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Research Article

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COVID-19 Vaccine Uptake and Influence of Mass Media: A Cross-Sectional Survey on Community People of Bangladesh

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ABSTRACT

This work aimed to appraise the mass media influence on getting Bangladeshi people vaccinated during the second wave of the coronavirus disease 2019 (COVID-19) pandemic. A cross-sectional study was performed among 1012 eligible respondents using a self-administered questionnaire to obtain data collected in March and April 2021 that assessed 1) the participant demographics, 2) perception towards beliefs and attitudes of COVID-19 vaccination via 5 items, 3) perception towards COVID-19 vaccination barriers via 5 items, 4) exposure to different media for COVID-19 vaccine news via 5 items, and 5) media's credibility in providing key information on COVID-19 vaccines via 5 items. Data were analyzed with frequency, mean and standard deviation of responses on each statement. Multivariable logistic regression analysis was carried out. About 1012 participants were analysed (mean age ± standard error = 45.9 ± 10.6 years, range above 18 years). Most of the participants had positive responses with a high mean score for the media's credibility in providing key information on COVID-19 vaccines (4.46 ± 0.57), perception towards COVID-19 vaccination beliefs and attitudes (3.82 ± 0.78) and exposure to different media for COVID-19 vaccine news (3.76 ± 0.68). Participants' exposure to different media and media's credibility was significantly associated with high adoption of getting vaccinated (AOR = 1.3, 95% CI: 1.1–1.3, $p<0.05$; AOR = 3.1, 95% CI: 1.8–5.7, $p<0.001$, respectively). Research has shown that credible information about vaccines found in the media raised a person's level of motivation by raising awareness and contributed significantly to vaccine adoption.

Keywords: COVID-19, mass media, vaccine news, vaccination, Bangladesh

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INTRODUCTION

According to WHO, the COVID-19 (coronavirus) death toll surpassed three million people worldwide and has triggered over 3 114 766 865 vaccinations (World Health Organization, 2019; The New York Times, 2021). The first confirmed death case in Bangladesh was reported on March 18, 2020 (Rahman *et al.*, 2020), and about 16 639 Covid-19 deaths have been counted so far (World Health Organization, 2020). That's why vaccination was imposed by experts to combat coronavirus disease 2019. But there is a risk of growing vaccine hesitancy and low vaccination rates, the question is can mass media inspire people to take the COVID-19 vaccine to overcome the pandemic. Research suggests that the effects of various media—traditional print media, television, and emerging forms of social media on the Internet— can influence public perceptions of vaccines or increase the credibility of vaccination information (VTechWorks, 2021). Thus, mass media intervention is a must to address the current challenges of COVID-19 vaccination programs. To the best of the authors' knowledge, so far, no study has been undertaken on this issue. This article intends to assess the association of perception towards COVID-19 vaccination barriers, exposure to different media for COVID-19 vaccine news, and media's credibility in providing key information on COVID-19 vaccines, which influence vaccination of the respondents.

METHODOLOGY

Study Design and Technique

The influence of mass media in framing an idealized vaccination acceptance in the minds of people, their views, and opinions

are studied in this research paper. A structured questionnaire was developed and used to obtain data collected in March and April 2021 that assessed 1) the participant demographics, 2) perception towards beliefs and attitudes of COVID-19 vaccination via 5 items, 3) perception towards COVID-19 vaccination barriers via 5 items, 4) exposure to different media for COVID-19 vaccine news via 5 items, and 5) media's credibility in providing key information on COVID-19 vaccines via 5 items. Besides, the opinions of an expert panel were evaluated to set and validate the questionnaire.

Questionnaires were administered based on the chain-referral sampling technique to respondents over aged 18 years in this cross-sectional survey.

