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COVID-19 VACCINATION HESITANT AND PREDICTOR OF THE VACCINATION ACCEPTANCE IN PUNJAB

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Abstract

The present study aimed to explore the hesitancy level of respondents about COVID-19 vaccination. The study used a stratified random sampling technique and selected two hundred and thirty-two respondents as true representatives of the population. The study explored four types of COVID-19 vaccination hesitant i.e. theoretical, mythical, structural and bio-religious. It was also found that type of occupation and the biological condition of women are significant predictors of the vaccination acceptance. The study suggests to introduce some measures to reduce the prevalent misinformation about the vaccination among the masses by using social and print media as well some traditional methods, especially in rural area.

Keywords: COVID-19, hesitancy, vaccination, women

Introduction

Chakraborty and Maity (2020) said that in December 2019 a new respiratory infectious disease emerged in Wuhan China that was named COVID-19. They explore that a new class of corona virus known as SARS-CoV-2 has been found to be responsible for occurrence of this disease. This pandemic has been considered as the most crucial global calamity of this era that the human being faced since the World War II. Almost all the nations are struggling to slow down the rapidly expansion of the disease. Global situation is worse as there have been 216 303 376 confirmed cases of COVID- 19 and 4 498 451 deaths, reported by World Health Organization (WHO) on August 30, 2021. Situation in Pakistan is also very serious: on August 31, 2021, WHO reported 1,152,481 confirmed cases and 25604 confirmed deaths in Pakistan.

Haynes (2020) explored that the ability of viruses to achieve pandemic spread is diminished by establishing higher levels of community (herd) immunity, and a key question is whether protection against severe acute respiratory syndrome–coronavirus 2 (SARS-CoV-2) will happen by widespread deployment of an effective vaccine or by repeated waves of infection over the next few years until 60% to 70% of people develop immunity. The consequences of repeated epidemics will be unacceptably high mortality, severe economic disruption, and major adjustments to our way of life. Lipsitch and Dean (2020) said that the elderly and the people with co morbidities are at greatest risk of corona virus disease. They also suggested that a safe and effective vaccine could help to protect these groups in two distinct ways: first, direct protection,

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where high-risk groups are vaccinated to prevent disease, and second, indirect protection, where those in contact with high-risk individuals are vaccinated to reduce transmission.

Aran (2021) found that the vaccination roll-out of the COVID-19 vaccines in Israel has been highly successful. By February 9th, approximately 39% of the population has already been administered at least one dose of the BNT162b2 vaccine. He also said that as of April 30, 2021, approximately 101 million persons in the United States had been fully vaccinated against COVID-19.

Despite the expansion of COVID-19, its vaccines are within reach, and attention has turned to the issue of vaccine hesitancy – the delay in acceptance or refusal of vaccines when they are available. Despite the recognition by public health officials that vaccine hesitancy is a problem, there is little evidence of concrete global or national plans to address it and it has become a global problem. Even before the COVID-19 crisis, the WHO declared vaccination hesitancy one of the Top 10 threats to global health in 2019. At that time, the world saw spikes in vaccine-preventable diseases. While many see a COVID-19 vaccine as an important contributor to restoring social and economic normalcy, a small minority of doubters could scupper the massive global effort to discover a vaccine and distribute it effectively.

COVID-19 is affecting life of the people in whole world. It has effects on social, economic, and mental life of the people. Most of the countries introducing vaccine for COVID-19 and trying to save the life of public. China donates COVID-19 vaccine for Pakistani frontline workers and public. All citizen of the country advised by government to register themselves for vaccination on 1166. Most of the people are hesitant to register themselves for vaccination due to misinformation and fear about virus. According to Khan, et. al. (2020) vaccine hesitancy is a substantial challenge for Pakistan amid various conspiracy theories. The failure to eradicate polio from the country is primarily attributed to poor quality of vaccines, questioning of dosing recommendation, and rumors that presence of active virus in the vaccine are some leading observations obstructing the anti-vaccine campaigns in Pakistan

Considering the wide range of hesitant, the study aimed to explore its prevalence and possible factors that potentially contribute to the spread of COVID-19 vaccination hesitancy which is the prime objective of the study. Another reason for the study is the scarcity of the empirical studies on this issue in the context of Pakistan, especially in the Punjab Province.

