ORIGINAL ARTICLE

Investigating the Acceptability of COVID-19 Vaccines in the Population of Punjab: Knowledge, Attitudes, and Practices

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ABSTRACT

Background: The Corona Virus Disease (COVID-19) is a pandemic that outbreak from Wuhan, China, in late 2019.
Aim: To determine the knowledge, practices, and attitude of the general population related to the COVID-19 vaccine in Punjab, Pakistan.
Methods: A cross-sectional online survey was conducted in Punjab, Pakistan, comprising the general population from August 2021 to October 2021. Through the online survey, Google targeted the general public by providing surveys ranging from employment and education-specific issues to emails and social media platform listings to ensure that legitimate data was collected. Data was analysed through a chi-square test.
Result: Total 703 respondents participated in this study out of which 649(92.32%) were male and 54(7.68%) were female, 37(5.70%) male and 6(11.11%) female respondents were suffering from COVID-19 while 200(28.45%) male and 11(1.56%) female were injected Sinopharm, 28(3.98%) and 0.57% (4) female were injected Oxford/AstraZeneca, and 416(59.17%) male respondents and 39(5.55%) female respondents who were injected Sinovac against COVID-19. There were 294(41.82%) respondents who think that they will encourage their families and friends to get vaccinated against COVID-19, which is significant (p = 0.027). There were 277(39.40%) respondents who think that I think there is no harm in taking the COVID-19 vaccine. There were 503(71.55%) male and 51(94.444%) female respondents who were vaccinated against COVID-19.
Conclusion: This study concluded that respondents have less and improper knowledge of the COVID-19 vaccine. However, the general population showed a positive attitude towards the COVID-19 vaccine and showed willingness to be vaccinated. This study recommended that the government should develop awareness regarding the COVID-19 vaccine.
Keywords: COVID-19, Vaccines, Knowledge, Practice, Punjab

INTRODUCTION

Corona virus disease (COVID-19) is a global health crisis that began in Wuhan, China, at the end of December, 2019[1]. It has caused severe disruptions as well as brand new complications across the entire globe, let alone global health care[2]. Severe Corona viral acute syndrome 2 (SARS-CoV-2) leading to severe viral pneumonia starting in December 2019 in Wuhan, Hubei province of China; due to this, >120 million people including almost 2,66 million deaths till 16 March 2021[3].Coronavirus (SARS-CoV-2) belongs to the order Nidovirales, a member of the family *Coronaviridae*. Chinese scientists named this virus as COVID-19 and Wuhan Coronavirus, while the real name is SARS-CoV-2 by the International Committee on Taxonomy of Viruses[4].

The Corona virus can cause many infections and diseases from moderate to severe, such as SARS and MERS[5]. The working of the heart and respiratory system and the number of respiratory disorders are the most severe effects of COVID infection, and in most cases, it may eventually cause the death of the patient[6]. The effects of the COVID-19 infection are so adverse that they are not only limited physically, but they also affect the psychological conditions of the individual[7,8].

COVID-19 mainly affects the respiratory system with a number of symptoms, ranging from moderate rhino rhea to severe dysfunctions in breathing[9]. Commonly, the Corona virus is more lethal to elderly people living with co-morbidities such as high blood pressure, obesity, diabetes, and renal disease[10–12].

Pakistan needs ventilators, hospital clothing, and personal protection equipment for the fight against the current disease with a limited budget[13]. Despite the strict measures, 260,000 major occurrences with over 5,000 deaths were reported nationally as of 17 July 2020. In early March, provincial administrations enacted a national lockdown, unhappily opposed by hard-line clergy and religious activists who called on people to pray in congregation in the mosque. There have been countless mass meetings at the national level with little information about the epidemic during this epidemic[14,15].

