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Original Research Article

PSYCHOLOGICAL EFFECTS OF PRE AND POST VACCINATION OF COVID-19: PEOPLE PERCEPTION IN SOUTHERN PUNJAB

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ABSTRACT

Due to myths and misconception Pakistan has already intense opposition to vaccination specially Covid 19 vaccination among people. A web based cross sectional study was conducted in the general population of Punjab Pakistan in June 2021. The self-developed questionnaire which is based on 30 items which comprises on pre vaccination, during vaccination and post vaccination fears, myths and psychological effects. The questionnaire was designed and randomly distributed through a google form link among the 106 respondents. The results were analyzed using independent t sample test, ANOVA frequencies, percentage, mean and standard deviation. 51 % people were on view that they are scared with other people experiences but after exposure of vaccination 56 % people suggest that they will motivate the other to get vaccinated. 95% people was worried and feel stress after using social media about covid 19 news. Only 9 % people was believing that a microchip is going to be inserted

Key words: Psychological effects, Vaccination, Covid-19, Perception

Authors' Contributions: 1 Conception, study design, data collection & processing, critical review. 2 & 4 Conception & study design, data collection & processing. 3-4 Data analysis and/or interpretation. 3 Drafting of manuscript. 4 Drafting of manuscript, critical review.

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INTRODUCTION

The pandemic COVID-19 coronavirus is the continuing worldwide emergency for health and the greatest issue we face today. The first place to be honored in December 2019 was Wuhan, Hubei, China. On 11 March 2020, the World Health Organization designated that virus a pandemic (WHO). It was also designated by the World Health Organization as an international public health emergency on 30 January 2020 (WHO, 2020).

The novel Coronavirus, which took more than 303,416 lives and has been transmitted to over 204 nations and territories worldwide, has afflicted more than 4,527,165 individuals since the 15th of May 2020. Coronavirus in Pakistan was identified in February 2020 and as of 15 May 2020 (Worldmeter, 2020), there were 37218 incidences, 10,150 recoveries, and 803 fatalities.

The Government of Pakistan has published a range of national and provincial guidelines for controlling this situation such as travel restriction, social distance, strict quarantine measures, and closure of educational institutions throughout the country (Ministry of national health services, regulations, and coordination of Pakistan, 2020).

Most of the researchers worldwide work hard to achieve both an efficient vaccination and effective treatment of these diseases. The psychological impact of Covid-19 is generally overlooked. It is not only the health of individuals impacted in a pandemic like Covid-19, it may have an impact on social dis-functioning circumstances of the population. The seriousness and ambiguity of illness control and disinformation are some of the worst conditions that might make people more anxious. Major concerns might arise among the population, particularly for those under quarantine, for example, dread of mortality, emotions of loneliness and irritation, stigma, mass hysteria, panic and xenophobia, and common mental disorders like anxiety and depression (Zhang et al., 2020).

A vaccination candidate is being tested for serious acute respiratory coronavirus 2 (SARS-CoV-2), to give the most vaccine receiving person protection. Note that the effectiveness of the vaccination not only depends on the vaccine but also on the vaccine's features. Over the last 30 years, the effect of psychological variables on immune system vaccination response has been shown via much research. Robustious data has shown, and may most seriously affect the response of the immune system to vaccinations in susceptible populations such as old, stress, sadness, solitude, and poor health behavior. The incidence and severity of vaccine-related adverse effects are also affected by psychological variables. These findings have been generalized across several types of vaccines and are thus applicable for vaccination SARS-CoV-2. In this study we examine these psychological and behavioral vaccination response risk factors, their significance for the COVID 19 pandemic, and psychological and behavioral focused strategies to increase vaccine effectiveness and decrease secondary effects. Recent data reveal that these psychological and behavioral risk factors are quite common during the pandemic, however, intervention studies indicated that the effects of vaccination effectiveness can be improved by psychological and behavioral treatments (Annelise et al., 2021).

Stress, Depression, and Other Psychological Factors

Before vaccine studies in our laboratory, there was already evidence that stress affected diverse aspects of immune function. Vaccination is useful not only for participants but also for clinical settings since the immune system's reaction capacity to infections can be measured helpfully, as each person receives the same standardized amount. In my first trial, we delivered to medical students, every third day of 3 demanding academic blocks, 3 hepatitis B vaccination series over 6 months (Glaser et al., 1992). 25% of

the students had an antibody reaction to hepatitis B after the first dosage. These early respondents were less aware of tension and worry than those who reacted later. Interestingly, the stress, anxiety, and social assistance of responders earlier and later in the previous academic year didn't change, suggesting that their different reactions to vaccines were linked to the proximate time of stressful testing. The results were reproduced a year later (Jabaaij et al., 1993). A subsequent study in young people shows that self-stress levels in an antibody response may be more important than stress in the previous 2 days in the next 10 days following the vaccine, and sleep loss associated with stress can be the main blame (Miller et al., 2004).

