



# COVID-19 Vaccine Hesitancy Among Health care Workers and Medical Students

Amina Umer<sup>1</sup>, Fatima Khan<sup>2</sup>, Ali Rehan<sup>3</sup>, Ambreen Tauseef<sup>4</sup>, Raja Yasir Shahbaz<sup>5</sup>, Mashal Salam<sup>6</sup>, Sadia Salman<sup>7</sup>, Abdul Salam Din Lone<sup>8</sup>, Saadia Islam<sup>9</sup>, Waqas Ashraf<sup>10</sup>, Mohammad Abdullah<sup>11</sup>, Tanvir us Salam<sup>12</sup>

<sup>1,7</sup>Assistant Professor, Department of Medicine, Allama Iqbal Medical College, Jinnah Hospital, Lahore.

<sup>2</sup>Woman Medical Officer, Jinnah Hospital, Lahore.

<sup>3</sup>Medical Officer, Jinnah Hospital, Lahore

<sup>4</sup>Professor, Department of Physiology, CMH Lahore Medical College & Institute of Dentistry, Lahore.

<sup>5</sup>Associate Professor, Department of Medicine, Rashid Latif Medical College, Lahore

<sup>6</sup>House Officer, Department of Medicine, Jinnah Hospital, Lahore

<sup>8, 9, 10, 11</sup> Medical Officer, Salam Clinic, Lahore

<sup>12</sup>Dean of Medicine, Allama Iqbal Medical College, Jinnah Hospital, Lahore

## Corresponding author:

Dr. Ambreen Tauseef, Professor & HOD, Department of Physiology, CMH Lahore Medical College & Institute of Dentistry, Lahore. Email: [ambreen\\_tauseef@cmhlahore.edu.pk](mailto:ambreen_tauseef@cmhlahore.edu.pk)

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## ABSTRACT

**Background:** Health care workers (HCW) assume a significant part in teaching the overall population about the origin of the immunization and its implications and subsequently, vaccination hesitancy among them presents existential dangers to the stoppage and control of this pandemic. It will likewise impede endeavours to reduce COVID-19 pandemic.

**Objectives:** To comprehend coronavirus vaccine acceptance and specific attitudes toward vaccine hesitancy among HCWs and medical students at Jinnah hospital, Lahore.

**Methods:** 200 HCWs employed by Jinnah Hospital, Lahore and 200 asymptomatic medical students to access attitudes toward vaccine acceptance and hesitancy. A cross-sectional survey was designed and the questionnaire was administered during May, 2022 while it was completed online throughout the month of May, 2022. Vaccination hesitancy was defined as procrastination or denial of vaccination although the services and the doses are available. Tabulated form was given to the descriptive statistics and the reported attitudes towards COVID-19 vaccine of the participants. Data was entered and analysed statistically by using SPSS software, IBM version 27. Qualitative data was shown as frequencies and percentages. For data analysis a chi-square test was used with  $P < .05$  as statistical significance.

**Results:** In total, 400 enrolees, completed the questionnaire, a majority of participants were doctors (98.5%), were vaccinated by choice (90.5%), had Chinese vaccination (80.5%), and had booster dose (34%). Almost all respondents were aware of COVID-19 vaccination (100%). Vaccination hesitancy was shown by health care workers right away due to fear of vaccine (1%).

**Conclusion:** Vaccine intake was adequate among health care workers and satisfactory among medical students. Awareness regarding vaccination was good among both groups with low level of hesitancy.

**Key Words:** COVID-19, Vaccine hesitancy, Health care workers, medical students.

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## Introduction:

Disease and deaths caused by the novel coronavirus has exceeded a significant number worldwide, several vaccinated but dozens of vaccinations still under process [1, 2]. This airborne disease was known to the world as pandemic on 30<sup>th</sup> January 2020, initiating emergency by world health organization [3, 5]. Episode uncovered as arrays of pneumonia, having obscure aetiology in China [4]. A precise survey has illustrated serious type of sickness in 20% of infected people and a death rate of 3% [5]. According to data of February 2021, it has impacted 108 million individuals around the world, resulting 2.38 million mortalities [5]. During this period Pakistan announced 560,000 cases along with 12,218 demised [6]. Thus, notwithstanding social distancing measures and individual protecting gear [6], there is a crucial demand to be immunized for COVID-19 to check the public transmission nationwide [7]. Health care workers (HCWs) play a significant role in teaching the overall population regarding the origin of the vaccine and also its pros and cons in the future [7]. HCWs in Pakistan are given priority for a Chinese-based COVID-19 immunization [6, 9]. Also commanded all through the West, focusing on high-risk gatherings, and HCWs are being perceived thusly. In this way, it is essential to consider HCW mentalities towards the COVID-19 immunization as it will prompt more valuable spread of information among the population. [7]

