

# Acceptance and Hesitancy Toward the Covid-19 Vaccine Among Medical Students in Kabul, Afghanistan

Mahmoodullah Azimi<sup>1</sup>, Mohammad Yusuf Yadgari<sup>2</sup>, Mohammad Asif Atiq<sup>1</sup>

<sup>1</sup>Department of Clinical Pharmacology, Kabul University of Medical Sciences, Kabul, Afghanistan; <sup>2</sup>Department of Forensics and Toxicology, Kabul University of Medical Sciences, Kabul, Afghanistan

Correspondence: Mohammad Asif Atiq, Department of Clinical Pharmacology, Kabul University of Medical Sciences, Ata Turk Avenue, Jamal Mena, 3rd District, Kabul, 1006, Afghanistan, Tel +93706644270, Email masifatiq@gmail.com

**Introduction:** Vaccine hesitancy is defined as “delay in acceptance or refusal of vaccination despite the availability of vaccination services”. The low acceptance rate of covid-19 vaccination, reported in many countries, is a big challenge in efforts toward putting end to the pandemic.

**Objective:** In this study, we aim to find the acceptance and hesitancy rates toward Covid-19 vaccine along with its reasons among medical students in Kabul.

**Methodology:** In this cross-sectional study that was conducted among medical students of five randomly selected universities in Kabul, a total of 459 medical students completed the questionnaire.

**Results:** The hesitancy rate for covid-19 vaccine among medical students was 42.3%, hesitancy rate in males was more than in female students. The essential reason for refusing of the vaccine was concerns about safety and adverse effect of the vaccine (62.3%). More than half of the participants (51.5%) have already been vaccinated. In 60.2% of participants, protection against the COVID-19 virus was the main reason for accepting the vaccine. This study indicates that social media was the leading source (64.3%) of information about vaccine hesitancy.

**Conclusion:** This study indicates a high level of hesitancy toward the COVID-19 vaccine among medical students. It is strongly advised to deliver accurate information on the safety and effectiveness of COVID-19 vaccines to the community especially, medical students.

**Keywords:** COVID-19, medical students, vaccine hesitancy

## Introduction

The availability of vaccination services<sup>1</sup> the vaccine campaign's success highly depends on vaccine confidence.<sup>1</sup>

Acceptance of vaccines is essential for controlling the pandemic of covid-19 but the low acceptance rate reported in many countries may contribute to the formation of challenges in efforts toward putting an end to the pandemic.<sup>2,3</sup> As the World Health Organization has stated earlier, hesitancy toward the COVID-19 vaccine is a global health threat (Organization).

In a systematic review of acceptance of the COVID-19 vaccine across 33 countries (as of 25th December 2020), it was reported that Kuwait (23.6%), Jordan (28.4%), and Italy (53.7%) had the lowest acceptance rate.<sup>4</sup>

The hesitancy rate toward Covid-19 vaccine found to be 84.6% in Cameroonians adults.<sup>5</sup>

Specifically, medical students should be the focus of attention because they have close contact with patients and they may visit the infected patients during their clinical rotations and they are a model for non-medical students. The same recommendations for health-care workers should be applied to medical students.<sup>6</sup> Therefore, the rate of acceptance of vaccines among medical students is very important. Many studies have revealed significant hesitancy of medical students to COVID-19 vaccination.<sup>7,8</sup> In this study, we aim to find the acceptance and hesitancy rates toward covid-19 vaccine

among medical students in Kabul, so as to offer suggestions for increasing vaccine uptake. This study is the first to demonstrate the acceptance and hesitancy toward covid-19 vaccine among medical students in Afghanistan.

## Objective

In this study, we aim to find the acceptance and hesitancy rates toward Covid-19 vaccine along with its reasons among medical students in Kabul.

## Methodology

A cross-sectional study was conducted among the medical students of five randomly selected medical universities in Kabul, between 20 March 2022 and 2 June 2022. Currently enrolled medical students in the clinical years (4th, 5th, 6th, and 7th year) and being able to understand the questionnaire, were the inclusion criteria of the study. Clinical rotations of medical students in Kabul universities start from the 4th year and students have close contact with patients.

