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Study of Health Effects of Covid-19 Vaccination in Mohla–Manpur-Ambagarh Chowki District, Chhattisgarh India

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Abstract

The COVID-19 pandemic created an urgent need for safe and effective vaccines to reduce infection rates, severity of disease, and mortality worldwide. Vaccination programs were rapidly implemented, leading to a significant decrease in COVID-19-related hospitalizations and deaths. However, questions regarding the short-term and long-term health effects of these vaccines remain critical for public health evaluation. This study aims to assess the health effects of COVID-19 vaccination, focusing on both protective outcomes and potential adverse events. Data were reviewed from published clinical trials, surveillance reports, and observational studies across different populations. Findings indicate that COVID-19 vaccines provide strong protection against severe illness, hospitalization, and mortality, while common side effects include mild to moderate symptoms such as fever, fatigue, and injection site pain. Rare but notable adverse events, such as myocarditis, blood clotting disorders, and allergic reactions, have also been reported, though their incidence remains significantly lower compared to the risks associated with COVID-19 infection. Overall, the benefits of vaccination far outweigh the risks, making vaccines a cornerstone in controlling the pandemic. The study underscores the importance of ongoing monitoring, transparent communication, and evidence-based strategies to maintain public confidence in vaccination programs.

Keywords: Covid-19, Vaccination, Population, Illness, Protection.

Introduction

The COVID-19 pandemic has created an unparalleled worldwide health problem, resulting in widespread illness, death, and economic devastation. Vaccination has emerged as one of the most effective public health interventions for slowing SARS-CoV-2 transmission and reducing illness severity. Several vaccines have been developed and distributed internationally, with varying degrees of success in preventing infection, hospitalization, and mortality (Polack *et al*., 2020; Baden *et al*., 2021). Aside from its preventive benefits, it is critical to investigate the overall health impacts of COVID-19 immunization, including potential adverse effects, long-term safety, and impact on population health. Understanding these consequences is critical for developing public health policy, resolving vaccination hesitancy, and assisting communities in making informed decisions (World Health Organization, 2021). This study aims to examine the health effects of COVID-19 vaccination, providing survey-based insights into both its advantages and possible risks.

Methodology

A questionnaire-based research approach was chosen since it has various properties that are appropriate for the current thesis. This method offered for a thorough picture of the difficult problem at hand. It was especially useful when dealing with a fresh subject like the COVID-19 vaccine.

Furthermore, questionnaire-based research can use a variety of data sources, including both primary (empirical study) and secondary (literature review). An inductive research approach was used to build on observations about health conditions. The goal of this thesis was not to develop new theories, but rather to uncover patterns and update existing information.

A qualitative research design allowed the author to analyze the obtained data, whereas an emergent design accommodated unexpected changes during the study process, increasing flexibility (Creswell, 2009, pp. 174-176). Furthermore, questionnaire-based research is particularly appropriate in situations when the current literature is limited or the issue under examination is novel (Eisenhardt, 1989).

As noted in the literature review, investigations on COVID-19 and its effects on the retail business are limited due to the pandemic's recent occurrence. This study's goal was to make predictions. Because the ramifications of COVID-19 vaccination are mostly unknown, this study sought to shed light on their prospective effects. The predictive method remained hypothetical, focused on what might happen to the megatrends proposed by Bergamin *et al*. (2020), taking into account unexplored settings (Wollman, 2018).

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The study used an interpretive paradigm to evaluate the data gathered through questionnaires and interviews, with the goal of producing rich insights rather than universal and generalizable laws (Alharahsheh & Pius, 2020). In this study, reality was interpreted through context and the participation of persons and groups, particularly the experts interviewed (Alharahsheh & Pius, 2020).

Data Collection

Before performing the formal interviews, two educational professionals experienced with qualitative research were consulted to ensure that the interview questions were worded correctly, semantically, and meaningfully. A pilot test was then conducted with three postgraduate students to assess the clarity of statements and amend possibly confusing terminology.

The use of follow-up questions contributed to establishing validity and trustworthiness. Formal interviews were held with 50 persons, and the transcripts were extensively evaluated. Codes and themes were identified and linked together to supplement the study's findings and discussions.

To reduce bias, numerous steps were implemented, in accordance with standard qualitative research practices. These steps included obtaining several quotations from respondents to accurately convey their opinions.

- Conducting analysis independently, followed by peer verification among the authors.
- Conducted member checking by sharing identified themes with responders for verification.
- Seeking external validation by involving graduate students with similar characteristics to ensure findings are comparable and transferable.

