ATTITUDE OF POPULATION TOWARDS COVID-19 VACCINE: An Exploratory Study in Pakistan

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ABSTRACT

Background: COVID-19 is a deadly viral infection that kills many people throughout the globe. The goal of this study was to find out how people in Pakistan felt about the COVID-19 vaccine. **Method**: Convenience and respondent-driven sampling method was used to conduct an online survey with 15 closed- and open-ended questions to a sample of 330 participants. The proportion of people who had a positive attitude towards vaccination vs. those who had a negative attitude towards vaccination was revealed by the closed-ended questions. The open-ended questions elicited qualitative data on why people accepted or rejected the vaccination. **Results**: 62.9% of the total number of respondents, male 1.97 times more likely (OR: 1.97, CI: 1.08-3.58) than female, 80% younger than 50 years, higher age groups, 71.3% married, 69.3% of the working population intended to get vaccinated with COVID-19 vaccine. People who held pro-vaccine health beliefs, had knowledge of, access to the COVID-19 vaccine, were employed, or under government pressure to get vaccinated, or visited public vaccination location, reported a positive attitude towards vaccination. People with safety concerns, social pressure of not getting vaccinated, low levels of awareness, trust and belonging to communities with anti-vaccination beliefs were likely to have negative attitudes towards COVID-19 vaccine. **Conclusion**: This study helps to identify the attitudes of people and has implications for COVID-19 immunization efforts in Pakistan for various population segments.

Keywords: COVID-19 vaccine, intention, attitude, demographics, Pakistan.

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INTRODUCTION

Coronavirus spread globally and caused many deaths around the world. Every next wave is more dangerous and infectious than the previous one. The development and availability of vaccination programs are slow as compared to the ever-stronger emerging waves of coronavirus which are now called severe acute respiratory syndrome (Fong et al., 2020). Coronavirus was discovered in China for the first time. In March 2020, the WHO called coronavirus a global pandemic (Fong et al., 2020). Coronavirus spreads when a healthy person comes into contact with an infected person. The virus can be transmitted in minute liquid droplets from the infected person's mouth or nose. Other people can contact the virus if they touch infected surfaces and then touch their eyes, noses, or mouths without washing their hands (Fong et al., 2020). In Pakistan, the spread of coronavirus was slower during the first wave in 2020 than in the third wave in 2021 because people followed the standard operating procedures. However, in 2021, people became more used to the pandemic and stopped taking precautions (Hussain, 2021).

Newly emerging infectious diseases with no vaccinations cause massive harm to people. Health psychology focuses on decontamination behaviour, medication adherence, hand washing, social distancing, or avoidance behaviour in the case of COVID-19 (Weston et al., 2020). People need to adopt preventive behaviours such as personal hygiene, social distancing, and staying at home. So, people's psychological and behavioural response plays a major and vital role in preventing and controlling the coronavirus. According to WHO (2021), a vaccine was manufactured to create immunity against the coronavirus to decrease the risk of having the disease and its consequences. Even though the coronavirus vaccine has been administered to many people around the world, many people are still not vaccinated due to various reasons.

The biopsychosocial model (Taukeni, 2019) covers the psychological, social, and biological aspects. People worldwide experienced physical degeneration (biological) and a drastic shift in their lives (social) due to the pandemic. The poor (social) were affected by the lockdown. Confinement in the house space had an adverse psychological impact on those who lived alone. Family members' incapacity to fulfill their social roles prompted issues and raised tension, which led to greater biological or psychological disorders. According to the health belief model, if people think they are vulnerable to coronavirus and perceive its risks, they will adopt preventive behaviours (Mirzaei et al., 2021). According to the theory of planned behaviour (Mao et al., 2021), if people perceive benefits of a specific behaviour such as pressure from society or social group to adopt particular behaviours, and are capable of adopting that behaviour, they will practice social distancing during the pandemic. The stage model of behaviour change (Kelly et al., 2003) can influence people's intentions. In this model, the person will actively change their intention, get vaccinated, and follow the preventive behaviours to avoid the coronavirus.

The protection motivation theory (Ezati Rad et al., 2021) focuses on adopting behaviour for protection from an event due to fear of that event. So, fear plays a vital role in appraising protective behaviours, explaining the cognitive process, and coping. Fear of coronavirus might motivate one to take preventative measures, follow the standard operating procedures, and get vaccinated for COVID-19.

