

# The Socio-cultural Variables Influencing Pakistan's Perception of the COVID-19 Vaccine

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## ABSTRACT

**Aim:** The present study investigates the perceptions of students and the general public about COVID-19 vaccination in Pakistan. Socio-cultural variables such as lifestyle, buying habits, education, age, gender, religion, beliefs, values, demographics, social classes, sexuality, and attitudes affect people's perceptions and lead them to think differently. The survey aims to create a discourse around the socio-cultural variables of COVID-19 vaccination and inform future policies and practices to promote more vaccination.

**Methodology:** A survey was conducted at the public and private universities in Pakistan using a Google Form questionnaire. The responses of 304 participants were analyzed to assess their perception of the COVID-19 vaccination. The findings indicate that a significant proportion of students and the general public in Pakistan hold positive opinions regarding the COVID-19 vaccination.

**Results:** The results of the university students show that more than half of the respondents (66%) were confident in the COVID-19 vaccine, and 11.2% of the respondents were not confident in the COVID-19 vaccine. And 22.9% of respondents were hesitant about getting the vaccination. At the same time, the results from the general public show that more than half (53%) of respondents were confident, but that is less than the university student's confident percent. About 23.8% of the general public were not confident.

**Practical implication:** The study suggests that public health campaigns should target different demographics, particularly women, and age-specific strategies like vaccine education, social media, and community outreach programs to boost vaccine acceptance and public health.

**Conclusion:** Through this, it is proven that socio-cultural variables like education and more have influenced people's perceptions of the COVID-19 vaccination because university students were more confident as compared to the general public. In this way, all socio-cultural variables influence the perceptions of people. As a result, governments and commercial groups all over the world have introduced policies to encourage or coerce vaccination.

**Keywords:** Socio-cultural, COVID-19, Vaccine, Pakistan

## INTRODUCTION

Severe Acute Respiratory Virus 2 (SARS-CoV-2) is a novel strain of coronavirus, first identified in Wuhan, China, in 2019, that causes COVID-19 disease. Its symptoms are similar to topneumonia. However, its origin was unknown, but some associations were observed with seafood. On January 30th, 2020, the World Health Organization declared a public health emergency due to COVID-19. Within almost no time, the disease affected almost all countries in the world, so WHO declared COVID-19, world pandemic on March 11, 2020.<sup>1-2</sup>

There were two main measures to combat the spread of the pandemic, which were adopted by most of the countries. The initial measure was to minimize the exposure of people to the pandemic by stopping public gatherings. This was a critical type of method due to the failure of public awareness in many areas of the world and the fast spread of the pandemic. Further, as this coronavirus strain is novel, an understanding of its transmission mechanism is not available.<sup>3</sup> The second and most prominent method to control this pandemic is to develop its vaccine and make it possible for the public on time and at a high rate. The only way to combat COVID-19 effectively and timely is through the provision of its vaccine to the whole population.<sup>4</sup>

However, there were a number of complications associated with the use of the vaccine, such as its mass production for the whole population and timely provision. Another issue was its effectiveness and side effects. Beside all of these issues, panic in the general population over the use of the COVID-19 vaccine has also been seen throughout the world.<sup>5</sup> This panic over the COVID vaccine might be due to its fast production and provision to the

world for use without its complete phase study and long term side effects. This debate comes in the way of the use of vaccines and reduces the vaccination rate to 35% even among healthcare workers, despite its recognition by the Ministry of Health. 6 It has been proven in many studies that a broad gap lies between the actual and intended ratios of vaccination in public.<sup>6-7</sup> A study was conducted on the influenza vaccine in Germany to measure the actual percentage of vaccine acceptance and the willing percentage of the population. The results showed 45% as a willing percentage for vaccine acceptance, but only 9.4% of the of the population actually accepted the influenza vaccine. Simply put, vaccine acceptance depends on various factors, such as its side effects, religious beliefs of the population, educational level, and many others.<sup>8</sup>

Many different factors cause hindrances to successful vaccination, including geographical location and sociocultural factors. This is the reason to assess the willingness of the general population to get vaccinated and their perception and attitude towards accines. This study is designed to identify the overall perception and many factors among university students and the general population towards the COVID-19 vaccination in Pakistan.

## METHODOLOGY

**Research Design:** This study employed a descriptive survey research design, collecting participants' information via a standardized questionnaire.

**Population and Sampling:** The population of this study was COVID-19 patients among universities in Pakistan; convenience sampling was used for data collection. Generally, questions

include people's perceptions, acceptance and rejection of the COVID-19 vaccine, and hesitancy for the vaccine. Researchers and students were generally targeted for data collection by universities and the public. However, only willing participants were included in this study. A total of 304 participants were included in the study.

