ISSN (Print): 2617-0817 ISSN (Online): 2789-5912

Original Article

# Side Effects of 2nd Dose of Sinopharm Vaccine Experienced by Medical Students at a Tertiary Medical College Hospital, Bangladesh

**DOI: dx.doi.org**

**NaziaSultana[1], Most Nasrin Jahan[2], Anwara Sultana[3], Poly Rani Debnath[4]**

**Received:** 08 Aug 2022
**Accepted:** 13 Aug 2022
**Published:** 15 Aug 2022

**Published by:**
Sher-E-Bangla Medical College, Barishal



## ABSTRACT

***Background:*** *Globally various types of COVID -19 vaccines are being used. Vaccine is a process by which body become familiarize to certain antigen of specific organism. Different vaccines have been developed to prevent COVID -19. Post licensure servelience of vaccine is important to ensure safety. Many studies have been conducted to evalaluate side effects of vaccine worldwide.* ***Objectives:*** *For eradicating COVID -19, vaccines are one of the best interventions. In this study we tried to find out evidence on Sinopharm vaccine's side effects.* ***Methods****: We conducted this cross sectional study in July 2021 to collect data on various side effectsof Sinopharm vaccines. Data were collected from medical students of a tertiary medical college hospital.****Results:*** *Total 206 participants were included in this study. Among them142(68.93%) noticed side effects after 2nd dose of vaccination. Gender based variations between post vaccination side effects were statistically insignificant.* ***Conclusion:*** *Sinopharm vaccination caused minimum side effects. This data will help to reduce vaccine hesitancy.*

***Keywords:*** *Dose of Sinopharm, Side Effects, COVID-19*

*(The Planet 2022; 6(1): 8-12)*

1. *Assistant professor, Department of Pharmacology and Therapeutics, SBMC, Barishal*
2. *Associate professor (cc), Department of Pharmacology and Therapeutics, SBMC, Barishal*
3. *Professor, Department of Pharmacology and Therapeutics, SBMC, Barishal*
4. *Assistant professor, Department of Pharmacology and Therapeutics, SBMC, Barishal*

## INTRODUCTION

The coronavirus disease 2019 (COVID-19) was first reported in December in Wuhan, China, as an epidemic .[1] On 11 March 2020, the World Health Organization (WHO) declaredCOVID-19 a worldwide pandemic.[2] The number of confirmed cases of COVID-19 continues to rise every day. Vaccine is an essential tool to fight against COVID-19 and it is hugely encouraging to see so many vaccines after proving successful trial are in market and many more on the process of development. Scientists from all over

the world are innovating to bring new tests, treatments and vaccines that will collectively save lives and hope ultimately this pandemic will be end. As vaccine against COVID-19 is new and so many more studies are required to establish its final outcome, side effects, efficacy and safety.

Vaccines are one of the best interventions developed for eradicating COVID-19, saving millions of lives annually. Moreover, the best option remains an effective, safe vaccine without severe adverse reactions. The lack of effective and approved COVID-19 treatment has triggered a vaccine development race, with 259 COVID-19 vaccine projects underway from November 11, 2020. The rapid creation of vaccinations has increased the risk of vaccine safety issues.[3,4]

The COVID-19 vaccines produced worldwide have undergone numerous phases of a clinical trial before getting safety verification.[5] Undoubtedly, the vaccination against COVID-19 has been proven to substantially reduce the likelihood of infection transmission and hence the escalation of cases.[6] But side effects might be obvious following COVID vaccines due to the production of antibodies in response to inflammation.[7]

The current study is planned to outlook the side effects experienced by our medical students following the Sinopharm vaccine. Their vaccination is meant to safeguard them against fatal coronavirus infection as a majority of COVID confirmed and suspected cases are visiting tertiary healthcare facilities. The identification of ensuing vaccine side effects may facilitate in mitigation of unfavorable effects for further vaccinated people by relatable timely intervention.

## MATERIALS AND METHODS

Cross-sectional descriptive research was carried out among 206 medical students who got vaccinated with 2nd dose of Sinopharm vaccine during July 2021 in Sher e Bangla medical college hospital after getting confirmation SMS through Government. Medical students who received two doses of Sinopharm vaccine were enrolled in this study through consecutive sampling. Data were collected regarding the age and gender of our medical students along with their post-vaccination side effects through a structured qutionniare. The history of chronic disease of the study participants was also inquired. Data analysis was done by using SPSS version 25.0.