AIM OF THIS STUDY

This study aimed to explore attitudes towards COVID-19 vaccines in terms of rejection/acceptance and reasons for vaccination/non-vaccination behaviours in terms of risk perception, fear, attitudes, and beliefs in social, psychological, and sociodemographic contexts. This is important because people who do not get vaccinated can get infected and transmit it to others.

RESEARCH QUESTIONS

- What are the prevalence estimates of Pakistanis in various demographic categories who intend to get vaccinated versus those who do not intend to get vaccinated?

- What are the reasons for acceptance or rejection of COVID-19 vaccine?

METHOD

STUDY DESIGN AND SAMPLING

We received ethical approval from Research Ethics Committee of Department of Applied Psychology, Lahore College for Women University before beginning this study. This study was a cross-sectional study of a community sample obtained through convenience and respondent-driven sampling in Pakistan. A comparative mixed methods design was used. To address the first research question, we used the correlational quantitative method and to address the second research question, we used exploratory qualitative method.

MEASURE

We constructed an online self-administered survey using Google forms. It consisted of a closed-ended yes-no response format (Quantitative) for intention to get vaccinated with COVID-19 vaccine and open-ended responses to explain the reasons for a Yes/No (Qualitative). In its first section, we included a letter of introduction followed by an information sheet, informed consent form, Yes and No responses, open-ended blanks for reasons to get vaccinated, and some socio-demographics at the end. There were a total of 15 items in the survey.

PARTICIPANTS

Demographic variables included gender, age, marital status, parental status, pregnancy, working/non-working, student, profession, city, and province to assess their Yes/No responses. We qualitatively explored the reasons for Yes/No intentions to get vaccinated with COVID-19 vaccine. Pakistani respondents aged 18 years and above living in Pakistan were eligible to participate in the survey. After quality control and manual verification procedures, the final sample consisted of 326 respondents out of 330. One respondent was less than 18 years old, and three respondents did not provide their consent. Hence, the final sample constituted 326 respondents.

VARIABLE DESCRIPTION

Age group classified as 18-29 years, 30-49 years, 50-64 years, and 65 and above; gender coded as female and male; marital status coded as unmarried and married; working status, parental and expecting parental status coded as yes and no; profession coded as student and non-student (various other professionals and few non-working people); and city coded as Non-Lahore and Lahore were the predictor variables. Intention to get vaccinated with COVID-19 vaccine coded as yes and no and the reasons for vaccination intention were the criterion variables.

PROCEDURE

The survey was distributed online through emails, inbox messages, wall-posts of the researchers on social media, and in Facebook groups with the permission of the group administrator and in-person (while following the standard operating procedures).

ANALYSES

DATA/STATISTICAL ANALYSES

Bivariate analysis was carried out to see the prevalence estimates of intention to get vaccinated with CO-VID-19 vaccine by sociodemographic characteristics and to understand the reasons behind participants' intention to get or to not get vaccinated with COVID-19 vaccine. Chi-square test was used to see the association between intention to get vaccinated with COVID-19 vaccine with various demographic characteristics. Univariate logistic regression analysis for the unadjusted estimation of odds ratio (OR) was used, while multivariate logistic regression analysis for the adjusted OR was used. Statistical significance was defined as a p-value of less than 0.05. For the analysis of data, Stata 16 has been used as the statistical software.

QUALITATIVE ANALYSES

Thematic analyses were used to analyse the open-ended responses. First, the qualitative responses, i.e., the reasons for intending to get or getting vaccinated or not intending to get vaccinated were grouped and analysed according to Yes and No responses and then the responses were grouped by demographics. Some responses overlapped and common themes across certain demographical groups emerged. Therefore, the demographic sections based on common features, i.e., same/similar reasons were grouped together, i.e., parents and expecting parents; married and working; city and profession; age and gender.