**Data Collection:** The survey used a self-administered questionnaire to acquire the data. Participants received the questionnaire in-person and over WhatsApp. However, a pilot study was performed before the start of major research to test the questions' clarity.

**Data analysis:** Data was collected from all the participants, arranged in MS excel sheet and analyzed using descriptive statistics. The SPSS (Statistical Package for Social Sciences) was used for the analyse of collected data. The outputs of resultts are in the form of frequencies and percentages.

**Ethical Considerations:** All the ethical considerations were accomplished during this study. All the participants were well aware of study, its confidentiality and freedom to their participation. All the participant were signed a concent before their inclusion in this study.

## RESULTS

**University students:** The survey was conducted to gather the opinions of students about the COVID-19 vaccine. Participants were given a set of arguments about the COVID-19 vaccine and asked to indicate their level of agreement with each statement. About 153 responses were collected from universities in Pakistan. Three demographic parameters, such as age, gender, and education, were assessed, as given in the table below. Maximum population included from university had age between 18 to 23, female in sex and graduate in their education level. (Table 1).

Table 1: Demographic factors of respondents

Factors		Frequency	Percent
Age	18-23	123	80.4
	24-30	22	14.4
	Above 30	8	5.2
Gender	Male	39	25.5
	Female	114	74.5
Education	Graduate	132	86.3
	MPhil	17	11.1
	PhD	4	2.6

Table 2: COVID-19 awareness and vaccine hesitation among University students

Questions		Frequency	Percent	Valid Percent	Cumulative Percent
Awareness of COVID-19 signs (symptoms)	Complete awareness	108	70.6	70.6	70.6
	No awareness	6	3.9	3.9	74.5
Are you infected by COVID-19 in the past	Yes	17	11.1	11.1	11.1
	No	123	80.4	80.4	91.5
	Maybe	13	8.5	8.5	100
Someone nearby have COVID-19 disease	Yes	64	41.8	41.8	41.8
	No	89	58.2	58.2	100
Can you lost someone close due to COVID-19	Yes	35	22.9	22.9	22.9
	No	118	77.1	77.1	100
Confident on vaccine	Yes	101	66	66	66
	No	17	11.1	11.1	77.1
	To some extend	35	22.9	22.9	100
I reject vaccination	Agree	17	11.1	11.1	11.1
	Not agree	119	77.8	77.8	88.9
	Somewhat agree	17	11.1	11.1	100
I believe in quickly created vaccine	Agree	67	43.8	43.8	43.8
	Not agree	52	34	34	77.8
	Somewhat agree	34	22.2	22.2	100
I worry about vaccine long term effects	Agree	64	41.8	41.8	41.8
	Not agree	54	35.3	35.3	77.1
	Somewhat agree	35	22.9	22.9	100
I believe there is a plan against human	Agree	40	26.1	26.1	26.1
	Not agree	82	53.6	53.6	79.7
	Somewhat agree	31	20.3	20.3	100
I do not want something strange should enter my body	Agree	79	51.6	51.6	51.6
	Not agree	54	35.3	35.3	86.9
	Somewhat agree	20	13.1	13.1	100
I do not socialize with others, thus I do not require the vaccine	Agree	26	17	17	17
	Not agree	110	71.9	71.9	88.9
	Somewhat agree	17	11.1	11.1	100
Even when the pandemic is finished you still have a negative outlook on the future	Agree	55	35.9	35.9	35.9
	Not agree	66	43.1	43.1	79.1
	Somewhat agree	32	20.9	20.9	100
In my perspective, there is a remedy for every issue	Agree	108	70.6	70.6	70.6
	Not agree	23	15	15	85.6
	Somewhat agree	22	14.4	14.4	100
I constantly get nervous, even over the smallest things	Agree	80	52.3	52.3	52.3
	Not agree	55	35.9	35.9	88.2
	Somewhat agree	18	11.8	11.8	100
During the pandemic, I experienced depression	Agree	65	42.5	42.5	42.5
	Not agree	66	43.1	43.1	85.6
	Somewhat agree	22	14.4	14.4	100
I repeatedly changed my mind about getting the vaccination	Agree	54	35.3	35.3	35.3
	Not agree	78	51	51	86.3
	Somewhat agree	21	13.7	13.7	100
I am worried about the vaccine's adverse effect after learning about them from a family members or friends	Agree	56	36.6	36.6	36.6
	Not agree	71	46.4	46.4	83
	Somewhat agree	26	17	17	100