Total 802 eligible respondents who at least take a single dose of coronavirus vaccines responded correctly through Google Docs and 210 through a face-to-face interview. So, the whole sample sizes were 1012. For assessing the 5-item perceptions towards COVID-19 vaccination beliefs and attitudes, 5-item perceptions towards COVID-19 vaccination barriers, 5-item exposure to different media for COVID-19 vaccine news, and 5-item media's credibility in providing key information on COVID-19 vaccines, responses to items from respondents were collected using a 5-point (1-5) Likert-type scale from 'strongly disagree' to 'strongly agree'. Cronbach's alpha was computed and it was within the satisfactory level (≥0.70) with a value of 0.85. Statistical analysis was performed using the Statistical Package for Social Science (SPSS) 25.0.

Data Analyses

Data were examined by computing frequency, mean values and standard deviation of responses on each statement. Moreover, to assess the statistically significant relationship among the variables that significantly contributed to the prediction, a multivariable logistic regression analysis was performed to compute adjusted odds ratios (AOR) with 95% confidence intervals (95% CI) for all variables having a p-value < 0.2 in the univariate analyses (Huynh *et al.*, 2021). A p-value of below 0.05 was regarded as statistically significant. Cronbach's α was computed to evaluate the internal reliability and consistency of the questionnaire.

Table 1: Demographic Characteristics of Study Population (N = 1012)

Item	Overall n (%)	Mean ± SD
Gender		
Male	304 (30.1)	
Female	708 (69.9)	
Age		45.9 ± 10.6
Marital status		
Married	760 (75.1)	
Never married	189 (18.7)	
Divorced/separated/widowed	63 (6.2)	
Education		15.8 ± 1.57
Employment status		
Employed	663 (65.5)	
Retired	235 (23.2)	
Homemaker	63 (6.2)	
Full-time student	51 (5.1)	

Ethical Statement

Informed consent was collected, and anonymity was ensured electronically before data acquisition. Proposal evaluation and ethical committee of Noakhali Science and Technology University, Noakhali, Bangladesh adequately reviewed and approved the questionnaire survey content and procedure.

RESULTS AND DISCUSSION

Demographics and Likelihood of Vaccination in Relation to Mass Media Influences

The sample consisted of 1012 eligible participants whose mean age was 45.9 ± 10.6 years, the majority of whom were female (69.9%), with almost half were employed (65.5%). Education level ranged from 0 to 20 years, with a mean of 15.8 (SD = 1.57) (Table 1).

Table 2: Appraisal of Mass Media Influence on COVID-19 Vaccine Recipients (N = 1012)

Perception towards beliefs and attitudes of COVID-19 vaccination	3.82 ± 0.786
Take whatever vaccine is made available to you first, even if you have already had COVID-19	3.04 ± 1.240
Need to prioritize going back to our normal routines (opening schools, colleges, offices) as soon as possible by ensuring mass vaccination campaigns	3.79 ± 1.063
If vaccination rates continue to rise, the virus will have fewer and fewer possible hosts	3.92 ± 0.903
COVID-19 vaccine is not for people with chronic medical conditions	4.42 ± 0.751
Experience side effects from COVID-19 vaccines when get vaccinated	3.97 ± 1.160
Perception towards COVID-19 vaccination barriers	3.09 ± 0.865
Possible to get COVID-19 even after full vaccination	4.01 ± 1.079
COVID-19 vaccine alter human DNA	2.78 ± 1.620
COVID-19 vaccine was developed with or contains controversial substances	2.89 ± 1.595
Believe in waiting for the vaccine that is more effective	2.81 ± 1.228
Vaccine cannot be safe because researchers developed them so quickly	2.97 ± 1.103
Exposure to different media for COVID-19 vaccine news	3.76 ± 0.686
Conservative news outlets is a platform that focuses on promoting trusted news about the COVID-19 vaccines conservative news outlets	3.14 ± 1.254
Mainstream broadcast media is a platform that focuses on promoting trusted news about the COVID-19 vaccines	3.82 ± 0.890
Mainstream print media is a platform that focuses on promoting trusted news about the COVID-19 vaccines	3.48 ± 0.637
Online media is a platform that focuses on promoting trusted news about the COVID-19 vaccines	3.71 ± 1.049
Social media is a platform that focuses on promoting trusted news about the COVID-19 vaccines	4.24 ± 0.853
Media's credibility in providing key information on COVID-19 vaccines	4.46 ± 0.572
Vaccines proven to help protect from coronavirus disease	4.50 ± 0.792
The benefits of receiving the COVID-19 vaccine far outweigh the risk	4.45 ± 0.856
Priority will be given to those at greater risk of infection, such as healthcare and COVID-19 frontline workers, as well as vulnerable groups, including seniors	4.48 ± 0.729
Even after receiving the full vaccination, it will take time to immunize enough to stop the virus from spreading, so need to continue the precautionary measures for COVID	4.37 ± 0.757
It's important to follow the COVID vaccine dosing schedules	4.51 ± 0.780