RESULTS

Prevalence estimates of intention to get COVID-19 vaccine by sociodemographic characteristics are presented in Table 1. Main findings show that male, married, working, and non-student population intended to get vaccinated. Out of the 326 respondents, 205 (62.9%) had an intention to get vaccinated with COVID-19 vaccine, while 121 (37.1%) had no intention to get the vaccine. All demographic characteristics show significant association to get vaccinated except expecting parents and city of residence. Approximately three-fourth of the respondents aged 30-49 years and 50-64 years had positive intentions towards using the COVID-19 vaccine. Table 1 shows that more than 70 percent of male and married respondents had a positive intention to get vaccinated with the COVID-19 vaccine.

Table 1 - Bivariate analysis showing the prevalence estimates of intention to get COVID-19 vaccine by sociodemographic characteristics

Characteristics	Total	Intention to get vaccinated		chi-square
	N (%)	No (N, %)	Yes (N, %)	P-Value
Age Group				
18-29	193 (59.2)	87 (45.1)	106 (54.9)	
30-49	73 (22.4)	19 (26.0)	54 (74.0)	0.004
50-64	40 (12.3)	9 (22.5)	31 (77.5)	
65 & over	20 (6.1)	6 (30.0)	14 (70.0)	
Gender				
Female	191 (58.6)	86 (45.0)	105 (55.0)	0.000
Male	135 (41.4)	35 (25.9)	100 (74.1)	
Marital Status				
Unmarried	169 (51.8)	76 (45.0)	93 (55.0)	0.002
Married	157 (48.2)	45 (28.7)	112 (71.3)	
Working Status				
Not Working	150 (46.0)	67 (44.7)	83 (55.3)	0.009
Working	176 (54.0)	54 (30.7)	122 (69.3)	
Parental status				
Not parents	167 (51.2)	72 (43.1)	95 (56.9)	0.022
Parents	159 (48.8)	49 (30.8)	110 (69.2)	
Not expecting parents	291 (89.3)	107 (36.8)	184 (63.2)	0.709
Expecting parents	35 (10.7)	14 (40.0)	21 (60.0)	
Profession				
Student	90 (27.6)	42 (46.7)	48 (53.3)	0.028
Non-Student	236 (72.4)	79 (33.5)	157 (66.5)	
City				
Not from/in Lahore	109 (33.4)	41 (37.6)	68 (62.4)	0.895
Lahore	217 (66.6)	80 (36.9)	137 (63.1)	
Total	326 (100)	121 (37.1)	205 (62.9)	

QUANTITATIVE RESULTS

Table-2 represents the adjusted odds ratio and 95% CI of multivariate analysis and unadjusted odds ratio and 95% CI of univariate analysis. In the adjusted odds ratio, gender is the significant factor. Males were 1.97 times more likely (OR: 1.97, CI: 1.08-3.58) to have intention to get COVID-19 vaccine than females. In an unadjusted odds ratio, all variables were significant factors except expecting parents and city of residence. Additionally, the 30-64 years' age group population was more likely to get the vaccine than the 18–29-year age group. Males were 2.34 times more likely to have the intention of using the COVID-19 vaccine than females. The married population was found to be 2.03 times more likely to get the COVID-19 vaccine than the unmarried population. The working population was 69% more likely (OR: 1.82, CI: 1.08-3.58) to get the COVID-19 vaccine than the non-working population. Non-students were 74% (OR: 1.74, CI: 1.08-2.68) more likely to get COVID-19 vaccine as compared to the student population.

Table 2 - Adjusted and Unadjusted odds ratio of multiple logistic regression model for the association of demographic characteristics with the intention to get vaccinated with COVID-19 vaccine

Characteristics	Unadjusted		Adjusted	
	COR	CI	AOR	CI
Age Group				
18-29				
30-49	2.33**	[1.29,4.23]	2.01	[0.77,5.27]
50-64	2.83*	[1.28,6.26]	2.24	[0.70,7.21]
65 & over	1.92	[0.71,5.19]	1.41	[0.38,5.26]
Gender				
Female				
Male	2.34***	[1.45,3.78]	1.97*	[1.08,3.58]
Marital Status				
Unmarried				
Married	2.03**	[1.28,3.22]	1.21	[0.48,3.04]
Working Status				
Not working				
Working	1.82**	[1.16,2.87]	1.17	[0.66,2.07]
Parental status				
Not parents				
Parents	1.70*	[1.08,2.68]	0.76	[0.38,1.54]
Not expecting parents				
Expecting parents	0.87	[0.43,1.79]	0.68	[0.30,1.56]
Profession				
Student				
Non-Student	1.74*	[1.06,2.85]	1.06	[0.56,1.99]
City				
Not from/in-Lahore				
Lahore	1.03	[0.64,1.66]	1.52	[0.90,2.59]