Psychological health during the COVID-19 pandemic

This research from our laboratory and others has shown that even only a few days before or after vaccination depression and psychological stress may serve the innate, adaptive response of the immune system as a potent and robust predictor. In a US sample, the dread of COVID-19 itself, referred to as 'corona phobia,' has, indeed, led to sadness and widespread anxiety, even after it was adjusted to socio-demographic variables and such psychological vulnerabilities as neuroticism (Lee et al., 2020).

Objectives of the Study

Objectives for this study were following

- To determine the psychological effect and reality of covid-19 vaccination among the people
- To investigate people fears about COVID 19 vaccination
- To determine the effects of myths regarding the vaccination on the psychological wellbeing of the person.
- To explore the difference in people's opinion before and after vaccination.

Research Question

The following research question was the focus of the study

- Does there is a difference between the psychological effect and reality of covid-19 vaccination fear in the people?
- Do people fear is the reality of the COVID 19 vaccination?
- What are the effects of myths regarding vaccination on the psychological wellbeing of a person?
- Is there is any difference in people's opinion before and after vaccination?

LITERATURE REVIEW

The vaccination fear in Pakistan is always a hot issue. Nowadays, vaccine acceptance has been a big challenge, which upraised the concern of trust in the immunization process of COVID-19 for the public even in developed countries, a similar type of myths and conspiracies were also faced for measles, polio, rubella, and mumps due to myths and misinformation results in decreased vaccination while talking about Immunization exist against hepatitis, malaria, polio, and tetanus. 92% of individuals are respectively in favor of vaccination. The corresponding research reveals that over 90% of the population thought that vaccination prevented illness. Nearly 90% of respondents supported vaccination. Among those with vaccination knowledge, the majority were informed and we in Pakistan know the people. The knowledge, attitudes, and behaviors about immunization between patients and information may be learned and used for a wider community-based survey to interfere and enhance population vaccination status. This finding is by those that were previously published in the countries where the vaccination has been accepted by the

majority of respondents. Despite this good outcome, it is deceptive that only around half of the respondents had been sufficiently confident to suggest vaccination to others. In particular, one respondent thinks that immunization is detrimental, whereas 36% say that knowledge and awareness of the community are means of encouraging immunization, respectively. (Waris et al., 2007). The vaccine was commonly developed in less time and is still undergoing phase three studies so that it may be unsafe for clinical use. This product has an optional version that contains a microchip on the syringe label to confirm the provenance of the vaccination dosage. The vaccination receiver does not inject the chip itself. Similarly, the misconception that the vaccination is going to modify DNA is related to the build-up of the immune system through the development of antibodies against the antigen in the vaccine. Another prevalent fallacy is the hazardous adverse effects of vaccination. The volunteers have reported usual side effects such as headache, myalgia, and chills, although serious allergic responses in healthy individuals have not been seen. Myths such as her vaccination can influence women's fertility. The truth of the matter is that there is an amino acid sequence between the viral Spike Protein and the syncytin-1 (protein of the placenta) (Saleem, 2021).

Covid 19 is an important new topic worldwide. Vaccination with CL-19 was questioned by the worldwide health establishment. The findings vary depending on the country for different areas and different consumption groups. Some one-quarter of households have been reported in state health centers such as medical centers, public hospitals, or physicians in Pakistan to have the vaccination. It is also essential to highlight that, compared with vaccinations made by vaccine teams and campaigns and the usage of vaccine teams as special health care facilities, just 3% of households get their immunization from private health facilities, which is quite low. Vaccination teams are the most crucial to provide healthcare facilities for all three years where data is available (Lorenz, 2012).

The immunization of COVID-19 began on 3 February 2021 in Pakistan by UNICEF reports. The vaccine was first given to frontline workers and later opened to persons over 60 and 65 years of age. UNICEF also promotes a contact center for gathering information and comments about vaccinations and registration processes for COVID 19. The Drug Regulatory Authority has registered the next four vaccines in Pakistan from March 2021. (DRAP, 2021).