## RESULT

Total 206 individuals who were vaccinated against COVID-19 by Sinopharm vaccine participated voluntarily in this study. Participants were from 20 to 23 years age group. 114 (55.33 %)of them were female while 92 (44.66%) were male showed in Fig. 1. Most of the participants 142 (68.93%) noticed side effects of various modalities following COVID-19 Sinopharm vaccination but 64 (31.07%) participants did not suffer from any side effects (Fig. 2). Side effects were mostly on 1stday 88(42.71%). Side effects were less in 2nd, 3rd and after 3rd day which were 44(16.5%), 16 (7.7%) and 4(1.9%) respectively (Fig. 3). In our study most of the side effects were normal pain at vaccination site 90(43.69%) ,Fatigue 52 (25.24%),fever 42 (20.38%), headache 42 (20.38%), Muscle pain 40 (19.42%), joint pain 24 (11.65%), Tenderness 14 (6.79%), severe pain at vaccination site 8 (3.88%), skin rash 6 (2.91%), back pain 6 (2.91%), Induration and pruritus 4 (1.94%), redness (0.97%) (Table-1, Fig. 4). Among 206 participants only 6 (2.91%) had chronic disease like asthma. Among all participants, previous covid infection were 12 (5.82%). Gender-based differences in side effects experienced by medical students after the second dose of the Sinopharm vaccine were determined to be

statistically insignificant as depicted below in Table 2.