The first coronavirus case in Libya was confirmed on 24 March 2020[16]. Ever since then there has been an upsurge in the number of cases which has impacted over 146, 000 plus and 2402 plus deaths up to March 16, 2021. However, the health system of Libya was not ready for this pandemic and to date it has this and several other problems, including scarcity of PPE, lack of training in health care, the absence of testing centers in many towns and cities, and scarcity of funds from the healthcare center due to the permanent civil war and financial crisis[12].Vaccinations have been the best way of controlling the rapid spread of infectious diseases for decades. That said, several organisations and individuals have recently begun to disseminate vaccine myths and conspiracy theories, increasing the pressure on healthcare workers and authorities[17]. COVID-19 vaccine development and administration have not been completed yet. Today many patients applying for becoming HCWs and high-risk persons such as elderly and chronic diseases have been discharged in Europe and North America[18]. However, low- and developing-income countries are in danger of delay in vaccination due to various reasons: diminished public trust, inadequate resources, and inadequate vaccine stocks, and as many hi-income countries acquire large quantities of vaccines without a proper consideration of other nations[19]. As a result, this inequality might lead to a disadvantage for low- and middle-income countries because of their poor ability to fight COVID-19 against their existing health care system status, which leads to a humanitarian crisis[20]. The new cooperation launched in September 2020 by numerous corporations with their initiatives was designed to deliver 100 million doses of the COVID-19 vaccine in 2021 to low- and middle-income nations[21].

Vaccinating over 82 percent of the population is vital in order to generate the requisite herd immunity to control virus transmission and terminate the pandemic, requiring strong acceptance and poor reluctance across the whole population[22]. Therefore, factors related to vaccination acceptance and reluctance need to be identified in order to make policy changes and to enable specialists in public health to create a conceptual framework and education campaign to raise public awareness[22,23]. The decline in public belief in rumours and conspiracy theories in vaccines is a big concern for specialists in public health and

policymakers around the world[24]. Hesitation,rumours, and fake news can influence the public mindset and decisions regarding vaccines. A known example is the Nigerian polio boycott of 2003–2004, which led to an increase of the disease[25].

Social support and measures against hesitancy over COVID-19 vaccination are therefore crucial, particularly in resource-limited situations. This will help to promote vaccination and to build confidence between public and health authorities and policymakers, improving control of the pandemic and reducing loss of life. Accordingly, determining the acceptance and hesitancy of vaccines among the general community and health workers is vital for drawing up policy strategies and evaluating resources available to meet COVID-19 and overall health issues, so as to reduce acute pandemic burdens. In this study, the knowledge, attitudes, and acceptability of the COVID-19 vaccine will be determined among the general public.

Our study aims and objectives to check the knowledge level of the general population related to the COVID-19 vaccine and practices and attitudes related to the COVID-19 vaccine.

MATERIALS AND METHODS

A cross-sectional online survey was conducted in Punjab, Pakistan, comprising the general population from August 2021 to October 2021.

Study design: An online survey was conducted in anonymity with the general Pakistani population without identification data. The study reports follow the announcement that reporting of epidemiological observational studies has been strengthened[26].

Measures: The following sections were included in the survey. One page of the first part will provide information about the study and an informed consent agreement. This includes issues related to gender, age, specific nationalities, employment status, geographical area of residence, marital status, monthly income, financial difficulties, fixed income availability, and educational level.

Analysis of statistics: Descriptive statistical analysis uses frequency, percentage, mean, and standard deviation. A chi-square test was performed for dependent variables and independent variables. A chi-square test was applied to analyse the data. The effect of study factors on the acceptability of COVID-19 vaccination were determined by binomial logistics retrieval. Data was analysed using MINITAB Windows SPSS statistics software[12].

RESULTS

Demography: Table 1 describes the demographic characteristics of the participants. A total of 703 respondents participated in this study, out of which 649(92.32%) were male and 54(7.68%) were female. There were 359(51.07%) respondents ranging their age between 18-30, 179(25.46%) respondents ranging their age between 31-40, and 23.47% respondents had their ages above 40. The married respondents were 178(25.39%) and 523(74.6%) respondents) were unmarried. There were 442(62.87%) undergraduate respondents, 189(26.88%) graduates, and 72(10.24%) postgraduates. 39(5.55%) respondents belonged to the medical field by profession, 51(7.25%) were from agriculture, 28.59% (201) were teachers, 154(21.91%) were students, 153(21.76%) were labourers, and 105(14.94%) respondents belonged to other professions. There were 377(53.78%) respondents who are living in urban areas, and 324(46.21%) are living in rural areas.