- SinoPharm (single-dose vial) – 20th January 2021
- AstraZeneca (10 doses vial) – 20th January 2021
- Cansinobio (single dose): 8th February 2021

Pakistan has received a donation of 1,2 million doses of Snopharm from China. The facility certified that 100,620 Pfizer doses had been awarded to Pakistan; initially, the complete reach of 554,042 individuals was vaccinated, the whole reach of which was confirmed. Pakistan is buying straight from producers. Because of the third COVID wave, a substantial increase in the rate of positive has been seen in several High Burden districts in Pakistan. (UNICEF,2021).

In reviewing Vaccine safety and potency, it is estimated that more than 50 percent of participants had doubts regarding the vaccine safety because participants believe that the vaccine had been quickly prepared which is why it is not safe to use, and the secondary effects of the vaccine were also negative. Participants showed significant trust in the potency of the vaccine, despite the less than 100% efficacy of the COVID-19 vaccine, more than 50% population were still preferring to be vaccinated, the study found strong significant ($P > 0.000$) relationships between vaccine myths, misinformation, and conspiracies with the education levels. Discussion In the present study, we aimed to, particularly in terms of quick formulation of vaccine, availability, side effects, myths, and misinformation in the local community. Pakistan has faced these issues for decades for Polio vaccines and now the same issue was raised for COVID-19. Trust in

vaccination impair can coexist in various forms of vaccination hesitancy as it can be associated with myths, misinformation, and conspiracies in vaccination efficacy and practicality, or comprehensive rejection of vaccination. These are the constant issues in public trust regarding the adverse effects of vaccines. Beliefs in vaccines associated with education level have been studied in Canada, the US, and other countries. Importantly, concerns regarding vaccine safety were also found in well-educated areas. findings show that there are also accordingly, educated participants who were also in doubts about the safety of vaccines, (Abbas et al., 2021).

RESEARCH METHODOLOGY

Research Design

The main motivation for this study is to determine the impact of psychological effects of covid-19 vaccination, people's fear about vaccination, myths, and reality of the fears, the effectiveness of covid-19 vaccination, and post-vaccination perception of people in southern Punjab. Research design relies on quantitative data analysis for this study survey. The researcher uses a quantitative method and googles form questionnaire to collect data about the psychotically effect of pre and post-vaccination of covid-19 people perception in southern Punjab.

Population

This research relates to people's perception of the psychotically effect of pre and post-vaccination of covid-19 people perception in southern Punjab so, all the male and female belongs to rural and urban areas southern Punjab constitute the population of the study. Southern Punjab was specially selected for this study because it's under developing region and most people believe in myths and fears. The sample table population based on demographics such as males and females, kind of employment, age, and marital status is described in detail.

Sample

All the people who have been vaccinated and working in public and private sectors in southern Punjab were taken as the sample but due to the low rate of vaccinated people in southern Punjab our sample is restricted to 106 participants.

Instrumentation

The researchers took a self-developed questionnaire, taking into account the three parts of psychological impacts of pre-vaccination, during and after vaccination, and a preliminary portion of participants' demographics. The survey has been expertly verified.

Data Collection & Analysis

Google form was used for data collection keeping because of the privilege of the covid-19 situation in southern Punjab. Statistical tools such as mean, percentage, frequencies t-test, and ANOVA were applied. However, the results were interpreted in tables.

Table 1. Sample Description based on demographics

CATEGORY	RESPONDENTS	FREQUENCY (F)	PERCENTAGE (%)
Gender			
1	Male	60	56.6
2	Female	45	43.4
	Total	106	100
Nature of Job			
1	Public	59	55.7
2	Private	37	43.4
3	Business	10	9.4
	Total	106	100
Marital Status			
1	Married	61	57.5
2	Unmarried	44	42.5
	Total	106	100
Age of Respondent			
1	11-20 Years	1	9
2	21-30 Years	55	51.9
3	31-40 Years	42	39.6
4	41-50 Years	8	7.5
5	More		
	Total	106	100

Table 1 demonstrates the description of the demographics of the participant outcomes. Frequency analysis shows that in the gender section both males and females participated as part of the population for this study about 56 percent of responses were taken from male participants and 44 percent from female participation. Overall, there was 55% of reactions were taken from people who are working in public institutions and 40 % were from private institute. 57% were married people who got vaccinated and 42% were not married. According to the result, their Absolute respondents were 108 of which 106 substantial respondents fill the requirement of our data as asked in the poll however just a few single respondents have some basic data omission. While interpreting our data analysis the description of respondents on the base of age more than 50% responses were from 21_30 years age group which shows our youth is well aware. 30_40-year age group response was 40 %. There was no response collected from the above 50 age group it may be because mostly does not use the internet or online services.