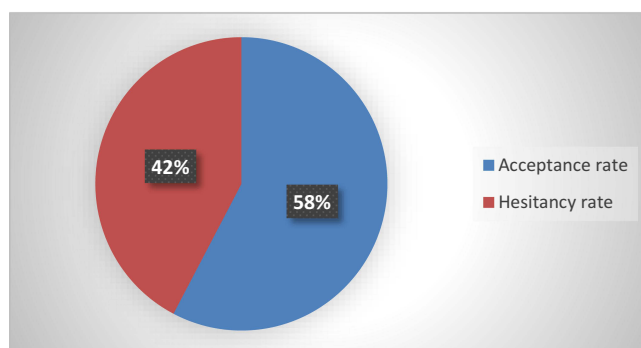
A brief explanation about the study was provided for the students who entered the survey and the consent forms were signed by participants. A total of 459 students received and completed the questionnaire voluntarily, and anonymously and they did not receive any compensation.

The validated [Questionnaires](#) with close-ended questions were adapted from former studies by.<sup>8–10</sup> Then the related questions were selected and modified to suit the study participants. The data were then transferred to Microsoft Excel for coding and the data were analysed by Statistical Package for Social Sciences program (SPSS) Version 23. The results were presented with tables and graphs as appropriate.

## Results

The total participants were 459 medical students, 70.3% were female and the rest were male, with a mean age of 21 years. The total awareness about the availability of the COVID-19 vaccine in Kabul was 90%. The acceptance rate for COVID-19 vaccine was found to be 57.7%, while 42.3% showed hesitancy as is shown in [Figure 1](#). A greater hesitancy rate toward the COVID-19 vaccine was found to be in males (64%), while in females hesitancy rate was 52.2%. Almost half of the participants (51.5%) were already been vaccinated. More than half of the participants (55.2%) said they would encourage others for getting the covid-19 vaccine. 26.4% of participants were sure about contracting the COVID-19 infection in the past, while 40% said that they may contract the virus in the past and 33.5% reported not being infected with covid-19.

The main reason for taking the vaccine in the vaccinated group was protection against covid-19 (60.2%) alongside other causes as is shown in [Table 1](#). While the main reason for the rejection in the non-vaccinated group was hesitancy due to concerns about the safety and adverse effect of the vaccine (62.3%) and in 38.49% the negative news about the vaccine was the reason for not taking the vaccination. Other causes of hesitancy are shown in [Table 2](#). In 64.3% of cases, social media was the source of negative information about covid-19, while 31.2% of participants received misinformation



**Figure 1** The acceptance and hesitancy rate toward the COVID-19 vaccine.

**Table 1** Reasons for Taking the Vaccine

Reason	Percentage
To protect me from covid-19 infection	60.2%
To protect others from covid-19 infection	36.86%
I trust in immunization	27.96%
To eradicate the virus and put an end to the pandemic	34.7%
Vaccination is advised by medical experts	10.5%
To be able to travel	5.9%
It is my social and ethical responsibility	18.64%
It is free of charges	5.5%
It is available	4.66%
Vaccination is effective	9.3%
Vaccination is safe	9.3%
Vaccination is recommended by authorities	4.2%
To be able to continue my duty as a doctor	6.3%
I am at risk of severe form of disease	3.8%

**Table 2** Reasons for Hesitancy

Reason	Percentage
I am concerned about adverse effects and safety	62.3%
I heard negative news about the vaccine	38.49%
The vaccine is not effective	13%
My immunity is enough competent	12.1%
There is no need for the vaccine	4%
The Ministry of Public Health did not provide enough information about the vaccine	9.86%
I am afraid of needle	2.24%
I do not know the location of vaccination centres	1.79%
Others have experienced the adverse effect	8.5%
There is a chip in the vaccine	0.89%

about the vaccine from their friends. Also, medical experts, family and lecturers were the source of negative information in 10.5%, 7.9%, and 4.5%, respectively.

