%. They were from different gender, study level, occupation, residents, etc. which is summarized in Figure I. Among the participants, most were male (53.38%), more than 40 years old (42.74%), higher secondary or above educational degree (48.16%), homemaker (30.17%).

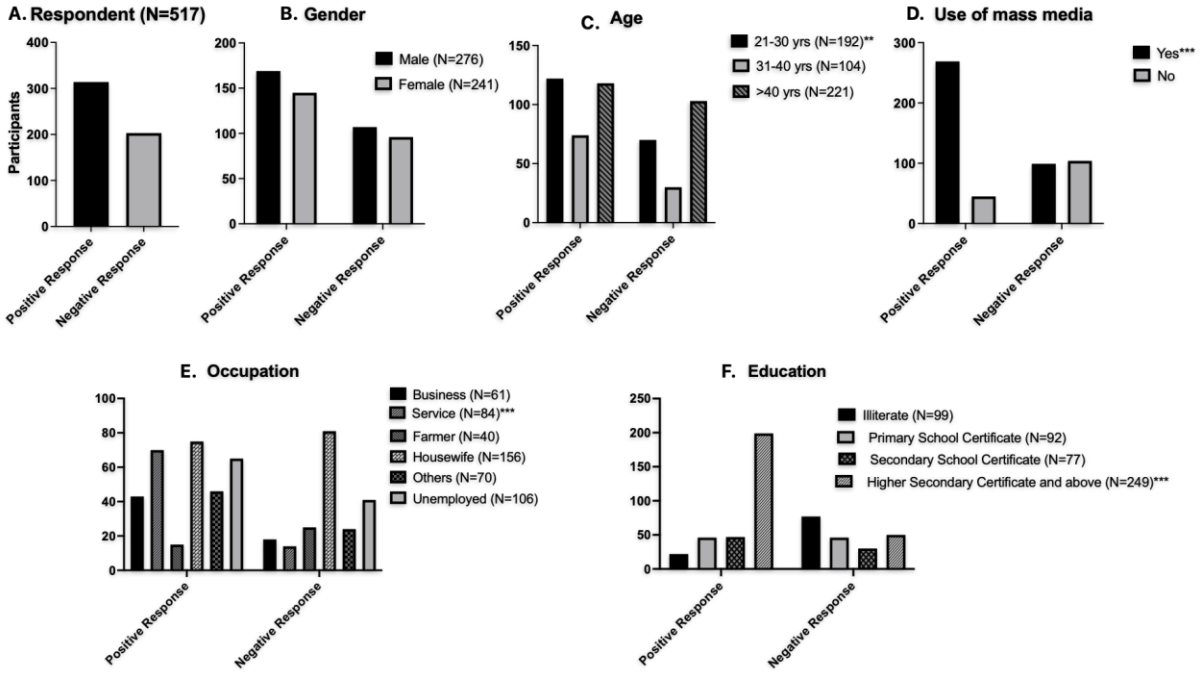

Figure I: **Sociodemographic data of the participants. A. The participant's response towards vaccination, Responses according to B. Gender, C. Age group, D. Mass media user, E. Occupation, F. Educational qualification**

Perception about Vaccination: Among the respondents 98.84% know about the detrimental effects of the COVID-19 disease and 82.40% are concerned about the vaccination program. In terms of acceptance of vaccines, 60.74% participants wanted to be vaccinated as soon as possible (Figure II). The participants who were unwilling to take the vaccine, the most common reason was shown as the adverse effects of the vaccine (46.04%). The other reasons were complex procedures of vaccination (18.32%), doubtfulness about the vaccine's efficacy (15.35%), reduced risk perception about COVID-19 (15.35%) and needle phobia (4.95%).

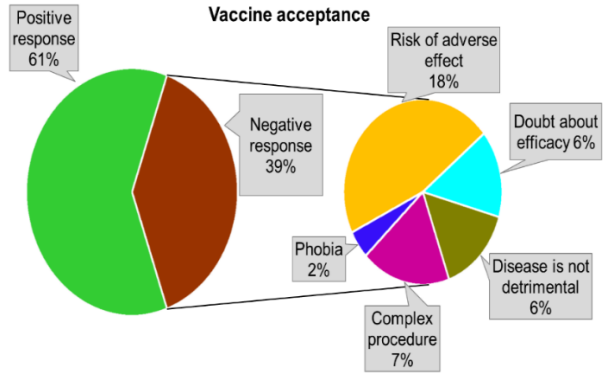

Figure II: Vaccine acceptance responses

Factors Influencing the Vaccine Acceptance: The key factor behind the acceptance of vaccination is the source from which one is getting information about the vaccine. The demographic data specially the educational qualification of the respondents also influence the behavior towards vaccination programs. An educated person has a basic knowledge about the mechanism of vaccines and the procedure of vaccination seems simple to him. The participants who were educated at higher secondary level or more, wanted to be vaccinated (79.92%) but illiterate people's willingness was too small (22.22%). Another strong factor for the acceptance of vaccines is the media (social or mass). The participants using social or mass media are more likely to get the vaccines (p<0.001). The sources of getting vaccine related information are shown in Figure III. The majority of the people acquire information from media (both social and mass media).

Discussion

Vaccination is the most effective to reduce the severity and death from this pandemic. Proper knowledge about the disease and vaccination is helpful for mass vaccination. The study was designed to analyze community people's perceptions and attitudes towards COVID-19 vaccine in Bangladesh. Because the mass people's perception is so important in ensuring the success of a country's vaccination program. This is why the survey was administered just before and during the initial period of the vaccination campaign, explaining the barriers that must be overcome to increase community-wide COVID-19 vaccination rates.