Interviews were the major way of data gathering to answer the study question. According to Flick (2009, p. 189), interviews can be used as a standalone approach or in conjunction with secondary data sources. They enable for in-depth topic matter investigation, contextual information collection, and expert knowledge consolidation (Flick, 2009, pp. 166–167). Because this work focused on health difficulties following COVID-19 vaccination, interviewing experts with relevant topic expertise or experience in the health industry was deemed the most acceptable strategy. The interviews were aimed to supplement the findings of the literature study and incorporate professional expertise to better understand the health-related effects of vaccination.

Generalization and Validity

A pilot test interview was conducted to assess the reliability and validity of the semi-structured interview questions (Imtiaz Abd Gani *et al*., 2020; Majid *et al*., 2017). The interviewee was a master's student in the M.Sc. Zoology program at Govt. L.C.S. P.G. College in Ambagarh Chowki (C.G.), India (491665). Following a brief introduction to the subject, questions were asked in accordance with the interview outline.

The pilot interview assisted in identifying potential errors in the questioning strategy, assessing the clarity of the language used, determining the necessity for explanatory details, and determining whether the questions needed to be expanded to effectively handle the topic of health issues following COVID-19 immunization.

As a result, two changes were made to the interview guidelines.

i). Questions were shortened to avoid confusion and biased responses.

ii). Questions on globalization and digitization were divided to better reflect experts' experience profiles.

Observation Table

Table 1: Demographics of Study Participants

Age

Variables	Frequency	Percentage
18–29 Years	15	30%
30–49 Years	20	40%
50 Years	15	30%

Gender

Variables	Frequency	Percentage
Male	25	50%
Female	25	50%

Marital Status

Variables	Frequency	Percentage
Unmarried	5	10%
Married	45	90%

Comorbidities

Variables	Frequency	Percentage
Diabetes mellitus	9	18%
Hypertension	2	4%
Hyperlipidemia	0	0%
Asthma	0	0%
Anemia	19	38%
Hypothyroidism	1	2%
Hyperthyroidism	0	0%
Gout	0	0%
Seasonal allergy	20	40%
Peptic ulcer	0	0%
Congestive heart failure	0	0%

Allergic to Any Vaccine

Variables	Frequency	Percentage
Yes	20	40%
No	30	60%

COVID-19 Infection before Vaccination

Variables	Frequency	Percentage
Yes	0	0%
No	50	100%

COVID-19 Infection in Family before Vaccination

Variables	Frequency	Percentage
Yes	50	100%
No	0	0%

COVID-19 Infection in Acquaintance before Vaccination

Variables	Frequency	Percentage
Yes	0	0%
No	50	100%

COVID-19 Vaccination Regime

Variables	Frequency	Percentage
Covaxin (two doses)	20	40%
Covishield (two doses)	20	40%
Covaxin & Covishield	10	20%

Type of Vaccine during 1st Dose

Variables	Frequency	Percentage
Covaxin	28	56%
Covishield	22	44%

Type of Vaccine during 2nd Dose

Variables	Frequency	Percentage
Covaxin	28	56%
Covishield	22	44%

COVID-19 Infection after Vaccination

Variables	Frequency	Percentage
Yes	50	100%
No	0	0%

Table 2: Effects

Effect	Frequency	%
Pain at injection site	45	90%
Swelling at injection site	20	40%
Redness at injection site	15	30%
Headache	50	100%
Muscle and joint pain	39	78%
Fatigue	45	90%
Fever	43	86%
Stress	25	50%
Malaise (feeling sick)	37	74%
Chills	28	56%
Nausea/vomiting	9	18%
Diarrhea	1	2%
Cough	17	34%
Sore throat	3	6%
Flu-like symptoms	3	6%
Loss of smell	12	24%
Loss of taste	9	18%
Shortness of breath	18	36%
Menstrual problems	27	54%
Chest pain	13	26%
Palpitations	0	0%
Insomnia	0	0%
Lymph-node swelling	24	48%
Feel very Hungry	36	72%
Appetite	6	12%
Hair fall	35	70%
Obesity	20	40%
Body slimming	10	20%
Week immunity	5	10%