Table 2 describes the types of vaccinations that were injected into respondents. There were 200(28.45%) male respondents and 11(1.56%) female respondents who were injected Sinopharm, 28(3.98%) male respondents and 4(0.57%) female respondents who were injected Oxford/Astra Zeneca, and 416(59.17%) male respondents and 39(5.55%) female respondents who were injected Sinovac against COVID-19, which is non-significant (p=0.188). There were 117(16.64%) respondents

ranging their age between 18-30, 51(7.25%) respondents ranging their age between 31-40 and 43(6.12%) respondents had their ages above 40 who were injected Sinopharm. There were 30(4.27%) respondents ranging their age between 18-30 and 2(0.28%) respondents ranging their age between 31-40 who were injected Oxford/Astra Zeneca. There were 209(29.73%) respondents ranging their age between 18-30, 17.64% (124) respondents ranging their age between 31-40, and 78(11.10%) respondents had their ages above 40 who were injected Sinovac against COVID-19, which is highly significant (p≤0.001).

Table 1: Demographic characters of respondents (n=703)

Participant Characteristics	Overall	Percentage
Gender		
Male	649	92.32
Female	54	7.68
Age		
18-30	359	51.07
31-40	179	25.46
More than 40	165	23.47
Marital status		
Married	178	25.39
Unmarried	523	74.6
Education		
Undergraduate	442	62.87
Graduate	189	26.88
Postgraduate	72	10.24
Profession		
Medical	39	5.55
Agriculture	51	7.25
Teacher	201	28.59
Student	154	21.91
Laborer	153	21.76
Others	105	14.94
Locality		
Urban	377	53.78
Rural	324	46.21

Preference of general population regarding types of vaccination available

The married respondents were 102(14.51%) and 109(15.50%) respondents were unmarried who were injected with Sinopharm against COVID-19. The married respondents were 6(0.85%), and 26(3.70%) respondents were unmarried who were injected with Oxford/AstraZeneca against COVID-19. The married respondents were 252(35.85%) and 203(28.88%) respondents were unmarried who were injected Sinovac against COVID-19, which is highly significant (p≤0.002). There were 130(18.49%) undergraduate respondents, 7.82% (55) graduates, and 26(3.70%) postgraduates who were injected with sinopharms against COVID-19. There were 2.56% (18) undergraduate respondents, 7(1.00%) graduate and postgraduates each who were injected with Oxford/AstraZeneca against COVID-19. There were 290(41.25%) undergraduate respondents, 12617.92%) graduates, and 290(41.25%) postgraduates who were injected with Sinovac against COVID-19, which is highly significant (p≤0.001).

There were 9(1.28%) respondents who belonged to the medical field by profession,17(2.42%) from agriculture,49(6.97%) were teachers, 57(8.11%) were students, 49(6.97%) were labourers, and 30(4.27%) respondents belonged to other professions who were injected Sinopharm against COVID-19, which is highly significant (≤0.001). There were 1.85% (13) respondents who belonged to the medical field by profession, 14(1.99%) were teachers, 1(0.14%) were students, and 4(0.57%) respondents belonged to other professions who were injected with Oxford/Zeneca against COVID-19. There were 15(2.13%) respondents who belonged to the medical field by profession, 34(4.84%) from agriculture, 138(19.63%) were teachers, 96(13.66%) were students, 102(14.51%) were labourers, and 70(9.96%) respondents belonged to other professions who were injected Sinovac against COVID-19, which is highly significant (p≤0.001). There were 84(11.95%) respondents who are living in

urban areas, and 127(18.07%) are living in rural areas who were vaccinated Sinopharm against COVID-19. There were 10(1.42%) respondents who are living in urban areas, and 22(3.13%) are living in rural areas who were vaccinated in Oxford/Zeneca against COVID-19. There were 134(19.06%) respondents who are living in urban areas, and 321(45.66%) are living in rural areas who were vaccinated Sinovac against COVID-19, which is significant (p = 0.029).