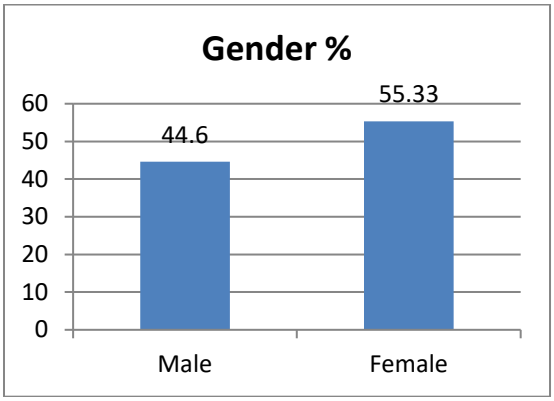


**Figure-1** Distribution of gender of the study

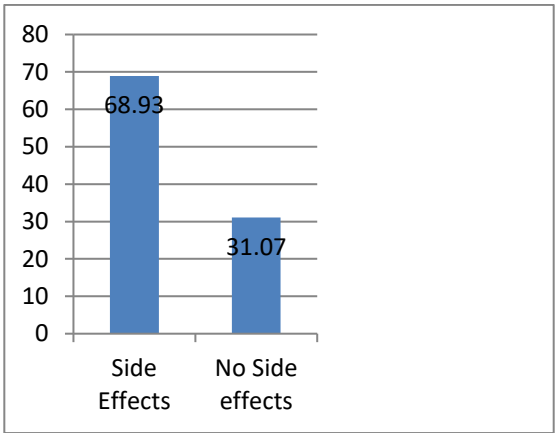


**Figure-2** distribution of side effects among medical students

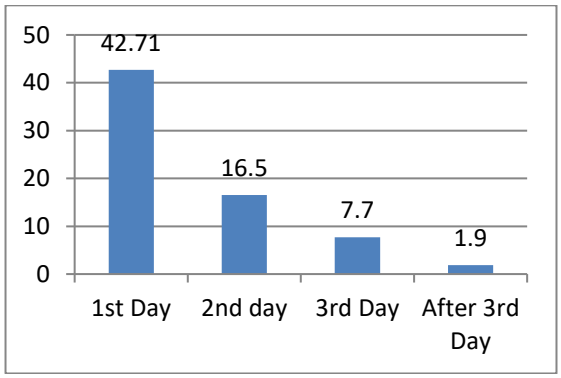


**Figure-3** Distribution of side effects in different days

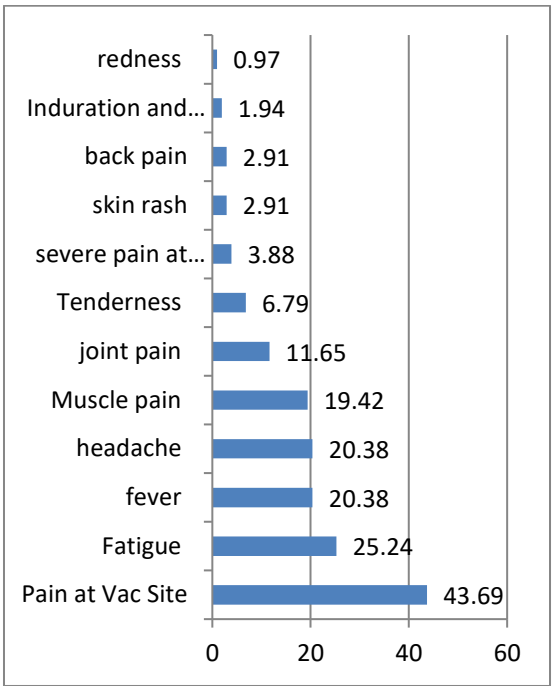


**Figure- 4**Sinopharm vaccine related side effects among medical students

**Table 1**:Sinopharm vaccine related side effects among medical students

| Ser | Side effects | Percentage % |
|---|---|---|
| 1 | Normal pain at vaccination site | 43.69 |
| 2 | Fatigue | 25.24 |
| 3 | Fever | 20.38 |
| 4 | Headache | 20.38 |
| 5 | Muscle pain | 19.42 |
| 6 | Joint pain | 11.65 |
| 7 | Tenderness | 6.79 |
| 8 | Severe pain at vaccination site | 3.88 |
| 9 | Skin rash | 2.91 |
| 10 | back pain | 2.91 |
| 11 | Induration and pruritis | 1.94 |
| 12 | Redness | 0.97 |

**Table 2** Gender based differences in side effects experienced after 2nd dose of Sinopharm vaccine

| Gender( n=206) | Side effects | No side effects | Total |
|---|---|---|---|
| Male | 66(63.42 %) | 26(28.58 %) | 92 |
| Female | 76(78.58 %) | 38(35.42 %) | 114 |
| Total | 142(68.93 %) | 64(31.07 %) | 206 |

$X^2=(1,N=206) = .6117, p > ns$

## DISCUSSION

Since the beginning of vaccine production, people have raised their concerns and worries over adverse events and risks associated to COVID-19 vaccine. Factors such as knowledge about vaccines, possible risks, personal experiences, religious or cultural beliefs, and political motives as well as social and economic status determine the level of public trust on vaccines.[8] People across the globe have ensured the best possible means to limit the spread of coronavirus infection but lack of immunity to this virus still makes them vulnerable to this infection.[9] The induction of immune response is of prime concern predominantly among our healthcare personnel and elders [10] and hence protection against SARS-CoV-2 by means of vaccination is globally prioritized.[11]

In this study 142 (63.93%) participants noticed side effects. Most of them suffered on the 1st day of vaccination 88(42.71%). Among all side effects pain at the vaccination site was 90(43.69%). This is lower than a study done in Nepal.[12] In a study in Afganistan the Astra Zeneca vaccine showed higher percentage of pain at vaccination site than our study.[13] Among 206 individuals 52, 42, 42 and 40 suffered from fatigue ,fever, headache and muscle pain respectively. This study slightly differ from another study where the side effects were nearly same.[12]

In studies conducted to compare the side effects of three major vaccines, Sinopharm, BioN tech, and AstraZeneca, all three vaccines were associated with similar side effects (fatigue, injection site pain and swelling, headache, sleepiness and laziness, chills, myalgia, joint pain, and fever), though the severity and number of adverse reactions differed with the type of vaccine.[14,15,16]

The Sinopharm vaccine is preferred not only because it is accessible but also easy to store and transport, as well as suitable for a developing country with constrained resources. In addition, the efficacy of the Sinopharm vaccine meets the WHO requirement and has acceptable adverse reactions.[17]

In our study the gender based differences in side effects were statistically insignificant with p value >.01.

Minor adverse events are seen in immunization which is not an allergic reaction but is because of the vaccine stimulating a protective immune response.[18] Major adverse events like anaphylaxis are very rare occurring in 1/mil doses for most of the vaccine.[19] We did not find any event of anaphylaxis in our study.

## CONCLUSION

The current study identified that adverse events following Sinopharm vaccination was mild to moderate. No severe adverse effect was found in our study .Studies with a longer follow up is required for evaluating the delayed adverse effect.