Table 2. Section-1: Pre-Vaccination Fears

Sr.	Questions	SA	A	N	DA	SDA	M	SD
		f (%)	f (%)	f (%)	f (%)	f (%)		
1	<i>Did you want to be vaccinated against coronavirus?</i>	31(29.2)	27(25.5)	10(9.4)	19(17.9)	19(17.9)	3.3	1.5
2	<i>Did your friends scare you with the Coronavirus?</i>	27(25.5)	42(39.5)	17(16)	14(13.2)	6(5.7)	3.66	1.16
3	<i>I had doubts that the vaccination was effective so soon</i>	30(28.3)	25(23.6)	31(29.2)	15(14.2)	5(4.7)	3.56	1.17
4	<i>My family supported immunization</i>	22(15.1)	35(33)	16(15.1)	17(16)	16(15.1)	3.28	1.36
5	<i>I was afraid of the vaccination experiences of other individuals</i>	22(20.8)	29(27.4)	25(23.6)	22(20.8)	8(7.5)	3.33	1.23
6	<i>Some individuals threatened to die if I'm vaccinated in two years</i>	17(16)	26(24.5)	5(4.7)	31(29.2)	27(25.5)	3.23	1.47
7	<i>I looked forward to the vaccination</i>	18(17)	22(20.8)	20(18.9)	31(29.2)	15(14.2)	2.97	1.32
8	<i>Corona news about social media was irritating</i>	48(45.3)	33(31.1)	13(12.3)	6(5.7)	6(5.7)	4.04	1.15
9	<i>I wasn't convinced the vaccination was effective, but I was still inoculated</i>	20(18.9)	33(31.1)	21(19.8)	19(17.9)	13(12.3)	3.26	1.29
10	<i>I doubted the efficacy of the vaccination and would not be vaccinated</i>	24(22.6)	18(17)	21(19.8)	34(32.1)	9(8.5)	3.13	1.32

Table 3. Section-2: During-Vaccination Fears

Sr.	Questions	SA	A	N	DA	SDA	M	SD
		f (%)	f (%)	f (%)	f (%)	f (%)		
1	<i>My heart struck quite quickly</i>	17(16)	14(13.2)	32(30.2)	34(32.1)	9(8.5)	3	1.2
2	<i>I was scared of the injection needle</i>	15(14.3)	19(17.9)	13(12.3)	37(34.9)	22(20.8)	2.7	1.4
3	<i>I feared I might be a victim of Covid-19 because of employee carelessness.</i>	18(17)	31(29.2)	13(12.3)	33(31.1)	11(10.4)	3.1	1.3
4	<i>I believed the vaccination facility personnel were not adequately trained</i>	19(17.9)	20(18.9)	20(18.9)	39(36.5)	8(7.5)	3	1.3
5	<i>All these are experimental vaccinations that must yet be tested</i>	30(28.3)	41(38.7)	22(20.8)	9(8.5)	4(3.8)	3.8	1.1
6	<i>I began to shivering.</i>	7(6.6)	10(9.4)	14(13.2)	50(47.2)	25(23.6)	2.3	1.1

7	<i>I was afraid of death following injection</i>	8(7.5)	12(11.3)	15(14.2)	47(44.3)	24(22.6)	2.4	1.2
8	<i>I was under stress headache</i>	10(9.4)	23(21.7)	15(14.2)	40(37.7)	17(16)	2.7	1.3
9	<i>I was 100 percent safe in Allah Almighty</i>	70(66.6)	28(26.4)	6(5.7)	1(9)	1(9)	4.6	0.7
10	<i>I thought that an injectable microchip inserted</i>	6(5.7)	5(4.7)	17(16)	45(42.5)	33(31.1)	2.1	1.1

Table 4. Section-3: Post-vaccination fear

Sr.	Questions	SA	A	N	DA	SDA	M	SD
		f (%)	f (%)	f (%)	f (%)	f (%)		
1	<i>After vaccination, I felt a fever</i>	12(11.3)	19(17.9)	20(18.9)	41(38.7)	14(13.2)	2.8	1.2
2	<i>I felt quite healthy</i>	3(2.8)	23(21.7)	48(45.3)	23(21.7)	3(2.8)	3.1	1
3	<i>In my arm, I felt a lot of pain</i>	19(17.9)	32(30.2)	25(23.6)	23(21.7)	7(6.6)	3.3	1.2
4	<i>In my body, I felt much agony</i>	12(11.3)	28(26.4)	26(24.5)	30(28.3)	10(9.4)	3	1.2
5	<i>I was worried about what will be happening in future</i>	8(7.5)	29(27.4)	24(22.6)	34(32.1)	11(10.4)	2.9	1.2
6	<i>I got vaccinated due to pressure of higher authorities</i>	31(29.2)	18(17)	13(12.3)	25(23.6)	19(17.9)	3.2	1.5
7	<i>I am afraid that I can still get covid-19</i>	15(14.2)	36(34)	34(32.1)	17(16)	4(3.8)	3.4	1
8	<i>I feel my immunity decreases after vaccination</i>	16(15.1)	10(9.4)	27(25.5)	44(41.5)	9(8.5)	2.8	1.2
9	<i>I advised my friends to get vaccinated as early as possible</i>	19(17.9)	39(36.8)	28(26.4)	11(10.4)	9(8.5)	3.5	1.2
10	<i>I felt emotionally stress after the vaccine</i>	8(7.5)	25(23.6)	26(24.5)	34(32.1)	13(12.3)	2.8	1.2