QUALITATIVE RESULTS

The most common reasons for taking vaccines among male respondents were healthy life, pressure from employer due to working status, while for female respondents, healthy life followed by trust was an important reason. For not taking the vaccine, the reasons were mistrust, misinformation, rumours, lack of awareness among both genders (Appendix table A3). Among married women, healthy life, and mandatory vaccination due to necessity, for getting paid, and pressure by the government were the driving factors for positive intention towards the COVID-19 vaccine. Unlike married women, mistrust, accessibility issues, rumours, and misinformation **were the major factors towards getting vaccinated among unmarried women (**Appendix table A1**).** Approximately 70% of working respondents agreed to get the COVID-19 vaccine, whereas only 55.3% of non-working respondents had the same intention towards vaccination. A nearly equal prevalence of intention to get vaccine was observed among expecting (60.0%) and non-expecting (63.2%) parent respondents, and similarly among non-Lahore (62.4%) and Lahore (63.1%) respondents. The most common reasons for taking vaccine were healthy life, trust, while for not taking the vaccine, reasons were mistrust, misinformation, rumours, lack of accessibility, and lack of awareness (Appendix Table A2 & A4).

Table A1 - Intention to get vaccinated with COVID-19 vaccine stratified by marital status and working status

Reasons by group	Intention to get the COVID-19 vaccine	
	Yes	No
Marital Status		
Married	**1. Healthy Life**: Lifesaver, Precaution, Good health, Fear of Corona, Safety or Protection **2. Trust**: Belief in vaccine **3. Mandatory**: Necessity, For getting paid, Pressure by Govt.	**1. Mistrust**: Low quality, Confusion, Less efficient **2. Rumours**: They will suffer from the corona, the Experimental phase, People will die, Unnecessary, **3. Misinformation**: Not suitable for asthmatic people, pregnant and feeding women, Blood clotting
Unmarried	**1. Healthy life**: Immunity, Survival, Safety, Combating corona, Defensive **2. Trust**: Effective **3. Social pressure 4. General**: Socializing, Free of cost	**1. Mistrust**: Confusion, Scared **2. Not Reachable**: Only aged people and health workers are being vaccinated, Expensive, **3. Rumours**: Will get corona, Side effects, **4. Misinformation**: Infertility, Against, Muslims, Trap, Fake, **5. Lack of awareness**: No need, No knowledge
Working Status		
Working	**1. Healthy life**: Immunity, Protection, Safety, Survival, Prevention, Lifesaver, For good health and life, Necessary for health, For cure **2. Trust**: Believe in vaccine, Effective, **3. Mandatory**: Necessity, For getting paid, Pressure by Govt., Free	**1. Mistrust**: Not sure about safety and efficiency, not useful, not effective, Low Quality, Scared **2. Rumours**: They will suffer from corona, Made from hamster's ovary, Experimental phase, People will die, Against Muslims, Experimental phase, Useless, **3. Misinformation**: Blood clotting **4. General**: Not applicable, no need, Waiting for Pfizer vaccine, Family pressure, lack of knowledge, **5. Not reachable**: Only aged people and health workers are being vaccinated
Not Working	**1. Healthy life**: Precaution, Fear, Protection, Safety, Prevention, Saves life, To get rid of the virus, For the goodness of community, Combating corona, Defensive **2. Trust**: Effective **3. General**: Outing, Free of cost	**1. Mistrust**: Fake, Don't have to believe, Low quality, Not satisfied, Confusion **2. Not reachable**: Only aged people and health workers are being vaccinated, Expensive **3. Rumours**: Will get corona, Trap, Side effects, **4. Misinformation**: Infertility, Not suitable for asthmatic people, pregnant and feeding women, Blood clotting, Harmful **5. Lack of awareness**: No need, No safe, No knowledge

Table A2 - Intention to get vaccinated with COVID-19 vaccine stratified by parental status, expecting and non-expecting parental status