Review of Literature

Freeman et. al. (2020) explored that COVID-19 vaccination hesitancy is relatively spread across the world. Robertson et. al. (2020) found that the main reason for vaccine hesitancy was fears over unknown future effect. Dickerson, et. al. (2021) explored that the reason for not wanting a vaccination are confusion and distrust caused by prevalent misinformation. He said that there is an urgent need to tackle the overwhelming misinformation about COVID-19 that was leading to uncertainty and confusion about vaccines. If not addressed there is a high risk of inequitable rolling out of the vaccination. Magdami and Kamel (2020) identified that the concerns about side effects of the vaccination were barrier for its acceptance. The majority of refuses would accept the vaccine if additional studies conformed safety and effectiveness. Ogilvie, et. al. (2021) suggested that to optimize vaccine coverage public health should focus on key messages around vaccine safety and benefits and leverage trusted practitioners for messaging.

As certain key populations reported a lower intention to vaccinate, there is a need for in depth education and support for these communities to ensure optimal uptake. Dror, et. al. (2020) found that healthcare staff involved in the care of COVID-19 positive patients and individuals

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considering themselves at risk of disease, were more likely to self-report acquiescence to COVID-19 vaccination if and when available. In contrast, parents, nurses, and medical workers not caring for SARS-CoV-2 positive patients expressed higher level of vaccine hesitancy. Callaghan, et. al. (2020) claimed that a large number of the American public do not intend to pursue a vaccine against COVID-19 once it become available, reducing its potential impact. American blacks are likely to be hesitant, exacerbating existing disparities in COVID-19 outcomes.

Taylor, et. al. (2020) explored that vaccination hesitancy is a major looming problem for COVID-19. They also suggested that to improve vaccine uptake, it is imperative that the vaccine is demonstrated to the public to be rigorously tested and not perceived as rushed or premature in its dissemination. Willingness to take a vaccine was closely bound to recognition of the collective importance. Factors such as belief that foster mistrust and erode social cohesion will lower vaccine up-take. Lockyer, et. al. (2020) suggested that COVID-19 vaccine hesitancy needs to be understood in the context of the relationship between the spread of misinformation and associated with emotional reactions. Vaccine programs should provide a focused localized and empathies response to counter misinformation.

Methodology

We identified the sample size of the study using Taro Yamane's (1967) equation of sample size ($n = \frac{N}{1+N(e)^2}$) to find the true representative of the population that produced a sample size of 232 females who were approached using stratified random sampling technique. The identified sample size was distributed with equal proportionate technique across randomly selected three districts of the Punjab Pakistan (Okara, Lahore and Sahiwal), and four categories i.e., frontline health workers, students, teachers and peasants/ labor, which directed to approach 77 respondents from each district and 19 respondents from each category. These categories of respondents were selected considering that fact that they were directly engaged with the large population in the third and fourth wave of COVID-19 in Pakistan. The data was collected using online survey method considering the lock down during COVID-19 pandemic. The data was collected between April 04, 2021, and April 25, 2021.

A modified version of the questionnaire used by Shekhar, et. al., (2021) was used to measure the self-perceived risk of COVID-19, Exposure to COVID-19, Acceptance of COVID-19 vaccine, Attitude toward the vaccination. The questionnaire consisted of 16 items. Two items, "I do not get vaccinated for a fear of needles/doctors/hospitals" and "I have prior reaction to other vaccine, and I am worried about reaction to covid-19 vaccination" were skipped. Instrument was modified according to Punjab culture and hesitancy of the Pakistani people. Modified scale of covid-19 hesitancy comprised 14 items, measured on five points Likert Scale, ranged from strongly agree = 01 to strongly disagree = 05. The Cronbach's Alpha value of the modified scale is .854

Results

Table1. 1
Factor loadings of the vaccine hesitancy tool

Items	Component			
	Theoretical	Mythical	Structural	Bio-religious
I am worried about the effectiveness of vaccine	0.814			

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I am worried about adverse effects of vaccine on pre-existing conditions	0.793				
I am worried about side effects of vaccine	0.791				
I am worried on the rapidity of development of vaccine	0.714				
I do not need vaccine for my risk level	0.626				
I think vaccine is not safe		0.831			
I do not believe that vaccine will work		0.814			
I do not vaccinate for personal freedom of choice		0.742			
I do not trust on doctor's recommended vaccine			0.827		
I do not trust on pharmaceutical companies making vaccine			0.623		
I do not trust on information provided by government about COVID-19			0.588		
I am worried about out-of-pocket cost of vaccine			0.457		
I am not vaccinated because of pregnancy					0.878
I am not vaccinated because of lactating					0.805
I do not vaccinate for religious reason					0.476