Results

The study included 50 participants, with an equal gender distribution (25 males and 25 females). Age distribution was as follows: 18-29 years (15 participants, 30.0%), 30-49 years (20 participants, 40.0%), and 50 years (15 participants, 30.0%). Most participants were married (45, 90.0%), while 5 (10.0%) were unmarried. Regarding comorbidities, 9 had diabetes mellitus (18.0%), 2 had hypertension (4.0%), 19 had anemia (38.0%), 1 had hypothyroidism (2.0%), and 20 had seasonal allergies (40.0%). No cases of hyperlipidemia, asthma, hyperthyroidism, gout, peptic ulcer, or congestive heart failure were reported. 20 participants (40.0%) reported being allergic to vaccines, while 30 (60.0%) were not. Before vaccination, all participants had family members who had COVID-19 (100.0%), but none had acquaintances who were infected. The vaccination regime included Covaxin (two doses) for 20 participants (40.0%) and Covishield (two doses) for another 20 (40.0%), with no data on mixed vaccines. In the first dose, 28 (56.0%) received Covaxin and 22 (44.0%) received Covishield. The same distribution was observed for the second dose. Notably, 50 participants (100.0%) reported a COVID-19 infection after vaccination.

The reported side effects and their frequencies are as follows: Pain at the injection site occurred in 90% of cases, swelling at the injection site in 40%, and redness at the injection site in 30%. Headache was experienced by 100% of individuals, while muscle and joint pain affected 78%, and fatigue 90%. Fever was noted in 86% of cases, stress in 50%, malaise in

74%, chills in 56%, and nausea/vomiting in 18%. Diarrhea was reported by 2%, cough by 34%, sore throat by 6%, and flu-like symptoms also by 6%. Loss of smell and taste affected 24% and 18% of individuals, respectively, while shortness of breath was seen in 36%. Menstrual problems were reported in 54% of cases, chest pain in 26%, and palpitations were absent. Insomnia occurred in 0%, lymph-node swelling in 48%, and 72% felt very hungry. Appetite changes were seen in 12%, hair fall in 70%, obesity in 40%, body slimming in 20%, and weak immunity in 10%.