Reasons by group	Intention to get the COVID-19 vaccine	
	Yes	No
Parental status		
Parents	**1. Healthy Life**: Precaution, Fear of Corona, Safe way, Protection, Safety, healthy life, Lifesaver, Cure, Prevention, Good health, for the safety of the community, for avoiding disease **2. Mandatory**: For getting paid, free	**1. Mistrust**: Not sure about efficiency, Not Safe, Low quality **2. Rumours:** Not suitable for pregnant, feeding and asthmatic persons, They will suffer from corona, People will die, Unnecessary **3. Misinformation**: Blood clotting, Infertility, Causes constipation, Experimental phase **4. Not reachable**
Non-parents	**1.Healthy life**: Immunity, Protection, Safety, To get rid of the virus, Prevention, Lifesaver, Combating corona, Defensive **2. Trust**: Effective, Necessary, Important **3. Social pressure, 4. General**: Outing	**1. Mistrust**: Not Safe, Less efficient, Low quality, Confusion, Scared **2. Not Reachable**: Only aged people and health workers are being vaccinated, Expensive, **3. Rumours**: Will get corona, Side effects, **4. Misinformation**: Infertility, Fake, Against, Muslims, Trap, **5. Lack of awareness**: No need, No knowledge
Expecting parents	**1.Healthy life**: Safety, lifesaver, better for the immune system, Prevention, for avoiding corona, **2. Trust**: Important, Safe, Good for health and community, **3. Mandatory**: Necessary	**1. Mistrust**: Not sure about the safety and efficiency, **2. Rumours**: No corona, Unnecessary, **3. Misinformation**: Not suitable for pregnant women **4. General**: Lack of awareness, Not applicable or not reachable, Expensive
Not expecting parents	**1.Healthy life**: Immunity, Protection, Survival, Good Health, Prevention, Safety, Combating corona, Defensive, **2. Trust**: Effective, Important, Believe in vaccine **3. Social Pressure, 4. General**: Outing, Free of cost, For getting paid	**1. Mistrust**: Low quality, Not safe, Less efficient, Confusion, Scared, **2. Not reachable**: Only aged people and health workers are being vaccinated, Expensive, **3. Rumours**: Will get corona, Trap, Side effects, Experimental Phase, People will die, **4. Misinformation**: Infertility, Not suitable for asthmatic people, Fake, Against Muslim, Trap, Blood clotting, **5. Lack of awareness**: No need, No knowledge, 6. Social Pressure

Table A3 - Intention to get vaccinated with COVID-19 vaccine stratified by age group and gender

Reasons by group	Intention to get the COVID-19 vaccine	
	Yes	No
Age Group		
Age over 65 people	**1. Healthy Life**: Cure, Safe way, Lifesaver, Prevention, Protection, Avoiding corona **2. Mandatory**: Necessary	**1. Mistrust**: Not suitable for asthmatic people, Will cause constipation, People will die, Not Safe, **2. Lack of awareness**: No need
Age under 65 people	**1. Healthy life**: For better immunity, Protection, Prevention, Survival, Good health, Precaution, Safety, Combating corona, Defensive **2. Trust**: Effective, Safe, Believe in the vaccine, **3. Social pressure, 4. General**: Outing, Free of cost, For getting paid, lack of knowledge and awareness	**1. Mistrust**: Not sure about vaccine efficiency, Not helpful, Low quality, Less efficient, Confusion, Scared, No need, **2. Not Reachable**: Only aged people and health workers are being vaccinated, Expensive, **3. Rumours**: Will get corona, Trap, Side effects, Experimental phase, People will die, **4. Misinformation**: Infertility, Fake, Not suitable for asthmatic, Against, Muslims, Made from hamster's ovary, Blood clotting, **5. Lack of awareness**: No knowledge, **6. Social pressure**
Gender		
Male	**1. Healthy life**: Protection, Prevention, Safety measure, Better for the immune system, fear of corona, Cure, For not having corona, Good for health and community, Lifesaver, **2. Trust**: Safe way, **3. Mandatory**: Necessary, Important, For getting paid, Free	**1. Mistrust**: Harmful, Not beneficial, Not safe, Not good for health, No trust, Not efficient, **2. Not Reachable**: Only aged people and health workers are being vaccinated, Expensive, **3. Rumours**: They will suffer from corona, Side effects, No symptoms, Experimental phase, No corona, **4. Misinformation**: Against Muslims, Blood clotting, **5. Lack of awareness**: No need, Prevention is better than cure, Unnecessary
Female	**1. Healthy life**: For good immunity, Protection, Protection, Fear of corona, Safety, To get rid of the corona, For the goodness of community, lifesaver, **2. Trust**: Safe way, Beneficial, Effective way, Believe in the vaccine, Important, **3. General**: Outing, Free of cost, For getting paid, **4. Mandatory**: Necessary, Taking a pay	**1. Mistrust**: Fake, No clear concepts, Not safe for health, No belief, Scaring, Waiting for Pfizer vaccine, **2. Not Reachable**: Only aged people and health workers are being vaccinated, Expensive, **3. Rumours**: Not suitable for pregnant, feeding and asthmatic persons, Side effects, People will die, **4. Misinformation**: Infertility, Blood clotting, Trap, Made from hamster's ovary, **5. Lack of Awareness**: No knowledge, **6. Social pressure**

