



Assessing the impact of COVID-19 vaccine in human: Bangladesh perspective

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**The thesis submitted is in the partial fulfillment of the
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September 2021

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This is to certify that we have examined the above MPH (One Health) thesis and have found that it is complete and satisfactory in all respects, and all revisions required by the thesis examination committee have been made.

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List of Abbreviations

Abbreviation	Elaboration
ACLF	Acute chronic liver failure
CI	Confidence interval
COV	Cut-off value
CWASA	Chattogram Water Supply and Sewerage Authority
EDTA	Ethylene Diamine Tetra Acetic acid
ELISA	Enzyme-linked immunosorbent assay
FHF	Fulminant hepatic failure
HEV	Hepatitis E virus
HSPGs	Heparan sulfate proteoglycans
icddr,b	International Centre for Diarrhoeal Disease Research, Bangladesh
IgA	Immunoglobulin A
IgG	Immunoglobulin G
IgM	Immunoglobulin M
INSDC	International Nucleotide Sequence Database Collaboration
OR	Odds ratio
PCR	Polymerase chain reaction
ROC	Receiver operating characteristic curve
UK	United Kingdom

Abstract

COVID-19 disease is caused by the RNA virus SARS-CoV-2. Since its emergence, it had a devastating effect on the entire world claiming so many lives so far. Although preventive measures implemented, disease spread could not be stopped. Hence vaccinating against the virus seems to be a valuable option to prevent the disease or at least reduce the intensity of disease spread. Since vaccines developed in pandemic situations lack adequate trials on different populations owing to time constraints, the post vaccination adverse effects are still not well understood. COVISHIELD was the first vaccine administered in Bangladesh. Since not much is known about the side effects this vaccine can have on the general population of Bangladesh, this study has been undertaken to identify the various adverse effects of COVISHIELD in our population as well as to see what risk factors are associated with the development of COVID-19. This cross-sectional study was conducted between February to April 2021 in Bangladesh. A questionnaire was developed and distributed through various platforms on social media. All people who had taken at least one dose of COVISHIELD vaccine in Bangladesh were requested to fill out the questionnaire. A total of 400 samples were included in this cases study. More than half the respondents were between 30-50 years age group (58%), belongs to higher socioeconomic class (50.5%), and were employees at private firms (51.75%). Significant risk factors associated with development of COVID-19 prior to vaccination were gender ($p=0.013$), age ($p<0.001$), Socioeconomic status ($p=0.001$), occupation ($p<0.01$) and comorbidities like diabetes ($p<0.01$) and hypertension ($p<0.01$). The most common symptom following vaccination was pain at the injection site ($n=275$) followed by myalgia ($n= 153$), lethargy ($n= 131$), arthralgia ($n=119$), and fever ($n=95$). Sickness following vaccination lasted for less than a week for majority of respondents. Following vaccination 23 respondents tested positive for COVID-19 with a peak of incidences on the 8th day post vaccination. Despite the various adverse effects, vaccination against COVID_19 is strongly recommended since acquiring the disease is far more detrimental.