Table 5. Statistical technique Independent Sample t. test was used to compare the male and female responses and results were interpreted in below tables

GENDER	N	M	DF	T	SIG.
Male	60	91.05	103	-2.06	.434
Female	45	97.55			

P < .05 Level of Significance

Table 5 that the calculated significance value (.434) was more than the stander significance level (.05) so, its shows that statistically significant difference is not found in the participants based on gender. Both have almost the same views about covid-19 vaccination.

Table 6. Statistical technique Independent Sample t. test was used to compare the responses based on the marital status of respondents and results were interpreted in below tables

Marital Status	N	M	DF	T	SIG.
Married	61	93.46	103	-.280	.891
Unmarried	44	94.36			

P > .05 Level of Significance

Table 6 illustrate that the calculated significance value (.891) was more than the stander significance level (.05) and the t value is also (_280) so, it shows that statistically significant no difference is found in the participants view based on marital status.

Table 7. The difference in the opinion is based on the nature of the job of the participants (one-way ANOVA test).

Nature of Job	Sum of Squares	df	Mean square	F	Sig.
Between Groups	2252.933	2	1126.467	4.563	.013
Within Groups	25181.314	104	246.876		
Total	27434.248	106			

P < .05 Level of Significance

Table 7 illustrates that the calculated significance value (0.13)) was more than the stander significance level (.05) so, it shows that statistically significant no difference is found of the participants view based on the job.

Table 8. The difference in opinion is based on the age of the participants (one-way ANOVA test).

AGE OF PARTICIPANTS	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
Between Groups	110.861	3	36.954	.137	.938
Within Groups	27323.386	102	270.529		
Total	27434.248	106			

**P < .05 Level of Significance*

Table 8 illustrates that the calculated significance value (.137) was more than the stander significance level (.05) so, it shows that statistically significant no difference is found of the participants view based on age.

DISCUSSION

The main theme behind this study was to investigate how working people are aimed to get vaccinated against COVID-19 and what are psychological effects of vaccines they particularly think are true. This study also revealed myths and fears related to covid 19 vaccination. Their doubts and their real experience are

shared in three different sections of the questionnaire in southern Punjab, international studies show that even in developed countries people are trusting in myths and feeling immunization process hesitancy. A comprehensive rejection was doubted in southern Punjab as vaccine belief is associated with awareness level, but results of this study relived that most people were against these myths although they are doubted about efficacy because it was developed so early. Even the others vaccines that are tested for years also cause many diseases but people want to get vaccinated because they want to work without any fears. Our results did not show any significant difference between married and unmarried people's perceptions. we also found that most young generation is very much keen on immunization and they believe in medical science and technology. Our finding also supports that there is security also found on the staff of the health department.

CONCLUSION

It is inferred that fears and myths about covid-19 in southern Punjab is potentially considerable. The psychological stress pre, during, and post-vaccination should be addressed properly. About 51% peoples were identified scared by other people's experience and not be vaccinated. Almost 51% of people identified who were doubtful about vaccination efficiency because it was developed so early and not test for years and almost 95% of people were feeling stress and anxiety after watching Coronavirus news and its privilege on social media. So, the mitigation of psychological fear, stress and anxiety may potentially help to achieve the goal of vaccination of whole population within defined period of time in Pakistan.

LIMITATIONS

- There was the limitation in terms of the sample was present in this study as the sample size was short due to accessibility and unavailability of the target population
- The sample for this study was restricted to only working people and only southern Punjab was taken as a sample.

DIRECTIONS FOR FUTURE RESEARCH

The finding of these studies illustrates some further suggestions.

- There is a need to compare the perception of people with less qualification and highly qualified person can be tested.
- There is a need to access the role of social media in spreading stress, anxiety, and fears in their spectators.

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