Table 3: Demographic parameters for General Public

		Frequency	Percent	Valid Percent	Cumulative Percent
Age of respondents	20-35	91	60.3	60.3	60.3
	36-50	36	23.8	23.8	84.1
	above 50	24	15.9	15.9	100
	Total	151	100	100	
Gender	Male	48	31.8	31.8	31.8
	Female	103	68.2	68.2	100
	Total	151	100	100	
Education	Illiterate	59	39.1	39.1	39.1
	Literate	92	60.9	60.9	100
	Total	151	100	100	

Table 4: COVID-19 awareness and vaccine hesitation among General Population

Questions		Frequency	Percent	Valid Percent	Cumulative Percent
Awareness of COVID-19 signs(symptoms)	Complete awareness	81	53.6	53.6	53.6
	No awareness	24	15.9	15.9	69.5
	Limited awareness	46	30.5	30.5	100
Are you infected by COVID-19 in the past	Yes	19	12.6	12.6	12.6
	No	131	86.8	86.8	99.3
	Maybe	1	0.7	0.7	100
Someone nearby have COVID-19 disease	Yes	50	33.1	33.1	33.1
	No	101	66.9	66.9	100
Can you lost someone close due to COVID-19	Yes	25	16.6	16.6	16.6
	No	126	83.4	83.4	100
Confident on vaccine	Yes	80	53	53	53
	No	36	23.8	23.8	76.8
	To some extend	35	23.2	23.2	100
I reject vaccination	Agree	57	37.7	37.7	37.7
	Not agree	76	50.3	50.3	88.1
	Somewhat agree	18	11.9	11.9	100
I believe in quickly created vaccine	Agree	44	29.1	29.1	29.1
	Not agree	78	51.7	51.7	80.8
	Somewhat agree	29	19.2	19.2	100
I worry about the vaccines long term effects	Agree	62	41.1	41.1	41.1
	Not agree	55	36.4	36.4	77.5
	Somewhat agree	34	22.5	22.5	100
I believe there is a plan against human	Agree	65	43	43	43
	Not agree	64	42.4	42.4	85.4
	Somewhat agree	22	14.6	14.6	100
I do not want something strange should enter my body	Agree	92	60.9	60.9	60.9
	Not agree	54	35.8	35.8	96.7
	Somewhat agree	5	3.3	3.3	100
I do not socialize with others, thus I do not require the vaccine	Agree	84	55.6	55.6	55.6
	Not agree	58	38.4	38.4	94
	Somewhat agree	9	6	6	100
Even when the pandemic is finished you still have a negative outlook on the future	Agree	33	21.9	21.9	21.9
	Not agree	79	52.3	52.3	74.2
	Somewhat agree	39	25.8	25.8	100
In my perspective, there is a remedy for every issue	Agree	113	74.8	74.8	74.8
	Not agree	23	15.2	15.2	90.1
	Somewhat agree	15	9.9	9.9	100
I constantly get nervous, even over the smallest things	Agree	63	41.7	41.7	41.7
	Not agree	64	42.4	42.4	84.1
	Somewhat agree	24	15.9	15.9	100
During the pandemic, I experienced depression	Agree	48	31.8	31.8	31.8
	Not agree	66	43.7	43.7	75.5
	Somewhat agree	37	24.5	24.5	100
I repeatedly changed my mind about getting the vaccination	Agree	53	35.1	35.1	35.1
	Not agree	81	53.6	53.6	88.7
	Somewhat agree	17	11.3	11.3	100
I am worried about the vaccine's adverse effect after learning about them from a family members or friends	Agree	40	26.5	26.5	26.5
	Not agree	66	43.7	43.7	70.2
	Somewhat agree	45	29.8	29.8	100

The questionnaire distributed among university students contains a total of 17 questions (other than demographic) about COVID-19 and vaccine awareness. It has been seen that most of the students were completely unaware of COVID, its symptoms, and many of them were even vaccinated. However, about half of the students were found to be worried about the long-term issues associated with the COVID vaccine (Table 2).

The survey was conducted to gather opinions from the general public about the COVID-19 vaccine. Participants were given a set of perceptions about the COVID-19 vaccine and asked to indicate their level of agreement with each statement. About 151 responses were collected from the general public in Pakistan. The results of general public ages that have responded to our questionnaire are shown in Table 22 and are pictorially

represented. In this table, we can see that 60.3% of the general public were in the age group of 20–35. Similarly, 23.8% and 15.9% of respondents were in the age groups of 36–50 and above 50 years, respectively. (Table 3).

When the questionnaire was distributed to the general public and analyzed, the outcomes were totally different from those of university students. It has been observed that most of the general public has only limited awareness about COVID-19 and its vaccine. Further, the general population was unaware of the symptoms of COVID and therefore didn't participate in the vaccination process. A large population has even rejected the vaccine due to a dual mindset about its long term effects. (Table 4).