Table 3: Multivariable Logistic Analysis of Factors Associated with COVID-19 Vaccination Acceptance (N = 1012)

Domain	Univariate Analysis		Multivariable Logistic Regression	
	OR (95% CI)	P	AOR (95% CI)	P
Age	1.03 (1.11–1.12)	0.153	1.3 (1.1–1.2)	0.458
Gender (male)	1.4 (1.2–2.9)	0.154	1.4 (0.7–2.6)	0.225
Perception towards beliefs and attitudes of COVID-19 vaccination	1.9 (1.3–2.6)	0.067	1.8 (1.3–2.3)	0.095
Perception towards COVID-19 vaccination barriers	0.9 (0.5–1.3)	0.527	–	–
Exposure to different media for COVID-19 vaccine news	1.3 (1.1–1.4)	0.005	1.3 (1.1–1.3)	0.025
Media's credibility in providing key information on COVID-19 vaccines	3.8 (2.2–6.2)	<0.001	3.1 (1.8–5.7)	<0.001

If multivariable logistic regression is not available

Most of the participants had a positive influence through mass media in relation to the COVID-19 vaccination, with a high mean score for the media's credibility in providing key information on COVID-19 vaccines (4.46 ± 0.57), perception towards COVID-19 vaccination beliefs and attitudes (3.82 ± 0.78) and exposure to different media for COVID-19 vaccine news (3.76 ± 0.68), but a slightly lower score, 3.09 ± 0.86, acknowledged the perception towards COVID-19 vaccination barriers (Table 2).

Predicting Contribution of Mass Media Influences on Getting Vaccinated

The vaccination acceptance was significantly related to the exposure to different media for COVID-19 vaccine news and the media's credibility in providing key information on COVID-19 vaccines, but the baseline demographics were not. Accordingly, there was a 1.3-fold increase in the odds of acceptance of a COVID-19 vaccination for a one-unit increase in "the exposure to different media for COVID-19 vaccine news" (AOR 1.3, 95% CI: 1.1-1.3, $p<0.05$), and there was a 3.1-fold increase in the odds of vaccination acceptance for a one-unit increase in "the media's credibility in providing key information on COVID-19 vaccines" (AOR 3.1, 95% CI: 1.8-5.7, $p<0.001$) (Table 3). In many earlier studies, it was suggested that vaccine shots can keep away from COVID-19 (Giubilini *et al.*, 2020; Wouters *et al.*, 2021), and this study signified that mass media contributed more to creating awareness of getting vaccinated among the respondents. However, further qualitative studies will be required to get more in-depth knowledge.

CONCLUSION

The findings from this study show that exposure to different media and media's credibility was significantly associated with high adoption of getting vaccination (AOR 1.3, 95% CI: 1.1–1.3, $p<0.05$; AOR 3.1, 95% CI: 1.8–5.7, $p<0.001$, respectively). This study also found that using media to share information and raise awareness are important factors that can uplift a person's level of motivation and can change his or her perception of taking vaccine shots. However, if a person lacks interest in different media platforms, he or she will be unaware of the role of the media in COVID-19 vaccines. Therefore, long-term media awareness campaigns on COVID-19 vaccine uptake should be organized for people who use different media, at the same time good relations between experts and people should be encouraged.

AUTHOR STATEMENTS

Competing Interests

The authors declare that they have no competing interests.

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