Table A4 - Intention to get vaccinated with COVID-19 vaccine stratified by profession and city

Reasons by group	Intention to get the COVID-19 vaccine	
	Yes	No
Profession		
Student	**1. Healthy Life**: For good immunity, Precaution, Protection, Safety, To get rid of the corona, For the goodness of community or health, Life saver, Prevention, For combating corona, **2. Trust**: Safe, **3. Mandatory**: Necessary	**1. Mistrust**: Harmful, No belief, Scared, Not satisfied, Waiting for Pfizer vaccine, **2. Rumours**: Side effects, Have strong immunity, therefore, no need, They will suffer from corona, Unnecessary, Experimental phase, **3. Misinformation**: Made of hamster's ovary, Blood clotting, No corona, **4. Lack of awareness**: No Knowledge, **5. Available only to older adults**: Not Available
Non-Student	**1. Healthy life**: For the goodness of community, Fear, Safety, Protection, Prevention, Cure, Combating Future survival, **2. Trust**: Effective, Safe, Important **3. Social pressure, 4. General**: Outing, For getting paid, Free of cost	**1. Mistrust**: Not sure about efficiency, No clear concepts, Low quality, **2. Not Reachable/Lack of availability**: Only aged people and health workers are being vaccinated, Expensive, **3. Rumours**: Infertility, Side effects, Cause Corona, People will die, **4. Misinformation**: Against Muslims, Trap, Not suitable for asthmatic, feeding and pregnant persons, **5. Lack of awareness**: No need, No knowledge
City		
Lahore	**1. Healthy life**: For good immunity, Prevention, For community betterment, Lifesaver, To get rid of the virus, Precaution, Future survival, Good health, Fear of Corona, For defeating corona, Safety or Protection, **2. Trust**: Effective, Safe, Believe in the vaccine, **3. Mandatory**: Necessary, For getting paid, Free	**1. Mistrust**: Low quality, Waiting for Pfizer vaccine, No clear concepts, Confusion, Not safe, Confusion, Less efficient, **2. Rumours**: Side effects, They will suffer from corona, Experimental phase, Will cause corona, People will die, Unnecessary, **3. Misinformation**: Not suitable for asthmatic people, pregnant and feeding women, Blood clotting, Against Muslims, Trap, Fake, **4. lack of awareness**: No knowledge, **5. General**: For getting paid
Not from/in Lahore	**1. Healthy life**: For the goodness of community, Precaution, Protection, Prevention, Safety, Immunity, Cure, For combating corona, **2. Trust**: Beneficial, Important, **3. General**: For getting paid, Free	**1. Mistrust**: Not safe, Not authentic, No trust, **2. Not Reachable**: Only aged people and health workers are being vaccinated, **3. Rumours**: People will die, Side effects, Will get corona, **4. Misinformation**: Infertility, Against Muslims, Experimental phase, **5. Lack of awareness**: Lack of knowledge, Prevention is better than cure

DISCUSSION

This study aimed to determine the vaccination attitudes in different sociodemographic groups in terms of the intention to get vaccinated or to not get vaccinated and the reasons for Pakistanis' acceptance or rejection of the vaccine.