The percentages of the responses from the university students and general public are compared in Figure 1. According to the graph in the figure, about 66% of university students, and 53% of the general public were confident. On the other hand, about 11.10% of university students and 23.8% of the general public were not confident. And about 22.9% of university students, and 23.20% of the general public were hesitant. There is some difference between the confidence levels of university students and the general public. Specifically, a higher percentage of university students (66%) were confident compared to the general public (53%), while a higher percentage of the general public (23.8%) were not confident compared to university students (11.1%). However, the percentage of hesitancy was similar between the two groups, with 22.9% of university students and 23.2% of the general public reporting hesitancy.

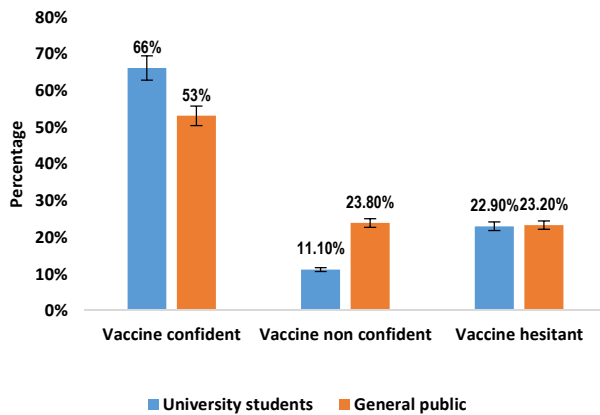


Figure 1: Comparison of percentages of university and general public respondents

**DISCUSSION**

The COVID-19 vaccine acceptance was observed to be much lower than in countries like the UK and France<sup>9-10</sup>. In our study, different demographic factors, such as; age, education level, and gender, were included. The results concluded that the demographic factors included in this study have some sort of relationship with vaccine acceptance. Females with lower education levels and older people have relatively low vaccine acceptance as compared to males with higher education and younger people. Many previous studies also suggested a strong relationship between age, education level, and vaccine acceptance<sup>9-12</sup>, and many showed no significant relationship between gender, risk perception, or vaccine acceptance<sup>11-12</sup>. However, this difference in relationship between vaccine acceptance and demographic factors might be due to the consideration of different sample designs and compositions of these factors in various studies. Therefore, the implications of this comparison are limited.

Generally, all the outcomes of this study are almost similar to many previous studies conducted on vaccine hesitation in various

nations. In a study conducted in the United States, the results suggest that women, have low levels of education. Minor racial and different ethnic groups have a greater hesitation towards the COVID vaccine. Further, our results also suggested that people with less education and young age also have greater vaccine hesitation. However, Quinn *et al.* 13 suggested that age is not a reliable factor for vaccination hesitation. A study reported in Nigeria, gives opposite results, where they concluded that young people have low vaccine confidence as compared to the older. Moreover, young people with higher education levels have low vaccination rates.<sup>14</sup>

Another study reported in Saudi Arabia gave results that are consistent with our findings, suggested that women and people with lower levels of education had a higher level of vaccine hesitancy than men and people with higher levels of education. 15 A study conducted in Pakistan also suggested that people with low levels of education and females had low vaccine confidence levels. Further, this study also suggested that age is not a reliable factor for assessing vaccine hesitation. 16 Similar results about women and low level educated people's vaccine hesitance in Malaysia<sup>17</sup>.

The main objective of this study was to assess the level of confidence in COVID-19 vaccine acceptance among university students and the general public. The results showed a higher level of acceptance among students than the general public. This might be due to the higher awareness of disease and vaccines among students. Further, it has also been observed that young people have more risk taking ability than elders. Many previous studies also suggested that the studies had more awareness about COVID-19 and therefore a higher vaccine acceptance rate<sup>18-20</sup>. It is concluded from the results of this study that the general population has low COVID-19 vaccine acceptance as compared to students.

**CONCLUSION**

It is also concluded that men have a higher level of vaccine acceptance. Further, age also has an indirect relationship with vaccine acceptance. However, a worth-noting thing observed in this study was that the hesitation for vaccine acceptance was observed in both groups including students and the general public, but its magnitude was higher in the general public as compared to students. In summary, this study emphasizes the significance of fostering vaccine confidence among the general population, especially young people and people with lower levels of education. These findings can help public health professionals and policymakers create vaccination campaigns and programmers that will boost vaccination acceptance and confidence among the general public.

**Implication:** The study suggests that public health campaigns should tailor messages to different demographics, focusing on women's concerns to increase vaccine acceptance rates. Age-specific strategies, such as incorporating vaccine education into school curricula and social media, could be effective for younger populations. Educational institutions can also play a crucial role in promoting vaccine acceptance. Addressing general public hesitancy through community outreach programs and educational campaigns can help improve vaccine acceptance and overall public health.

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