In a research on COVID-19 Vaccination approval among healthcare workers and non-healthcare Workers in China, Wang et al presented: A Survey revealed that COVID-19 immunization welcomed in health care workers were about 76.98%, reluctant workers were 18.28%, and opposing workers were 4.74%. 56.19% among non-healthcare workers willingly had the COVID-19 vaccine, reluctant workers were 37.57%, and resistant were 6.24%. Among the health care workers, compared to vaccinated ones, vaccine- reluctant people bound to be women (AOR = 1.52, 95% CI: 1.12-

2.07); vaccine- opposing people lived in suburbia (AOR = 2.81, 95% CI: 1.44-3.99) having earnings of 10,000 RMB or more (AOR = 2.00, 95% CI: 1.03-3.90). Likewise, in non-healthcare workers, vaccination reluctant people bound to be women (AOR = 1.66, 95% CI: 1.31-2.11); vaccine opposing people was additionally bound to be women (AOR = 1.87, 95% CI: 1.16-3.02) also they were more than 65 years old (AOR = 4.96, 95% CI: 1.40-7.62). This shows extraordinary contrasts among healthcare workers and non-healthcare workers in comprehension and disposition for vaccination. [8]

Different studies and surveys had shown that level of vaccine resistance among physicians is far greater than has been thought of. According to a new survey, 1 in 10 doctors does not believe vaccines are safe. This study has been done to assess vaccine hesitancy among healthcare workers and medical students to COVID-19 vaccine. The main aim is to use the information obtained to identify factors involved in this group that leads to vaccine hesitancy and also to make educational programs for providing information regarding vaccine recommendations and guide people who are reluctant to receive it.

**Results:** In total, 400 enrolees, completed the questionnaire, a majority of participants were doctors (98.5%), were vaccinated by choice (90.5%), had Chinese vaccination (80.5%), and had booster dose (34%). Almost all respondents were aware of COVID-19 vaccination (100%).

Most participants (84.5%) indicated that there was no reaction COVID-19 vaccine, (85%) would admit that COVID-19 vaccination should be compulsory, 52% would have been infected by COVID-19 vaccine, and 1.5% never think to be vaccinated. Comparing with medical students, they were about 10% to 20% less likely to decline a coronavirus vaccine. Upon availability, medical students, comparing to healthcare workers, showed more reluctance to the vaccination. Vaccination hesitancy was shown by health care workers right away due to fear of vaccine (1%). Respondents among medical

students were most heavily influenced by the fear that it may cause reaction (3%), previous infection by the SARS-CoV-2(2.5%), and by the

family pressure (0.5%) in shaping their vaccination intent.

**Table no: 1 Vaccination status among respondents**

Variables n=400		Group				p-value
		Doctor n=200		Non-Medical Students n=200		
		Frequency	Percentage	Frequency	Percentage	
Have you heard about Covidvaccine?	Yes	200	100.0%	200	100.0%	---
Did you get vaccinated?	No	3	1.5%	15	7.5%	0.004
	Yes	197	98.5%	185	92.5%	
If vaccinated	By Choice	181	90.5%	146	73.0%	0.000
	Mandatory	16	8.0%	39	19.5%	
	Not Vaccinated	3	1.5%	15	7.5%	
Type of vaccine	Chinese	161	80.5%	109	54.5%	0.000
	Combination	13	6.5%	13	6.5%	
	MRNA, Moderna	5	2.5%	18	9.0%	
	MRNA, Pfizer	17	8.5%	36	18.0%	
	Not Vaccinated	3	1.5%	15	7.5%	
Total number of doses so far	One	8	4.0%	11	5.5%	0.010
	Two	189	94.5%	174	87.0%	
	Not Vaccinated	3	1.5%	15	7.5%	
Did you receive Booster dose?	No	129	64.5%	136	68.0%	0.004
	Not Vaccinated	3	1.5%	15	7.5%	
	Yes	68	34.0%	49	24.5%	
Any Reaction to COVID-19 vaccine	Maybe	6	3.0%	22	11.0%	0.000
	No	169	84.5%	116	58.0%	
	Not Vaccinated	3	1.5%	15	7.5%	
	Yes	22	11.0%	47	23.5%	