VACCINE ACCEPTANCE RATE BY LOCATION; GLOBAL COMPARISONS

Our study found that 62.9% of the participants planned to take the COVID-19 vaccine. However, around 37% of the study population were hesitant or unsure about accepting a COVID-19 vaccine. In comparison to population-based research done in France, Denmark, Australia, Mexico, India, Ireland, a study conducted in

Scotland (Gagneux-Brunon et al., 2021), in which 77.6% of the study participants said they would accept a COVID-19 vaccine and another study conducted in France (Williams et al., 2021), wherein 76.9% of participants are willing to accept the COVID-19 vaccine, a study conducted in Italy (Di Martino et al., 2020), in which 74% of study participants said they would accept a COVID-19 vaccine, this study's vaccination acceptance rate was lower (Dror et al., 2020; Neumann-Böhme et al., 2020; Rhodes et al., 2021; Sallam, 2021; Wang et al., 2021). However, vaccine acceptance rate was higher than a study performed in the United States, which found that only 36% of respondents were eager to take the vaccination as soon as it became available (Shekhar et al., 2021). This is because information regarding COVID-19 has been shared more swiftly than in the past. This study outperformed a Chinese (Wang et al., 2020) trial in which 40.0% of participants were expected to take the COVID-19 vaccine. According to a study (Yu et al., 2021) conducted in Hong Kong, the prevalence of behavioural intentions of COVID-19 vaccination under the specific scenarios was very low and varied greatly (4.2% to 38.0%) in comparison to the current study. The variance might be attributable to the research demographics, sample size, changes in time and research design. Since the coronavirus was a new illness, there might be adverse attitudes and suspicion about the vaccine and lack of information and healthcare trust issues, which are very common in low- and middle-income countries such as Pakistan (De Figueiredo et al., 2020).

VACCINE ACCEPTANCE RATE BY GENDER

This study shows that gender is the significant factor, and males are more likely to get COVID-19 vaccine than females, consistent with other findings in New Zealand (Prickett, Habibi & Carr, 2021) Jordan, and United States (Reiter, Pennell & Katz, 2020; El-Elimat et al., 2021).

VACCINE ACCEPTANCE RATE BY AGE

Our study shows a higher age (30.64 years) is more likely to accept vaccines than early age-group (<30 years) people, which is consistent with previous studies in the region (Karafillakis et al., 2016; Elbarazi, et al., 2021; Sallam, 2021).

VACCINE ACCEPTANCE RATE BY EMPLOYMENT AND MARITAL STATUS

This study showed that working population was more likely to get the COVID-19 vaccine than the non-working population, which is similar to previous studies in the region (Malik, Malik & Ishaq, 2021). Therefore, pressure from the employer seems to push people's intention to get vaccinated regardless of their attitudes toward the vaccine. Working and married people especially expressed fear of salary deduction in case of not being vaccinated. In terms of the theory of planned behaviour (Mao et al., 2021), the government is playing a good role in getting employees vaccinated. According to our findings, COVID-19 vaccination acceptability among workers is greater than the general population of the countries like Egypt and France (Saied et al., 2021; Schwarzinger et al., 2021).

Age-group, gender, city of residence, marital status, working status, and profession were significantly associated with the intention to take the COVID-19 vaccine. Although there is considerable variation, the reasons for vaccination are similar across all sociodemographic categories.

REASONS FOR VACCINE ACCEPTANCE

TRUST IN VACCINE EFFICIENCY

In this study, people reported trust and belief in vaccine efficiency which is similar to results in Malik, Malik, and Ishaq (2021) and Gadoth et al. (2021). Thus, it indirectly shows people's trust in scientists' ability to manufacture vaccines and their belief in vaccine efficiency. This finding supports the stage model of behaviour change (Kelly et al., 2003). The parent and non-parent groups who accepted the vaccine, reported their trust in the vaccine's benefits at the individual and community levels.

PAY/SALARY

The working people had a positive attitude towards vaccination to get the pay.

