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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 which outbreak from Wuhan China in late 2019. This cross-sectional study was conducted to determine the knowledge, practices and attitude of general population related to COVID-19 vaccine in Punjab, Pakistan. **Methods:** Through the online survey, the general public was targeted. Specific surveys regarding knowledge and attitudes towards COVID-19 vaccination were conducted. Data was analyzed through chi-square test. **Result:** Total 703 respondents participated in this study out of which 92.32% (649) were male and 7.68% (54) were female, 5.70% (37) male and 11.11% (6) female respondents were suffering from COVID-19 while 28.45% (200) male and 1.56 % (11) female were injected Sinopharm, 3.98% (28) and 0.57 % (4) female were injected Oxford/AstraZeneca, and 59.17% (416) male respondents and 5.55 % (39) female respondents who were injected Sinovac against COVID-19. 41.82% (294) participants responded that they will encourage their families and friends to get vaccinated against COVID-19. 39.40% (277) of respondents think that there is no harm in taking COVID-19 vaccine. There were 71.55% (503) male respondents and 94.44 % (51) female respondents who were vaccinated against COVID-19. **Conclusion:** This study concluded that respondents have knowledge of COVID-19 vaccine. General population showed a positive attitude towards the COVID-19 vaccines and showed willingness for getting vaccinated. This study recommended that the government should develop awareness regarding the COVID-19 vaccines.

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INTRODUCTION

The Corona virus Disease (COVID-19) is a pandemic which outbreak from Wuhan China in late 2019 (Yu et al., 2020). It has caused serious disturbances and unprecedented problems around the world including the deterioration of healthcare systems (Chen et al., 2020). Severe corona virus acute syndrome 2 (SARS-CoV-2) causing a severe viral pneumonia which began in December 2019 in Wuhan, China, infected over 120 million individuals and caused 2,66 million deaths till 16 March 2021 (Dong et al., 2020).

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 (Bilal et al., 2021a).

The Corona virus can cause many infections and diseases from moderate to severe such as SARS and MERS (Ashour et al., 2020).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 (Holshue et al., 2020).The effects of the Covid-19 infection are so adverse that they are not only limited to the psychology but also mental health condition of the individual (Huang and Zhao, 2020; Bilal et al., 2021b).

COVID-19 mainly affects the respiratory system with several symptoms, ranging from moderate rhino rhea to severe dysfunctions in breathing (Huang et al., 2020). Commonly, corona virus is more lethal to the elderly people living with co-morbidities such as high blood pressure, obesity, diabetes and renal disease (Bornstein et al., 2020; Bhatraju et al, 2020; Elhadi et al., 2021).

Pakistan needs ventilators, hospital clothing and personal protection equipment for the fight against the current disease with a limited budget (Dailytimes, 2020). 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 Mosque. There have been countless mass meetings at the national level with little information about the epidemic during this period (Salma, 2020; Ladiwala et al., 2021).

Vaccinations have been the best way of controlling the rapid spread of infectious diseases for decades. Several organizations and individuals have recently begun to disseminate vaccine myths and conspiracy theories, increasing the pressure on healthcare authorities and workers (Peterson et al., 2016). COVID-19 vaccine research and delivery is an ongoing process. Currently, numerous candidates for healthcare workers and high-risk populations such as the elderly and people suffering from chronic diseases have been released in Europe and North America (Voysey et al., 2021). However, low- and developing-income countries are at danger of delay in vaccination due to various reasons: lack of public confidence, resource shortages, and lack of vaccine supplies, as many high-income countries obtain huge numbers of vaccines without giving priority to other countries (Wouters et al., 2021). As a result, this inequality had 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 lead to humanitarian crisis (Elhadi et al., 2020).

Vaccinating over 82 per cent 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 (Wong et al., 2021). 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 create a conceptual framework and education campaign to raise public awareness(Wong et al., 2021; Bilal, 2021).

The decline in public belief in rumors and conspiracy theories in vaccines is a big concern for specialists in public health and policymakers around the world (Kumar et al., 2016). Hesitation, rumors and fake news can influence the public mindset and decisions regarding vaccines. A known example is Nigerian polio boycott of 2003–2004, which led to an increase of the disease (Ghinai et al., 2013).

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 policy-makers, so 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 COVID-19 vaccine will be determined among the general public.

Our study aimed to analyze the knowledge of general population related to COVID-19 vaccine and practices and attitude related to it.

MATERIALS AND METHODS

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

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

Descriptive statistical analysis used were frequency, percentage, mean and standard deviation. A chi-square test was performed for dependent variables and independent variables. 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 (Ali et al., 2022).

RESULTS

The demographic characteristics of the participants are shown in table 1. The table 2 describes the types of vaccination which the respondents got. Results of the surveys regarding the knowledge and attitudes of participants towards COVID-19 vaccine showed that 41.82% were of the view that they will encourage their family members for vaccination. 39.4% were convinced that vaccination is beneficial against COVID-19 and ruled out the myths related to it. Participants belonging to various economic backgrounds were asked about vaccine pricing and 43.24% expressed that the vaccine should be provided free of cost to the general public.

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 (Peterson et al., 2016).

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 manage COVID-19 pandemic across the world including Pakistan (Kashif et al., 2021). There are also concerns about the general public's understanding, attitudes, and perspectives on the COVID-19 vaccine and its deployment (Islam et al., 2021; Bilal and Ullah, 2021). The current study was planned to assess knowledge, attitudes, and perceptions about 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 earlier in Pakistan (Kashif et al., 2021) and Bangladesh, suggesting that people with a higher educational background were more knowledgeable of COVID-19 (Rehman et al., 2020). 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 (Mirowsky and Ross, 1998), such as the COVID-19 vaccination.

In this study, 41.96% of participants expressed greater positive attitude toward the COVID-19 vaccination, they were thinking that they will take vaccine without any hesitation. According to findings from past research in Indonesia (Harapan et al., 2016) and Bangladesh (Ferdous et al., 2020) 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 (Callaghan et al., 2020). In contrast, male volunteers in a Chinese study were more likely than female volunteers to get the COVID-19 vaccine (Wang, et al., 2020).

An investigation done in China found that 48% of respondents postponed vaccination until the vaccine's safety had been established (Wang et al., 2020), demonstrating their scepticism regarding the vaccine's safety (Jawad et al., 2023). 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 (Chou and Budenz, 2020). In our study, 43.24% of participants agreed that the COVID-19 vaccine should be provided free of charge to individuals in Pakistan. Whereas a similar study in Indonesia showed the majority of respondents stated that they were willing to pay for the COVID-19 vaccine (Harapan et al., 2020).

CONCLUSION

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

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Table 1: Demographic characters of respondents

Participant Characteristics	***Frequency %* (*N* =703)**
Gender	
Male	92.32
Female	7.68
Age	
18-30	51.07
31-40	25.46
More than 40	23.47
Marital status	
Married	25.39
Unmarried	74.6
Education	
Undergraduate	62.87
Graduate	26.88
Postgraduate	10.24
Profession	
Medical	5.55
Agriculture	7.25
Teacher	28.59
Student	21.91
Labourer	21.76
Others	14.94
Locality	
Urban	53.78
Rural	46.21

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		
Labourer	49	0	102		
Other	30	4	70		
Locality					
Urban	84	10	134	7.065	0.029
Rural	127	22	321		