Table. 1 Comprises the results of the Exploratory Factor Analysis (EPA) of covid-19 vaccination hesitancy tool. The EPA produced four types of vaccine hesitant: theoretical hesitant (Eigen values = 6.02, % of variance = 40.12), mythical hesitant (Eigen values = 1.62, % of variance = 10.78), structural hesitant (Eigen values = 1.2, % of variance = 7.65) and bio-religious hesitant (Eigen values = 1.04, % of variance = 6.93). The four factors accounted for by 65.492% or variance in the data.

Each type of hesitant has its specific characteristics as given in the Table 1. The theoretical hesitant is the person who did not vaccinate considering her theoretical reasons about ineffectiveness of vaccine such as she theorizes herself that vaccine is ineffective, or it has severe side effects that may cause harm to her health. The mythical hesitant is the person who is a kind of radical about vaccine. She believed that the vaccine will not safe her from the various. The structural hesitant is the person who thinks that the vaccine manufacturer are deceitful, and the politician are providing fake information about the vaccine. Lastly, the bio-religious hesitant is the hesitant who do not vaccinate considering her biological or religious reasons such pregnancy, or religion does not allow her to do so.

Table 2

Predictors of vaccination likelihood (Reference outcome: Vaccinated = 1)

Variables		B	S.E.	Wald	df	Sig.	Exp(B)
Above 50				14.183	4	.007	
	15-20	-.961	1.200	.642	1	.423	.382
	21-30	-1.376	.919	2.243	1	.134	.253
	31-40	.359	.925	.151	1	.698	1.432
	41-50	.429	.997	.185	1	.667	1.536

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PhD				5.947	6	.429	
	Middle	-.642	2.376	.073	1	.787	.526
	Matric	-1.630	2.238	.531	1	.466	.196
	F.A.	.946	2.007	.222	1	.638	2.575
	B.A.	.289	1.969	.022	1	.883	1.335
	Masters	.720	1.940	.138	1	.711	2.054
	M.Phil.	.646	1.952	.110	1	.741	1.908
Other				40.530	12	.000	
	Paramedical	3.931	1.239	10.062	1	.002	50.981
	Medical officer	2.457	1.059	5.379	1	.020	11.665
	SH & NS	2.229	.594	14.101	1	.000	9.293
	health technician	3.754	1.353	7.702	1	.006	42.708
	women health technician	1.744	1.360	1.644	1	.200	5.718
	Dispenser	4.508	1.489	9.159	1	.002	90.707
	lady health visitor	2.368	.718	10.872	1	.001	10.677
	vaccinator	22.617	19885.220	.000	1	.999	6647107617.854
	LHW	.001	1.046	.000	1	.999	1.001
	teacher	2.371	1.544	2.358	1	.125	10.710
	student	1.444	.869	2.761	1	.097	4.238
	Own business	23.871	27547.509	.000	1	.999	23285139522.916
	Server Disease			7.138	3	.068	
	Pregnant	-.127	1.253	.010	1	.919	.881
	Lactating	-2.812	1.327	4.494	1	.034	.060
	Delivered	-.885	.444	3.966	1	.046	.413
Constant		-1.067	2.111	.255	1	.613	.344

Table 2 comprised the results of the binary logistic regression. The table showed that age and education are not significant predictors of COVID-19 vaccination acceptance (p>.05). However, designation and the biological condition of women are the predictors of the vaccination acceptance. The table showed that paramedical, medical officer, SH & NS, health technician, dispenser and lady health visitor are the significant professions that predicted vaccination acceptance among women (p<.05). however, dispenser, paramedical staff and health technician are almost 90, 50 and 42 times highly likely to get vaccinated than the other professions (p<.05). The biological condition of women is also the significant predictor of the vaccination acceptance. However, the predictors are negative as the women who are lactating and delivered a baby are 0.060 and 0.413 times highly less likely to get vaccinated than the pregnant women (p<.05).

Conclusion

The study aimed to explore the types of the COVID-19 vaccination hesitant and the predictors of its vaccination acceptance. The study concluded that there are four types of hesitant in Punjab: theoretical, mythical, structural and bio-religious. Each type of hesitant has her own characteristics and reason of vaccination hesitancy. The study also concluded that age and

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education are not the significant predictors of vaccination acceptance. However, some professions such dispenser, paramedical staff and health technician are the professions which are vaccinated and the prevalence the acceptance are relatively higher among them. The study also explored that the women biological condition is one of the resistant factors of vaccination such as the women who are lactating or delivered a baby do not get vaccinated.