## REFERENCES

1. *Demeco, A.; Marotta, N.; Barletta, M.; Pino, I.; Marinaro, C.; Petraroli, A.; Ammendolia, A. Rehabilitation of patients post-COVID-19 infection: A literature review. J. Int. Med. Res. 2020, 48, 0300060520948382. [CrossRef]*

2. *Halpin, S.J.; McIvor, C.; Whyatt, G.; Adams, A.; Harvey, O.; McLean, L.; Sivan, M. Postdischarge symptoms and rehabilitationneeds in survivors of COVID-19 infection: A cross-sectional evaluation. J. Med. Virol. 2021, 93, 1013–1022. [CrossRef]*
3. *Haidere M, Ratan Z, Nowroz S, Zaman S, Jung Y, Hosseinzadeh H, Cho J. COVID-19 Vaccine: Critical Questions with Complicated Answers. BiomolTher 2021; 29(1):1–10. doi:10.4062/biomolther.2020.178.*
4. *Petousis-Harris H. Correction to: Assessing the Safety of COVID-19 Vaccines: A Primer. Drug Saf 2021;44(4):507 -507. doi:10.1007/s40264-020-01023-1.*
5. *J. Corum, S. Wee, C. Zimmer, Coronavirus vaccine tracker. NY Times (2021).https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html. Accessed 10 April 2021.*
6. *J Kennedy. Vaccine hesitancy: A growing concern. Paediatr Drugs 2020; 22: 105-111.*
7. *Johns Hopkins Bloomberg School of Public Health. Side effects andCOVID-19 vaccines: What to expect. https://www.jhsph.edu/covid-19/articles/side-effects-and-covid-19-vaccines-what-to-expect.html*
8. *. El-Shitany NA, Harakeh S, Badr-Eldin SM, et al. Minor to moderate side effects of Pfizer-BioNTech COVID-19 vaccine among Saudi residents: a retrospective cross-sectional study. Int J Gen Med. 2021;14:1389. doi:10.2147/IJGM.S310497*
9. *Flaxman S, Mishra S, Gandy A, et al. Estimating the effects of non-pharmaceutical interventions on COVID-19 in Europe. Nature 2020; 584: 257–61.*
10. *Sanche S, Lin YT, Xu C, Romero-Severson E, Hengartner N, Ke R. High contagiousness and rapid spread of severe acute respiratory syndrome coronavirus 2. Emerg Infect Dis 2020; 26: 1470–77.*
11. *WHO. Draft landscape of COVID-19 candidate vaccines. https://www.who.int/publications/m/item/draft-landscape-of-covid-19-candidate-vaccines.%202.*
12. *Sushant A, Rnanjan PD, et al. Advere events following immunization with Sinopharm (Vero Cell) inactivated COVID- 19 vaccine. Journal of Patan Academy of Health Sciences Aug. 2021; 8:18-24.*
13. *Mahmooodullah A, Wazmaha MD, et al. Adverse Effects of the COVID-19 Vaccine Reported by Lecturers and Staff of Kabul University of Medical Sciences, Kabul, Afghanistan. Infection and drug resistance. 2021; l14:4077-4083.*
14. *Jeon M, Kim J, Oh CE, Lee J-Y. Adverse events following immunization associated with coronavirus disease 2019 vaccination reported in the mobile vaccine adverse events reporting system. J Korean Med Sci. 2021;36(17). doi:10.3346/jkms.2021.36.e114*
15. *Voysey M, Clemens SAC, Madhi SA, et al. Safety and efficacy of the ChAdOx1 nCoV-19 vaccine (AZD1222) against SARS-CoV-2: an interim analysis of four randomised controlled trials in Brazil, South Africa, and the UK. Lancet. 2021;397(10269):99–111.*
16. *Hatmal MMM, Al-Hatamleh MA, Olaimat AN, et al. Side effects and perceptions following COVID-19 vaccination in Jordan: a randomized, Cross-Sectional Study implementing machine learning for predicting severity of side effects. Vaccines. 2021;9(6):556. doi:10.3390/vaccines9060556*
17. *World Health Organization. WHO lists additional COVID-19 vaccine for emergency use and issues interim policy recommendations [Internet]. World Health Organization. 2021 May 7; Home: News. | Weblink |*
18. *Xia S, Zhang Y, Wang Y, Wang H, Yang Y, Gao GF, et al. Safety and immunogenicity of an inactivated SARS-CoV-2 vaccine, BBIBP-CorV: a randomised, double-blind, placebo-controlled, phase 1/2 trial. Lancet Infect Dis. 2021 Jan;21(1):39-51. | DOI| PubMed| Google Scholar| Full Text|*
19. *Kaur RJ, Dutta S, Bhardwaj P, Charan J, Dhingra S, Mitra P, Singh K, Yadav D, Sharma P, Misra S. Adverse Events Reported From COVID-19 Vaccine Trials: A Systematic Review. Indian J ClinBiochem. 2021 Mar 27:1-13. | DOI| PubMed| Google Scholar| Full Text|*