## Discussion

The hesitancy rate for covid-19 vaccine among medical students was found to be 42.3%, hesitancy rate in male and female students was 64% and 52.2%, respectively. The essential reason for refusing of the vaccine was concerns about safety and adverse effects of the vaccine (62.3%). More than half of the participants (51.5%) have already been

vaccinated. In 60.2% of participants, protection against the COVID-19 virus was the main reason for accepting the vaccine. This study indicates that social media was the leading source (64.3%) of false information about the vaccine. In this study, the hesitancy rate toward the COVID-19 vaccine was found to be 42.3%. This indicates a much lower hesitancy rate among medical students than in Sudan, United States, and Iraq where hesitancy rates were 44.2%, 47%, and 65.22%, respectively.<sup>4,8,11</sup> Although compared to our findings, a lower vaccine hesitancy rate was demonstrated among medical students in India and Japan, 16.57% and 10.9%, respectively.<sup>8,12</sup>

In this study, the main reasons for accepting the vaccine were protecting self (60.2%) and others from covid-19 infection (36.86%). These findings are in line with the results of research in Sudan, Uganda, Egypt, and Poland.<sup>8,10,13,14</sup>

The less prevalent cause of accepting the vaccine in this study was being at risk of severe form of the infection (3.8%) which is slightly different from the Sudan research that the percentage was 4.1%.<sup>8</sup>

Being concerned about the safety and adverse effects of the vaccine was the main reason for hesitancy which is similar to the finding of researches in Uganda, United States, Egypt, Poland, Sudan, and India.<sup>4,8,10–14</sup> Although another study indicated muscle pain, local pain at the site of injection, fever and fatigue with the mild to moderate severity as the most prevalent side effects with the AstraZeneca vaccine among lecturers and staff of Kabul University of Medical Sciences.<sup>15</sup>

In the general population, there is a concern about the existence of microchips in the covid-19 vaccines, as in research in Arabic countries 27.7% had this idea.<sup>3</sup> To some extent, this idea exists among medical students too, in this study 0.89% of the medical students have chosen the presence of microchips in the vaccine as the hesitancy reason, this finding is less than the Polish research in which 1.75% of medical students were concerned about the microchips.<sup>14</sup>

Nowadays with the progress of technology and social media, the world seems to be like a village and the news and information spread very rapidly, not only the truth but also false news and information.<sup>16</sup> The majority of medical students (64.3%) received negative information about the vaccine from social media. The results of Sudan research also indicate similar results that 56.1% of students used social media as source of information about the COVID-19 vaccine.<sup>8</sup> The role of media and its potential role in hesitancy toward the COVID-19 vaccine has well understood.<sup>8</sup>

This study is the first to demonstrate the acceptance and hesitancy toward covid-19 vaccine among medical students in Afghanistan. In this study, medical students from different universities in Kabul were included to improve generalizability. This study has revealed a high level of COVID-19 vaccine hesitancy among medical students. Efforts to provide accurate information on COVID-19 vaccine safety and effectiveness are highly recommended.

## Ethical Approval

The study was conducted according to the Declaration of Helsinki. The ethical and research committee of the Pharmacology department of Kabul University of Medical Sciences approved the study ethically in protocol number 90.

## Acknowledgment

The authors of this paper are willing to thank Dr. Abdullah Asadi and Dr. Arash Nemat for their contribution in questionnaire of the study.

## Disclosure

The authors report no conflicts of interest in this work.

