

# Study of COVID 19, COVID 19 Vaccination and its Impact

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## ABSTRACT

Vaccination with a 95% efficacy against disease could substantially mitigate future attack rates, hospitalizations, and deaths, even if only adults are vaccinated. Non-pharmaceutical interventions remain an important part of outbreak response as vaccines are distributed over time. To bring the lives to near normal, only option to attain it is mass vaccination in order to attain a herd immunity of >70 percent. A multicentric study was carried out two sites. A total of 160 patients were studied, 80 in a hospital set up and 80 in community. It was observed that severity of symptoms in cases who had received vaccination was less as compared to unvaccinated lot. Also the vaccination was viewed positively by the majority of the respondents.

**Keywords:** COVID 19; Vaccine; Impact

## Introduction

COVID-19 has rapidly become a major public health crisis, affecting 86.4 million individuals, and causing 1.9 million deaths globally by January of 2021. The US has reported more than 21 million cases and 357,000 deaths as of 5 January 2021 [1]. To curb this pandemic, apart from effective public health measures such as social distancing, wearing face masks, hand washing, and avoidance of crowded indoor spaces, educating the general population, efficacious vaccination is emerging as essential to mitigating disease and death [2-6]. Despite unprecedented movement restrictions, social distancing measures, and stay-at-home orders enacted in many countries, the COVID-19 pandemic has caused devastating

morbidity and mortality. However, the vast majority of the global population remains susceptible to COVID-19, highlighting the need for an effective vaccine. To mitigate the mounting burden of COVID-19, vaccine development has occurred at an unprecedented pace. As of December 31, 2020, safety and efficacy results for a number of vaccines have been reported, and Phase III clinical trials for several other candidates are underway [5]. Results from two large efficacy trials (Pfizer - BioNTech, Moderna) indicate a vaccine efficacy of over 90% against symptomatic and severe disease, exceeding the preferred population-based efficacy specified by the World Health Organization and the United States (US) Food and Drug Administration (FDA).

These vaccines have received emergency use authorization by the FDA, and vaccination has already started in the US with prioritization of healthcare workers, long-term care residents, and high-risk individuals. This compels an urgent need to understand the potential population-level impact of vaccination on COVID-19 transmission and disease outcomes [6]. COVID 19 has emerged as greatest challenge that has weakened the very basis of human existence. It has devastated economies and created unparalleled human needs. It has overstretched health systems that has been seen never before. Even plague of middle age Europe and Spanish flu were less devastating than COVID 19 pandemic. The study aimed at showing the impact of vaccination on people.

### Objective

Study of impact of COVID 19 vaccination.

### Methodology

- **Study design:** Prospective study design.
- **Study duration:** Two weeks.
- **Study setting:** Multi centric study, hospital and community based.
- **Study tool:** A Predesigned and pretested proforma validated by a pilot study.
- **Sampling:** Simple random sampling.
- **Exclusion criteria:** Preprocedural cases.

### Data analysis

The data was received from the answered questionnaires and was plotted on excel 2013. The data was analyzed statistically with the help of statistical software SPSS v19. All the continuous variables of the study were represented by the descriptive statistics and all the categorical variables in the term of frequency and percentage.

### Result

(Tables 1-4).

**Table 1:** Total Subjects.

Site	Frequency
Hospital based	80
Community based	80
Total	160

**Table 2:** Vaccination Status.

Vaccination status	Severity of symptoms	P value
Fully vaccinated	Mild	0.0001
Partly vaccinated	Moderate	
Unvaccinated	Severe	

**Table 2:** Vaccine Acceptance.

Vaccine Acceptance	Frequency
Hesitancy	20
Acceptance	140
Total	160

**Table 3:** Side Effects of Vaccination.

Severity	Frequency
Mild	130
Moderate	20
Severe	10

### Discussion

COVID-19 outbreaks have caused significant global morbidity and mortality, in addition to undermining the economic and social well-being of individuals and communities. Despite this devastating toll, the majority of the population remains susceptible to SARS-CoV-2 infection. Thus, vaccine development has been a high priority. The scale and speed of vaccine development efforts have been unprecedented, and highly protective vaccines are beginning to be distributed. This study shows that COVID-19 vaccines with 95% efficacy in preventing disease, even if they conferred limited protection against infection, could substantially mitigate future attack rates, hospitalizations, and deaths. Given the limited population-level immunity to COVID-19, vaccination remains a key preventive measure to reduce disease burden and mitigate future outbreaks. Our study suggests that a vaccine could have a substantial impact on reducing incidence, hospitalizations, and deaths, especially among vulnerable individuals with comorbidities and risk factors associated with severe COVID-19. Thus, mobilizing public health resources is imperative to achieve the proposed goal of distributing 100 million vaccine doses over 100 days in the US population by the incoming administration.

Our findings support the Advisory Committee on Immunization Practices recommendations, highlighting that a targeted vaccination strategy can effectively mitigate disease burden and the societal impact of COVID-19. We also find that, even with the relatively rapid roll-out simulated here, it may take several months to control COVID-19 at the population level. Moreover, this impact is achieved in the context of continued public health efforts and is not possible without diligent attention to the other aspects of infection prevention and control such as masking, hand hygiene, testing, contact-tracing, and isolation of infected cases. If current vaccination programs are accompanied by widespread relaxation of other measures, a much higher coverage will be necessary with a significantly higher distribution capacity. Nevertheless, our results are an encouraging signal of the power and promise of vaccines against COVID-19.

## Summary

Vaccination with a 95% efficacy against disease could substantially mitigate future attack rates, hospitalizations, and deaths, even if only adults are vaccinated. Non-pharmaceutical interventions remain an important part of outbreak response as vaccines are distributed over time. A multicentric study was carried out two sites. A total of 160 patients were studied, 80 in a hospital set up and 80 in community. It was observed that severity of symptoms in cases who had received vaccination was less as compared to unvaccinated lot. Also, the vaccination was viewed positively by the majority of the respondents.

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