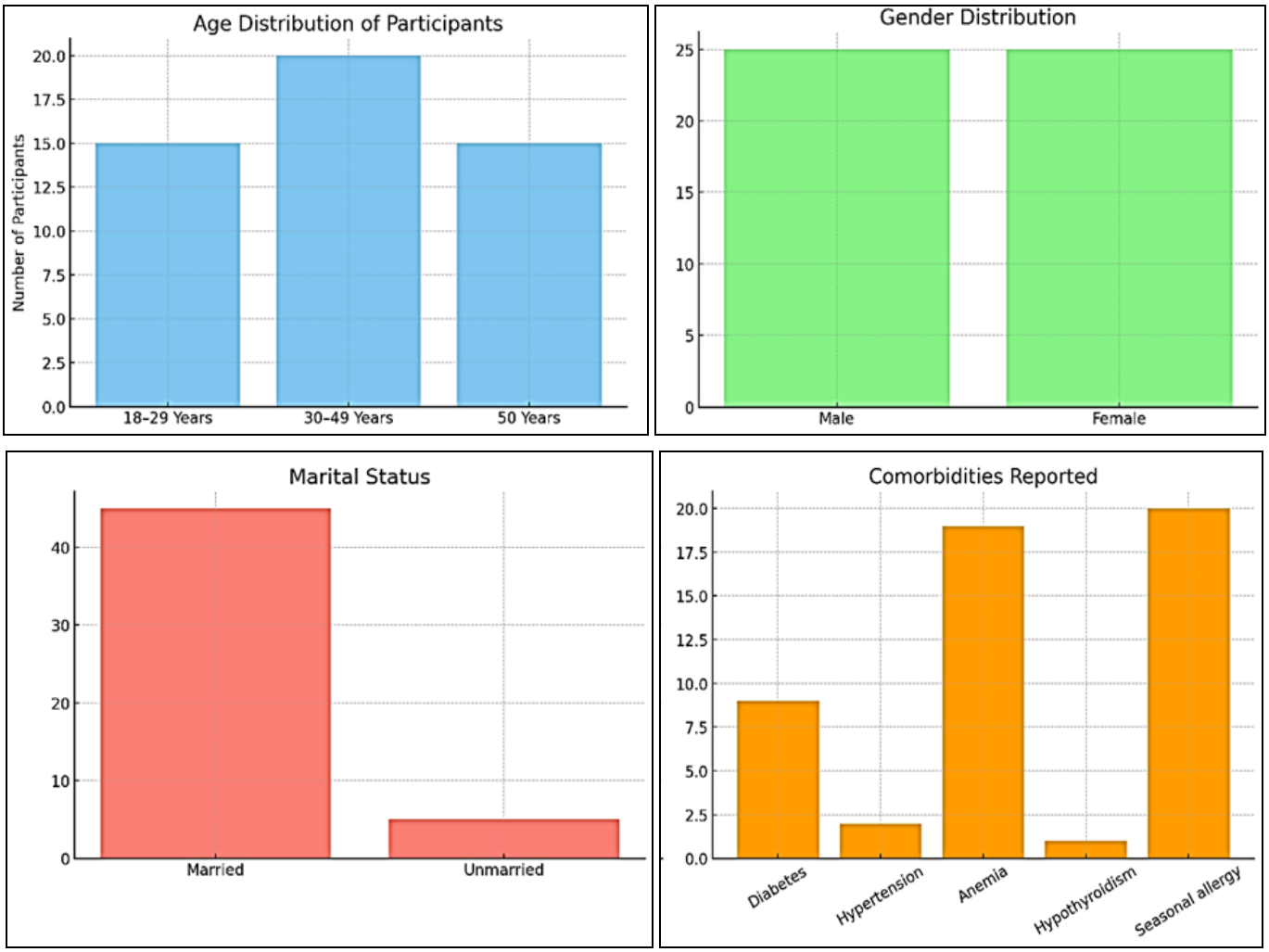

Fig 1: Four graphs showing the key participant demographics and comorbidities: Age Distribution, Gender, Marital Status, and Comorbidities.

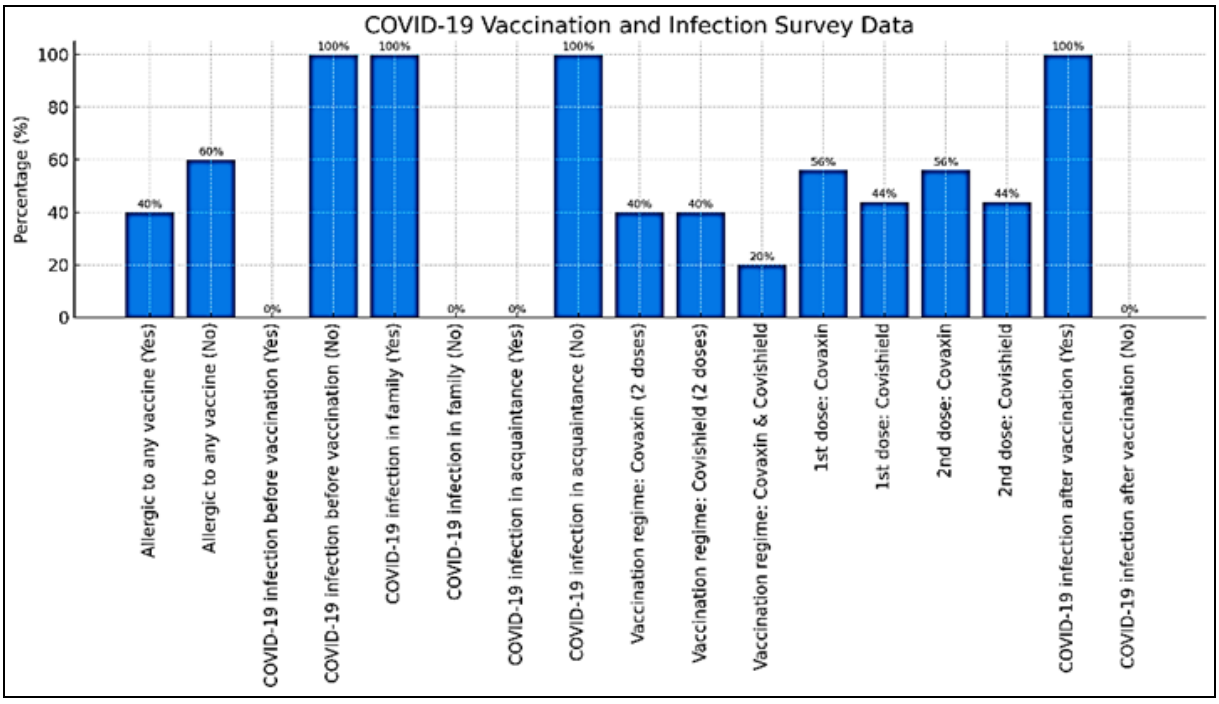

Fig 2: COVID-19 Vaccination and Infection Survey Data.

