

THE PREVALENCE OF ADVERSE EFFECTS IN MEDICAL STUDENTS RECEIVING COVID-19 VACCINATION-ISLAMABAD

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ABSTRACT

Objectives: To identify the reported adverse effects related to COVID-19 vaccination in medical students of Islamabad

Design: Descriptive Cross-Sectional study.

Duration: The study was carried out in the medical colleges of Islamabad. It was a study of 8 weeks conducted between August and September, 2021.

Materials and Methods: The study used an online questionnaire Google form having twenty-one questions each providing multiple choices in relation to demographic aspects of the participants, anamnesis related to COVID-19 vaccines as well as systemic side effects.

Results: About 10.9% of the participants reported no adverse events following immunization. Majority of the students got vaccinated with Sinopharm and SinoVac. The most common side effects were sore arm (23.3%), generalized weakness (16.7%), headache (10.1%), fever (6.2%), muscle pain (4.7%), localized swelling at injection site (6.2%). Majority (32.5%) experienced the symptoms after receiving the first dose, while 15% experienced them after 2nd dose.

Conclusion: The findings of the study showed that majority of the medical students developed mild and negligible post vaccination adverse effects. No adverse consequences were reported.

Keywords:

Adverse Effects, COVID-19 vaccines, Medical students, Sinopharm, Sinovac

INTRODUCTION

By June 2021, 181 million people have been reported to be infected with COVID-19 and more than 4 million died of the same. Seventy third World Health Assembly emphasized the role of immunization in the prevention and containment of SARS-CoV-2 transmission. There are presently over 125 vaccines manufactured worldwide, 365 vaccine trials in progress, and 18 COVID-19 vaccines given approval for mass immunization. Rapid development of vaccines against COVID-19 has led to speculations about vaccine safety in the high income countries.¹

Despite the shocking number of deaths from COVID-19, there are many individuals and families in

America who are suffering from vaccine hesitancy fearing side effects and most of these people are found to be from poor educational backgrounds and residing in the rural areas. The study calls attention to formulate legible and accessible health communications for wider and varied population dispelling the myths surrounding COVID-19 vaccinations especially regarding their side effects.² It is vital that governments develop communication strategies and inform the public regarding the concept of herd immunity and vaccine safety. Building trust in vaccines by broadcasting the positive image of COVID-19 vaccines, will help increase the coverage and end the ongoing pandemic.³

The vulnerability of Pakistan to conspiracy narratives in immunization context has been preventing the country from becoming Polio free and in the current state of affairs it has been quite a challenge for health authorities to build public confidence in COVID-19 vaccines and ensure the masses that COVID-19 vaccines carry either no side effects or they are mild and negligible in nature.⁴ COVID-19 vaccines acceptance in Pakistan was found

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to be more in the young individuals, mostly female health workers providing first-hand health services to COVID-19 patients in the large city hospitals. The main reason cited for vaccine rejection was the fear of potential side effects related to COVID-19 vaccines.⁵

Fever, chills, soreness at the injection site and gastrointestinal disturbance among the young population were the foremost side effects reported by people in Pakistan after receiving COVID-19 vaccines.⁶ This study aims to determine the frequency of reported adverse effects of COVID-19 vaccination amongst medical students of Islamabad.

Materials and methods:

A cross-sectional descriptive study was conducted in Federal Medical College from August to September, 2021, after the approval was secured from the ethical review board of the institution. A total of 257 students participated in the study; they were selected through convenient sampling technique. Data was collected through self-structured questionnaire. The questionnaire was made available online as a Google form with 21 questions. Following the established methodology, two vaccines namely Sinopharm and Sinovac were exclusively focused upon as initially these two vaccines were available and medical students were amongst the early one to receive vaccination.

Informed consent was taken and data confidentiality was assured. Students duly filled online questionnaires were included and incomplete forms were excluded from the study. Data was analyzed in SPSS version 22. Mainly descriptive statistics has been reported. For inferential statistics, chi-square test was applied between the categorical variables; p-value < 0.05 was considered statistically significant

RESULTS:

Out of total 257 participants, 146 (57%) had been administered Sinopharm while 111 (43%) had received Sinovac. The median age of those who participated in the study was 22 years, for details Figure 1. Majority of the participants were female 67.5%, remaining 32.5% male. Most of the participants 53% were from fourth year MBBS. About 44.4% of the participants were from Punjab studying in Islamabad and 37.6% were from Islamabad. Mostly parents of the participants were vaccinated; details in Table I.