The study suggests that there is a need of awareness about effectiveness of COVID -19 vaccine. Publicity about vaccination at vast level is recommended. Government should control the rumors and myths about vaccination which create hurdles in vaccination process. Government should also lift the restriction on registration and people should vaccinated on first come first serve basis.

References

Aran, D. (2021). Estimating real-world COVID-19 vaccine effectiveness in Israel using aggregated counts. *MedRxiv*.

Callaghan, T., Moghtaderi, A., Lueck, J. A., Hotez, P. J., Strych, U., Dor, A., ...& Motta, M. (2020). Correlates and disparities of COVID-19 vaccine hesitancy. Available at SSRN 3667971.

Chakraborty, I., & Maity, P. (2020). COVID-19 outbreak: Migration, effects on society, global environment and prevention. Science of the Total Environment, 728, 138882.

Dickerson, J., Lockyer, B., Moss, R. H., Endacott, C., Kelly, B., Bridges, S., ...&McEachan, R. R. (2021). COVID-19 vaccine hesitancy in an ethnically diverse community: descriptive findings from the Born in Bradford study. *Wellcome Open Research*, *6*(23), 23.

Dror, A. A., Eisenbach, N., Taiber, S., Morozov, N. G., Mizrachi, M., Zigron, A., ...&Sela, E. (2020). Vaccine hesitancy: the next challenge in the fight against COVID-19. *European journal of epidemiology*, *35*(8), 775-779.

Freeman, D., Loe, B. S., Chadwick, A., Vaccari, C., Waite, F., Rosebrock, L., ...&Lambe, S. (2020). COVID-19 vaccine hesitancy in the UK: the Oxford coronavirus explanations, attitudes, and narratives survey (Oceans) II. *Psychological medicine*, 1-15.

Khan, Y. H., Mallhi, T. H., Alotaibi, N. H., Alzarea, A. I., Alanazi, A. S., Tanveer, N., &Hashmi, F. K. (2020). Threat of COVID-19 vaccine hesitancy in Pakistan: the need for measures to neutralize misleading narratives. *The American journal of tropical medicine and hygiene*, *103*(2), 603-604.

Lipsitch, M., & Dean, N. E. (2020). Understanding COVID-19 vaccine efficacy. *Science*, *370*(6518), 763-765.

Lockyer, B., Islam, S., Rahman, A., Dickerson, J., Pickett, K., Sheldon, T., ...&Sheard, L. (2020). Understanding Covid-19 misinformation and vaccine hesitancy in context: Findings from a qualitative study involving citizens in Bradford, UK. *medRxiv*.

Magadmi, R. M., & Kamel, F. O. (2020). Beliefs and Barriers Associated with COVID-19 Vaccination Among the General Population in Saudi Arabia.

Ogilvie, G., Gordon, S., Smith, L., Albert, A., Booth, A., Racey, C. S., ...&Sadarangani, M. (2021). Intention to receive a COVID-19 vaccine: Results from a population-based survey in Canada. *medRxiv*.

Robertson, E., Reeve, K. S., Niedzwiedz, C. L., Moore, J., Blake, M., Green, M., ...&Benzeval, M. J. (2021). Predictors of COVID-19 vaccine hesitancy in the UK Household Longitudinal Study. *medRxiv*, 2020-12.

Shekhar, R., Sheikh, A. B., Upadhyay, S., Singh, M., Kottewar, S., Mir, H., ... & Pal, S. (2021). COVID-19 vaccine acceptance among health care workers in the United States. *Vaccines*, *9*(2), 119.

Taylor, S., Landry, C. A., Paluszek, M. M., Groenewoud, R., Rachor, G. S., &Asmundson, G. J. (2020). A proactive approach for managing COVID-19: The importance of understanding the motivational roots of vaccination hesitancy for SARS-CoV2. *Frontiers in Psychology*, *11*, 2890.

WHO (2021). WHO Coronavirus (COVID-19) Dashboard. Retrieved from https://covid19.who.int/

Yamane, T. (1967). *Statistics, An Introductory Analysis*, 2nd Ed. New York: Harper and Row.