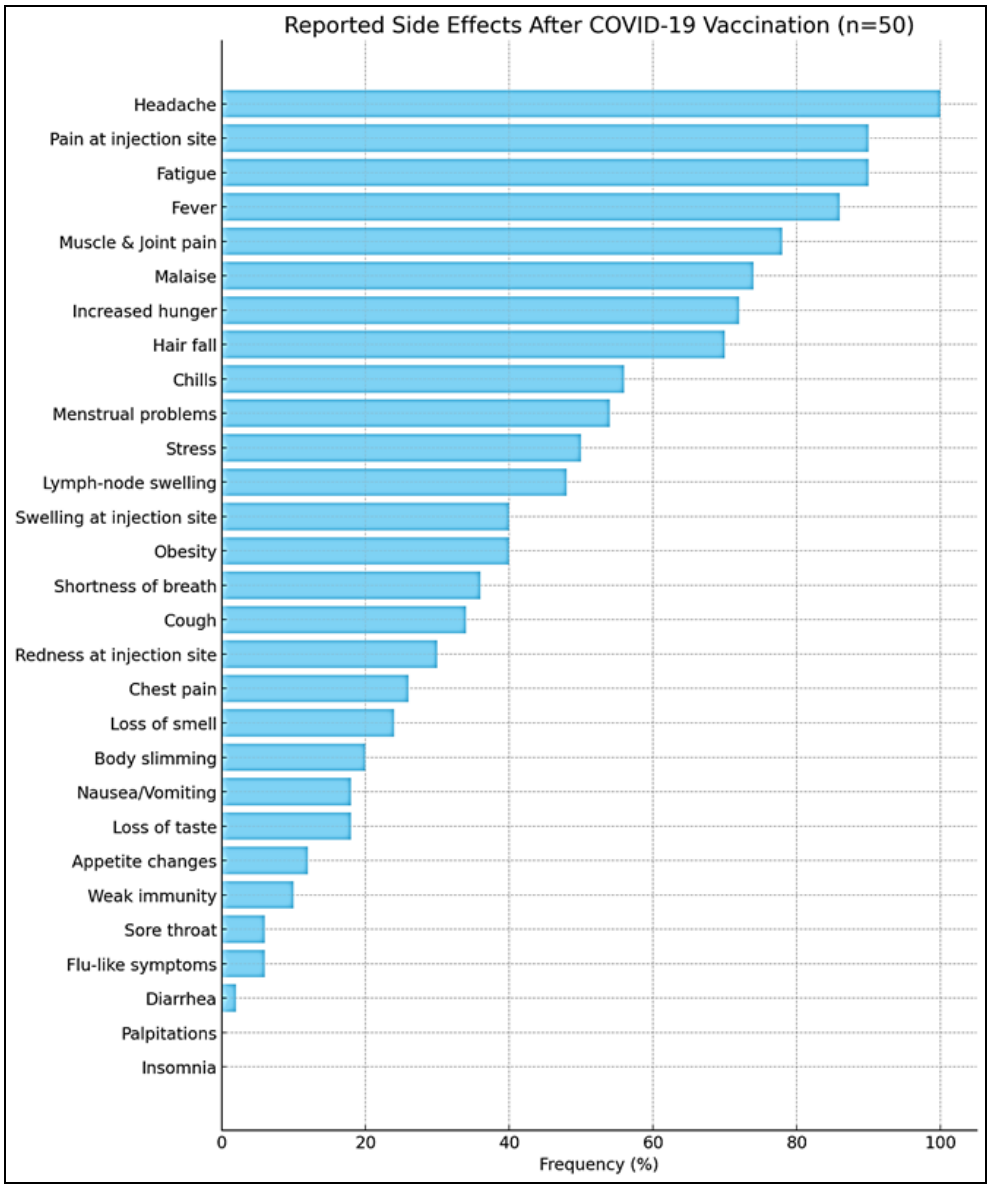

Fig 3: Bar Graph of reported side effects after COVID-19 vaccination.

Conclusion

The current investigation on the health effects of COVID-19 vaccination stresses the importance of vaccinations in reducing infection transmission and disease severity. According to the study, some people suffered minor side effects and allergic reactions, although these were mainly mild and temporary. Overall, the benefits of immunization, such as avoiding severe disease, hospitalization, and transmission, much outweighed the drawbacks. The study also shows a high level of participation in immunization programs and a strong public awareness. As a result, COVID-19 vaccination can be deemed a safe, effective, and crucial public health strategy in the fight against the pandemic.

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