COMMUNITY BENEFITS

This study also showed that people held positive attitudes towards vaccination because they looked forward to healthy life socializing and an end to the lockdown imposed because of the outbreak, and to combat the coronavirus. A study by Chu and Liu (2021) shows that people are concerned about the community benefits; if they are satisfied, they will get the vaccine for the whole community's benefit. These findings support the theory of planned behaviour (Mao et al., 2021), the biopsychosocial model (Taukeni, 2019), and the health belief model (Wong et al., 2020; Mirzaeiet al., 2021). Unmarried people's reasons for vaccination acceptance were social pressure and outing, which the married group did not have. Non-working people had a positive attitude towards the vaccine for the sake of outing.

REASONS FOR VACCINE REJECTION

CONSPIRACY BELIEFS AND CONCERNS AROUND SAFETY AND EFFECTIVENESS OF THE VACCINE

Khan et al. (2020) and Sallam et al. (2021) have shown that people who have conspiracy beliefs and are affected by information from their surroundings are likely to reject the vaccine. Since people from Lahore and outside Lahore belonged to various sociodemographic categories, it was discovered that almost all subgroups were harmed by misinformation. For example, many participants said that the vaccine is not suitable for pregnant and asthmatic people, it would cause death and blood-clotting. Concerns about the safety and effectiveness of the vaccine were expressed along with accessibility issues. These covered working and non--working people, married and non-married, people over the age of 65, parents and expecting parents, and students. According to the Extended Parallel Process Model (Witte, 1992) and the protection motivation theory (Rad et al., 2021), people perceived the vaccine as a health risk and as a threat. People who have lack of awareness and knowledge and have doubts about vaccine safety are likely to hold negative attitudes towards the vaccine and reject it (Abbas, Mangrio & Kumar, 2021; Troiano & Nardi, 2021; Ruiz & Bell, 2021; Saied et al., 2021; Wang et al., 2021). Unmarried people, expectant parents, and students did not trust vaccine efficiency and thus held a negative attitude towards the COVID-19 vaccine in line with the socio-ecological model (Simpson, 2015). Those non-parents who rejected the vaccine said that the vaccine would cause infertility, expressed confusion, concerns about the safety and accessibility.

LACK OF AWARENESS

The reason for vaccination rejection in the unmarried group was a lack of awareness about the COVID-19 vaccine, which was different from the married group.

SOCIAL PRESSURE

Non-working participants who had a negative attitude towards the vaccine reported social pressure as a reason.

CONCLUSION

This study has socio-demographically teased apart a Pakistani sample of participants in qualitative thematic analyses of explanations for accepting or not vaccinating with the COVID-19 vaccine. Male, married, working, non-students, and those aged between 30-64 years were more likely to get vaccinated as compared to other demographical groups. In general, more than 50% of the participants intended to get vaccinated, most probably due to the pressure of getting vaccinated by the government. Many of the participants reported being already vaccinated. Given that those intending to get vaccinated were 'married, working, male, non-students, aged 30-64', it might be inferred that these people were the breadwinners under governmental pressure who did not have the option of not getting vaccinated.

This study also supports the social-cognitive theory (Chu & Liu, 2021) that people's beliefs and behaviours are learned through observing the environment. People who believed that the vaccination offered health advantages for both the individual and the community and wished to keep their jobs showed a positive attitude towards vaccination. They also had knowledge about and access to the vaccine. People who were going out to a public vaccination location had a positive attitude toward getting vaccinated, whereas people who had low levels of awareness, trust, and safety concerns due to conspiracy and misinformation, were under social pressure not to get vaccinated, and belonged to communities that held negative attitudes towards vaccination due to religious or other reasons were likely to have negative attitudes towards the vaccine.

LIMITATIONS

The data was collected in a very limited span of time. The quantitative measures on attitude towards COVID-19 vaccine for assessing specific factors identified in the literature in terms of doubts about vaccine storage (Acharya et al., 2021), country-wise vaccine preferences (Rehman et al., 2021), vaccine effectiveness (Konopińska et al., 2021), vaccine efficacy and trust in scientific research (Palamenghi et al., 2020) were not used. Most of the data was collected online due to the pandemic, so many people ignored the survey link, and many others had difficulty using technology on their cell phones. Participants from Punjab, particularly Lahore, were over-represented in the sample. The current findings support Freeman et al. (2020) findings that there is a slight variance in socio-demographics.

LIST OF ABBREVIATIONS

COVID-19: Coronavirus Disease 2019

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