Out of 257 participants, 11% reported no side effects while 89% students reported side effects. Most prevalent side effects in both male and female participants included sore arm (23.3%), generalized weakness

(16.7%), headache (10%), muscle pain (4.7%), fever (6.2%), muscle stiffness (3.5%), dizziness (2.3%), chills (2.7%). Table I shows detailed system-wise adverse effects.

After getting 1st dose of vaccination; 32.5% of the participants experienced adverse effects, 15.4% after 2nd dose, and 23.1% after both doses. About duration of reported adverse effects; 26.4% experienced symptoms immediately, 49.5% participants experienced within 12 hours of vaccination, 14.3% within 24 hours and 9.9% after a week. Symptoms of 45.1% participants lasted for about 1-3 days and 40.7% for less than a day. Around seventy seven percent participants sought emergency care and 21.5% resorted to self-medication.

More females reported sore-arm (58.2%) and generalized weakness (42%) as compared to male. By applying chi-square test statistically significant (p<0.05) difference found gender-wise only for these two reported adverse effects.

DISCUSSION:

Different international studies conducted both in the developed and developing countries reveal the reasons behind vaccine hesitancy; that are the lack of public confidence in vaccines, various myths and conspiracy theories questioning the safety, quality and more importantly efficacy of vaccines in preventing and mitigating the severity of infectious diseases.⁷ The study results show that the commonest adverse effects that followed vaccination with Sinopharm and Sinovac were sore arm (23.3%), generalized weakness (16.7%) and headache (10.1%) etc. These findings are exactly in line with the international study-Prevalence of COVID-19 Vaccine side effects among Healthcare Workers in the Czech Republic-wherein participants displayed similar adverse effects of mild nature.⁸ Current study also shows that 10.9% of the participants experienced no adverse effects and these results correspond with the results of another international study by Sprent J. et al, that explored vaccine safety in detail.⁹

In a cross sectional study conducted in 2021, it came to light that the side effects arising from vaccination with Sinopharm COVID-19 vaccines were mild and quite predictable, however the side effects were found to be more in the females and those who were aged less than 49 years of age.¹⁰ These finding also strengthen our result mentioned that majority of females reported the adverse effects.

In another study which included Polish healthcare workers and medical students, it was observed that the side effects arising from COVID-19 vaccination were

self-resolving and did not disrupt the daily routine and functioning of the participants. The side effects which were negligible and self-limiting in nature were found concentrated in the younger age group.¹¹

In a study conducted in Kingdom of Saudi Arabia regarding Oxford-AstraZeneca and Pfizer-BioNTech, 60% of the participants were reported to suffer mild side effects like pain at the site of injection and fatigue, and only 3% of the individuals needed to consult a doctor regarding their side effects.¹²

In a randomized, cross sectional study conducted in Jordan, participants received Sinopharm, AstraZeneca and Pfizer BioNTech and only 10% of them had serious side effects while all other had mild to moderate adverse effects which resolved on their own.¹³

The safety of Sinopharm in comparison to AstraZeneca and Pfizer was established in yet another study which

shows that Sinopharm produced least adverse effects following first and second doses. Dry cough, anxiety and shortness of breath were associated with AstraZeneca.¹⁴

Economic reasons are also important for vaccination. In a study conducted in China, the participants showed their apprehensions and considered pandemic as a sort of biological warfare and the main motivational factor for vaccination among them was to protect their loved ones from the scourge of COVID-19 infection. The role of politicians and health authorities was highlighted in the study that how the influencers can play a crucial role in dispelling the misinformation regarding vaccinations.¹⁵

CONCLUSION:

This study established that participants of the study developed mild adverse effects to Sinopharm and Sinovac vaccines without any serious consequences and hence these vaccines are safe.