## References

1. Peretti-Watel P, Seror V, Cortaredona S, et al. A future vaccination campaign against COVID-19 at risk of vaccine hesitancy and politicisation. *Lancet Infect Dis.* 2020;20(7):769–770. doi:10.1016/S1473-3099(20)30426-6
2. Dubé E, Laberge C, Guay M, Bramadat P, Roy R, Bettinger JA. Vaccine hesitancy: an overview. *Hum Vaccin Immunother.* 2013;9(8):1763–1773. doi:10.4161/hv.24657
3. Sallam M. COVID-19 vaccine hesitancy worldwide: a systematic review of vaccine acceptance rates. *Vaccines.* 2020;9:160.
4. Lucia VC, Kelekar A, Afonso NM. COVID-19 vaccine hesitancy among medical students. *J Public Health.* 2021;43(3):445–449. doi:10.1093/pubmed/fdaa230
5. Dinga JN, Sinda LK, Titanji VP. Assessment of vaccine hesitancy to a COVID-19 vaccine in Cameroonian adults and its global implication. *Vaccines.* 2021;9(2):175. doi:10.3390/vaccines9020175

6. Loulergue P, Launay O. Vaccinations among medical and nursing students: coverage and opportunities. *Vaccine*. 2014;32(38):4855–4859. doi:10.1016/j.vaccine.2014.01.014
7. Mustapha T, Khubchandani J, Biswas N. COVID-19 vaccination hesitancy in students and trainees of healthcare professions: a global assessment and call for action. *Brain Behav Immunity Health*. 2021;1;16.
8. Raja SM, Osman ME, Musa AO, Hussien AA, Yusuf K. COVID-19 vaccine acceptance, hesitancy, and associated factors among medical students in Sudan. *PLoS One*. 2022;17(4):e0266670. doi:10.1371/journal.pone.0266670
9. El-Elmat T, AbuAlSamen MM, Almomani BA, Al-Sawalha NA, Alali FQ. Acceptance and attitudes toward COVID-19 vaccines: a cross-sectional study from Jordan. *PLoS One*. 2021;16(4):e0250555. doi:10.1371/journal.pone.0250555
10. Kanyike A, Olum R, Kajjimu J. Acceptance of the coronavirus disease-2019 vaccine among medical students in Uganda. *Trop Med Health*. 2021;49:37. doi:10.1186/s41182-021-00331-1
11. Mahdi BM. COVID-19 vaccine hesitancy and acceptance among medical students: an online cross-sectional study in Iraq. *Open Access Macedonian J Med Sci*. 2021;9(A):955–958. doi:10.3889/oamjms.2021.7399
12. Kausar A, Parveen SS, Afreen U, MaazHussain S. Vaccine perception: acceptance, hesitancy, beliefs and barriers associated with COVID-19 vaccination among medical students. *Eur J Mol Clin Med*. 2021;8(4):548.
13. Saied SM, Saied EM, Kabbash IA, Abdo SAEF. Vaccine hesitancy: beliefs and barriers associated with COVID-19 vaccination among Egyptian medical students. *J Med Virol*. 2021;93(7):4280–4291. doi:10.1002/jmv.26910
14. Szmyd B, Bartoszek A, Karuga FF, Staniecka K, Błaszczyk M, Radek M. Medical students and SARS-CoV-2 vaccination: attitude and behaviors. *Vaccines*. 2021;9(2):128. doi:10.3390/vaccines9020128
15. Azimi M, Dehzad WM, Atiq MA, Bahain B, Asady A. Adverse effects of the COVID-19 vaccine reported by lecturers and staff of Kabul University of Medical Sciences, Kabul, Afghanistan. *Infect Drug Resist*. 2021;14:4077. doi:10.2147/IDR.S332354
16. Srinivasan R. *Whose Global Village?: Rethinking How Technology Shapes Our World*. NYU Press; 2018.

## Infection and Drug Resistance

Dovepress

### Publish your work in this journal

Infection and Drug Resistance is an international, peer-reviewed open-access journal that focuses on the optimal treatment of infection (bacterial, fungal and viral) and the development and institution of preventive strategies to minimize the development and spread of resistance. The journal is specifically concerned with the epidemiology of antibiotic resistance and the mechanisms of resistance development and diffusion in both hospitals and the community. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/infection-and-drug-resistance-journal>