In Bangladesh, the mortality rate is not so high from COVID-19 disease[15]. For this reason, there are some reluctances in common people about the vaccination program. The vaccine hesitancy is also present to some extent in the other countries like the USA and China[16,17]. The results of this investigation indicated that Bangladesh is in the middle countries in terms of public acceptance and willingness to get the COVID-19 vaccines, with 60.74% of participants eager to be vaccinated, whereas global acceptance ranged from 54.8% in Russia to 88.6% in China[18].

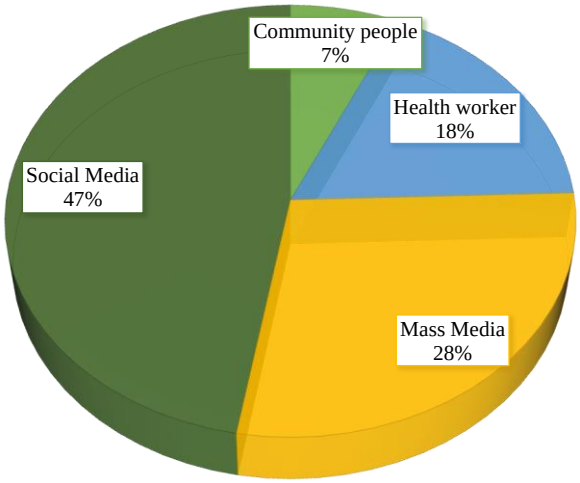

Figure III: Sources of getting Vaccine Related Information

In this study, 39.26% of participants refused to take the vaccine for a variety of reasons, including vaccine adverse effects, a complicated vaccination procedure, doubts about effectiveness, a lack of risk awareness of COVID-19, and needle phobia. The perception of the vaccine's adverse effects is the most common reason for participants' refusal to take it. The risk of side effects is the main barriers for vaccinations in other countries also[19]. People utilized a variety of information resources to learn about the COVID-19 pandemic, including mass media (radio, television, newspapers), friends, social media, healthcare practitioners, coworkers, researchers, governments, and so on[20]. The majority of those who refused to take the vaccination are illiterate or only have primary education. This finding is similar to previous reports[21,22]. They have also very limited access to mass media, social media as well as other information sources. So, this difficulty might be caused by their lack of understanding of the vaccine's effectiveness and adverse effects. Furthermore, the vaccination procedure is also poorly understood by illiterate individuals who are not connected with the information sources eventually that influence their refusal of vaccination. Obtaining information from health workers, on the contrary, is not at a significant level. Although mass media and social media have provided much data regarding COVID-19 and its vaccination, such sources have the potential to influence people's refusal of COVID-19 vaccines. The lack of belief in the vaccine providing authority is also an important factor in this case[23]. Therefore, to gain the belief of the people, especially the hesitant and doubtful, it is crucial to provide transparent and accurate information concerning vaccination safety and efficacy.

This study revealed that COVID-19 vaccination acceptance is higher among younger (21-40 year) individuals. This may be since the young population has a high literacy level and is more likely to engage with social media and mass media. Following COVID-19 vaccination, young people's immune responses were superior to those of the old[24]. Furthermore, businessmen and employed individuals are more likely than farmers and housewives to accept the COVID-19 vaccines. The reasons for this could be their high risk of contracting the disease at the workplace, as well as the government's regulation that they get vaccinated. It is vital to raise public awareness on vaccine effectiveness, adverse effects, and vaccination procedures to promote vaccine acceptability. Therefore, information sharing through healthcare providers can help raise public awareness of the COVID-19 vaccine. Since health workers can significantly affect the vaccination behavior of the public, particularly the illiterate, through consultation. We found that having less educational attainment and understanding about vaccinations is linked to vaccine hesitation, which results in a reduced acceptance rate. The most important factor in increasing vaccination acceptance was having enough & accurate information about the available vaccines. This study provided authorities with in-depth knowledge of the anticipated challenges, issues, and solutions.

Conclusion

Bangladesh has started vaccination against COVID-19 in a mass form which may be boosted up by the wide campaigning through various medium. Positive and evidence-based news about the vaccine should be broadcast by the mass media. The government should take proper initiatives to make the vaccination process easier. The limitation of this study was that the questionnaire was only partially evaluated because no pilot study on a subset of the desired population was conducted. Afterward, this study provides researchers the opportunity to

explore the changing attitudes of Bangladeshis toward vaccines.

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Conflict of Interest
The authors declare 'no conflict of interest.'

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Contribution to authors:
Islam MM: Conception and design, or design of the research; Zobayed A, Manik MIN: the acquisition, analysis, or interpretation of data; conceptualized and designed the overall study. Islam MM, Zobayed A: involved in data collection; Islam MM, Manik MIN: Drafting the manuscript or revising it critically for important intellectual content. Islam MM, Zobayed A: involved in data input and data cleaning. Manik MIN, Zobayed A, Islam MM: conducted data analysis. Islam MM, Zobayed A, Manik MIN: drafted the manuscript.
All authors reviewed and approved the final manuscript.

Data Availability
Any questions regarding the availability of the study's supporti ng data should be addressed to the corresponding author, who can provide it upon justifiable request.

Ethics Approval and Consent to Participate
The Institutional Review Board granted the study ethical approval. Since this was a retrospective study and data were collected from the data bases, it was not needed every study participant formal informed consent.

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