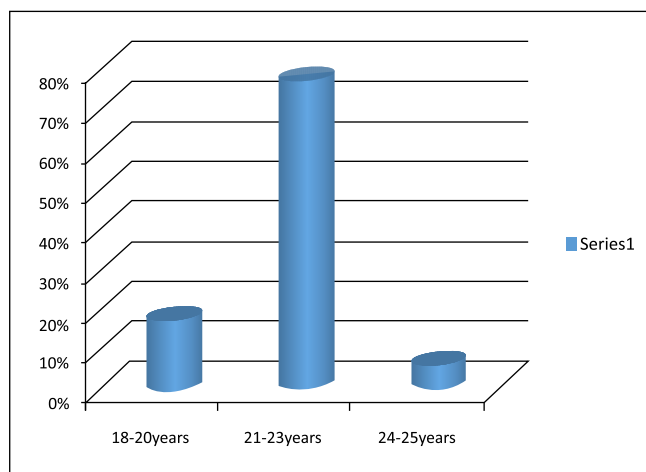


Figure 1: Age-wise distribution of study participants

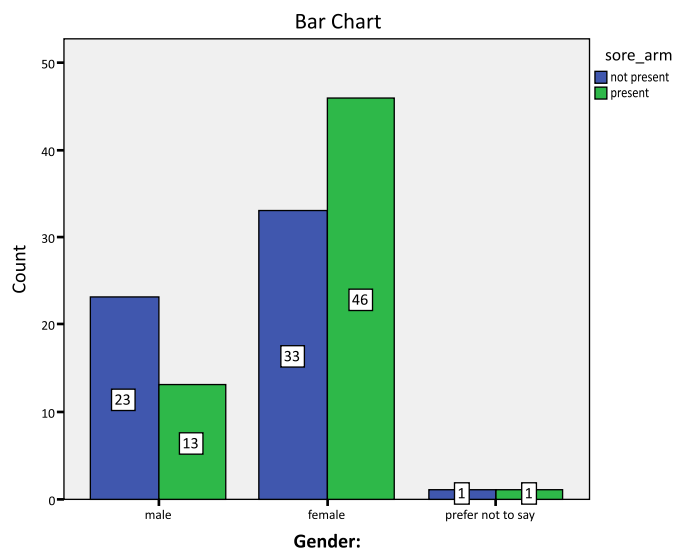


Figure 2: Gender wise distribution of reported side effect (sore-arm)

Table I: Socio-demographic and vaccination status of participant's family

Main variable	Options	N	%age
Fathers occupation	Govt employee	140	54.5
	Business	45	17.5
	Private job	55	21.4
	Others	17	6.6
Mothers occupation	House wife	174	67.7
	Working	83	32.2
Vaccination status			
Mother	Yes	225	87.6
	No	32	12.4
Father	Yes	230	89.4
	No	27	10.6
Sibling	Yes	191	74.4
	No	66	25.6

Table II: Reported adverse effects of Covid-19 vaccination

ADVERSE EFFECTS	N(%)
MUSCULOSKELTAL :	76 (29.5%)
Generalized weakness	43 (16.7%)
Muscle pain	12 (4.7%)
Muscle stiffness	9 (3.5%)
Chills	7 (2.7%)
Joint pain	5 (1.9%)
CARDIOVASCULAR:	4 (1.6%)
Palpitations	2 (0.8%)
Flushing	2 (0.8%)
NEUROLOGICAL:	36 (13.9%)
Headache	26 (10%)
Dizziness	6 (2.3%)
Decreased sleep	2 (0.8%)
Tingling	1 (0.4%)
Numbness	1 (0.4%)
RESPIRATORY:	6 (2.4%)
Shortness of breath	2 (0.8%)
Nasal stuffiness	1 (0.4%)
Runny nose	1 (0.4%)
Wheezing	1 (0.4%)
Cough	1 (0.4%)
LOCAL SITE REACTIONS:	79 (30.7%)
Sore arm	60 (23.3%)
Localized swelling	16 (6.2%)
Itching	3 (1.2%)
ABDOMINAL:	6 (2.4%)
Diarrhea	2 (0.8%)
Nausea	1 (0.4%)
Vomiting	1 (0.4%)
Abdominal pain	1 (0.4%)
Decreased appetite	1 (0.4%)
MISCELLENOUS:	22 (8.6%)
Fever	16 (6.2%)
Sweating	3 (1.2%)
Reinfection with COVID-19	1 (0.4%)
Others	2 (0.8%)
NO ADVERSE EFFECTS:	28 (10.9%)
Total:	257 (100%)

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