Table 2: Preference of general population regarding types of vaccination available

Participant Characteristics	Sinopharm	Oxford/AstraZeneca	Sinovac	X^2	P-value
Gender					
Male	200	28	416	3.334	0.188
Female	11	4	39		
Age					
18-30	117	30	209	23.709	≤ 0.001
31-40	51	2	124		
More than 40	43	0	78		
Marital status					
Married	102	6	252	17.333	≤ 0.002
Unmarried	109	26	203		
Education					
Undergraduate	130	18	290	62.086	≤ 0.001
Graduate	55	7	126		
Postgraduate	26	7	290		
Profession					
Medical	9	13	15	102.49	≤ 0.004
Agriculture	17	0	34		
Teacher	49	14	138		
Student	57	1	96		
Laborer	49	0	102		
Others	30	4	70		
Locality					
Urban	84	10	134	7.065	0.029
Rural	127	22	321		

DISCUSSION

Vaccinations have been the best way of controlling the rapid spread of infectious diseases for decades. That said, several organizations and individuals have recently begun to disseminate vaccine myths and conspiracy theories, increasing the pressure on healthcare authorities and workers[17].

The COVID-19 immunization through vaccination has been promoted as the most effective method to control the ongoing outbreak. Numerous vaccines are being developed, and some clinical trials have recently been published with encouraging findings, leading to the approval of certain vaccines for use to manage the COVID-19 pandemic across the world, including Pakistan[27]. There are also concerns about the general public's understanding, attitudes, and perspectives on the COVID-19 vaccine and its deployment[28,29]. The current study was planned to assess knowledge, attitudes, and perceptions about the COVID-19 vaccination. The findings of current research represented a diverse range of socio-demographic characteristics that influence COVID-19 vaccination knowledge, attitudes, and perceptions, and as a result, our findings will be critical in establishing COVID-19 vaccine-related awareness and health education initiatives in the coming years.

According to our research, participants with a higher level of education had a better knowledge of COVID-19 vaccinations, which has also been supported by previous research. A number of similar cases have been observed in earlier Pakistani research[27] and Bangladeshi research, suggesting that persons with a higher educational background were more knowledgeable of COVID-19[30]. Individuals who have received a higher level of education may be more concerned about their health and well-being because they have access to more information sources and become more active in life events that may have an impact on them[31], such as the COVID-19 vaccination.

In this study, 41.96% of participants expressed a greater positive attitude toward the COVID-19 vaccination; they were thinking that they would take the vaccine without any hesitation. According to findings from past research in Indonesia[32] and Bangladesh[33] on attitudes about dengue vaccination and COVID-19, there was a relationship between the two diseases. Another study examined attitudes toward COVID-19 vaccines and discovered that females were more hesitant than males to get the vaccination[34]. In contrast, male volunteers in a Chinese study were more likely than female volunteers to get the COVID-19 vaccine[35].

An investigation done in China found that 48% of respondents postponed vaccination until the vaccine's safety had been established[35], demonstrating their scepticism regarding the vaccine's safety[36]. Unfortunately, the extremely rapid rate of vaccine development, along with the scepticism of certain scientists and health experts, may cause some to have reservations regarding COVID-19 vaccination[37]. In our study, 43.24% of participants agreed that the COVID-19 vaccine should be provided free of charge to individuals in Pakistan, in contrast to a previous study in Indonesia, in which the majority of respondents stated that they were willing to pay for the COVID-19 vaccine[38].

CONCLUSION

According to the findings of this study, respondents had insufficient and incorrect understanding of the COVID-19 vaccine. The general public, on the other hand, expressed a good attitude toward the COVID-19 vaccine and expressed readiness to be vaccinated. According to the findings of this study, the government should raise public knowledge of the COVID-19 vaccination.

Authorship and contribution declaration: Each author of this article fulfilled following Criteria of Authorship:
1. Conception and design of or acquisition of data or analysis and interpretation of data.
2. Drafting the manuscript or revising it critically for important intellectual content.
3. Final approval of the version for publication.

All authors agree to be responsible for all aspects of their research work.

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