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**Table no: 2 Vaccination hesitancy among respondents**

Variables n=400		Group				p-value
		Doctor n=200		Non-Medical Students n=200		
		Frequency	Percentage	Frequency	Percentage	
Should COVID-19 vaccine be mandatory	Maybe	24	12.0%	19	9.5%	0.004
	No	6	3.0%	23	11.5%	
	Yes	170	85.0%	158	79.0%	



Experience with COVID-19 infection	I cared for someone with COVID-19 infection	31	15.5%	24	12.0%	.000
	I had COVID-19 infection	104	52.0%	50	25.0%	
	I personally know someone who has died from COVID-	19	9.5%	56	28.0%	
	I personally know someone who has had COVID-19 infection	35	17.5%	55	27.5%	
	None	11	5.5%	15	7.5%	
Reason I did not get vaccinated	Cause reaction	0	0.0%	6	3.0%	.037
	Fear of Vaccine	2	1.0%	3	1.5%	
	I had COVID-19 infection	1	0.5%	5	2.5%	
	My family did not allow	0	0.0%	1	0.5%	
	Vaccinated	197	98.5%	185	92.5%	

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A significant majority of the participants (85%) believes that COVID -19 vaccine should be mandatory. Just over one percent (3%) of participants expressed confidence in SARS-CoV-2 vaccines being not mandatory, with (12%) reporting they may be considered mandatory one day.

Most participants (90%) indicated they got vaccinated by choice upon availability of the vaccine, (80.5%) having Chinese vaccine, and (34%) already received the booster dose and 1.5% never think to be vaccinated. As compared with medical HCWs, medical students were about 10% to 20% more likely to procrastinate or refuse to COVID-19 vaccine while all the other variables are equal(Table). As compared to HCWs,the respondents identifying reason for not being vaccinated as it may cause reaction (3%) and individuals already infected (2.5%) were less likely to get vaccination just after its availability.

#### Discussion:

Low rates of acceptance of COVID-19 vaccine (57-69%) are attributed to lack of trust, lack of knowledge and misinformation in general public. Positive attitude of health workers towards vaccination decisions plays an influential role in society. Strong vaccination support from the medical community could only be made this way if unified message is sent by them. [9]

As indicated by a review done on doctors, it was found that out of 625 doctors, 10.1 % disagreed that vaccines were safe, 9.3% differ its viability and 8.3% stressed that they were not significant. It was a tremendous shock for the researchers as they suspected it might be a tiny extent who would be reluctant about vaccination.

Saied et al in their research "on vaccine hesitancy and beliefs and barriers associated with COVID-19 vaccination among Egyptian medical students" maintain that most of the respondents (90.5%) saw the significance of the COVID-19 immunization, 46% had inoculation aversion, and an equivalent rate (6%) either certainly acknowledged or declined the immunization. The vast majority of the participants had concerns with respect to the immunization's unfavorable impacts (96.8%) and inadequacy (93.2%). The most affirmed obstructions of COVID-19 immunization were inadequate information with respect to adverse effects of vaccine (potential 74.17% and obscure 56.31%) along with lacking data in regards to the actual vaccination (72.76%). [10] Vaccination reluctance presents serious difficulties for accomplishing immunity for the people. Thus, making it very important for the medical students,as future healthcare givers to accomplish high COVID-19 inoculation acknowledgment. The review planned to investigate degree of COVID-19 vaccine



hesitancy and decide the variables and hindrances that might influence vaccination intake. [11]

The present survey shows significantly high acceptance of vaccine, among HCWs and medical students, the COVID -19 vaccination. A number of interventions may be implemented, among younger HCWs and medical students, to increase the level of acceptance of the vaccine.

As booster doses of the COVID-19 vaccine have been started in several countries, continued assessment is necessary regarding the acceptance and attitudes towards vaccination especially of those who were once excluded from vaccine trials as pregnant ladies. A targeted sampling of the people with various backgrounds may also be done. All these measures may be helpful to address the reasons behind vaccine hesitancy among both the general public and the HCWs. 100% vaccination may become a cause of elimination of COVID-19.

**Conclusion:**Vaccine intake was adequate among health care workers and satisfactory among medical students. Awareness regarding vaccination was good among both groups with low level of hesitancy.

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