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PERCEPTION OF GENERAL PUBLIC TOWARDS COVID-19 VACCINE; A CROSS-SECTIONAL SURVEY IN A METROPOLITAN CITY OF A THIRD WORLD DEVELOPING COUNTRY

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ABSTRACT

Title of study: Perception of general public towards covid-19 vaccine; a cross-sectional survey in a metropolitan city of a third world developing country. **Objective:** The objective of this study is to find general public perception about covid-19 vaccine; factors causing vaccine hesitancy especially environmental and social factors. **Methodology:** An analytical cross-sectional study was conducted during a period of 6 months in Rawalpindi mainly, which included total 210 participants between the age ranges 16 to 70. All participants, male and female who gave informed consent were included in the study. All those who refused to give the consent were excluded. Literature based questionnaire was used and all data was collected confidentially. Ethical aspects of this study and its design was approved by the Ethical Review Committee of the institute. **Results:** The study showed that there were 57 (27.1%) females and 153 males (72.8%). 177 (84.3%) participants agreed that corona virus exists. 184(87.6%) participants agreed that covid-19 is preventable. 137(65.2%) participants agreed that vaccine is available in Pakistan. 160(76%) participants agreed that covid-19 recovered patients also require vaccination. **Conclusion:** Significant correlation between vaccine acceptance and general perception about covid-19 virus was found. Participants believed that getting mild body aches and mild fever after vaccination is normal. Environmental and social factors do influence vaccination process. Family and friends circle also influenced general public perception regarding the vaccination.

KEYWORDS: Covid-19 Vaccine, hesitation, Third world developing country, general public awareness.

INTRODUCTION

Covid-19 needs to be well controlled by some proper measures. Vaccination will lead to herd immunity and save us from the drastic effects of this pandemic. Covid-19 has affected the whole mankind drastically. Everyone wants to get rid of this pandemic that has prevailed all over the world these days. From sports grounds to business markets, everyone is alarmed by this horrible condition. There should be some way to get rid of it, shouldn't it. It is not a new condition that has come to mankind. In past many pandemics hit mankind such as chickenpox, dengue, malaria and many more as you turn leaves in the history of poor mankind.[1] If individuals feel the risk of disease to be less serious, they may be less inclined to accept perceived risks associated with taking a recently-developed vaccine. Previous studies have also highlighted factors such as concerns about healthcare quality[2] negative historical experiences[3] weak support from traditional leaders[4] mistrust in government[5] as barriers to healthcare utilization in LMICs. In order to effectively promote the vaccine and devise messaging strategies, we need to know if people are willing to take it, the reasons why they are willing or unwilling to do so, and the factors influencing their decision-making. For this purpose, we have to develop and deploy some questions in the form of a questionnaire. Virus disease epidemic in Liberia. Social Science & Medicine 2017; 172: 89–97. Edward Jenner, a doctor in Berkeley in Gloucestershire, established the procedure of vaccination by introducing material from a cowpox vesicle on Sarah Nelmes, a milkmaid, into the arm of a boy named James Phipps. Two months later he inoculated the boy with smallpox and the disease did not develop. That great man's intelligence which Allah Almighty bestowed him, saved millions of people from physical and mental pain. Recently, many vaccines are in trial and many have been prepared to save people from COVID-19, but some people are not ready to save themselves. They consider the vaccine hostile to them. It is the duty of healthcare professionals to serve people by making them compliant to the vaccination process. It is said that prevention is better than cure. And it is actually very right, making us realize the importance of preventive medicine when we save millions of dollars and reduce healthcare and masses stress. Vaccine hesitation is defined as the factors which prevent masses

from being vaccinated. Several coronavirus disease 2019 (covid-19) vaccines are in human trials in June 2020 a survey was done of 13426 people in 19 countries to determine potential acceptance rates and factors influencing acceptance of Covid-19 vaccines. Of these 71.5% of participants reported that they would be very likely to take a Covid-19vaccine and 48.1% reported that they would accept their employer recommendation to do so. Difference in acceptance rates ranged from 90% to less than 55%. Respondents reporting higher level of trust in information from government sources were more likely to accept vaccine. In 2015 WHO Strategic Advisory Group of Experts on Immunization defined vaccine hesitancy as "delay in acceptance or refusal of vaccination despite availability of vaccination services"[6] In many countries' vaccine hesitancy and misinformation present substantial obstacles to achieving coverage and community immnuity.[7, 8] Anti vaccination activists are already campaigning in multiple countries against the need for a vaccine with some deny existence of Covid-19 together.[9] Misinformation spread through multiple channels could have considerable effect on the acceptance of Covid-19 vaccine. Governments and societies must gauge current levels of willingness to receive potentially and effective covid-19 vaccine and identify co relates of vaccine hesitancy and acceptance. Regarding COVID-19 vaccination, people have many fears, rather we should say misconceptions. It will make them infertile, and it is introduced to reduce population crisis. It will cause people surveillance by inserting microchip in humans. As it contains pig gelatine (no doubt bone gelatine to make medicines is halal except that of pig) and human foetus tissue, it is prohibited in Islam. It didn't follow proper trials. Scientists rushed to make the vaccine. No advantage of vaccination. It is not going to say goodbye to face mask. It will tweak your DNA. Its adverse effects are much more deadly than the COVID-19 itself, may even cause your death. Main sources of public hesitation are false news spread by social media. WhatsApp is not criticized but it should keep check on people who spread false news to millions by just one click. It is human psychology that humans are afraid of any novel situation that can cause potential damage to them. Political leaders, religious scholars, teachers, doctors, business men and other influential personalities should make people compliant to the vaccination by getting themselves vaccinated. Even educated people are confused whether they should get vaccinated or not. Social factors, environmental influences and vaccine availability play crucial role in public response. Appreciation by the government and private sectors can make people mentally confidant regarding the vaccination process. This research is focused in finding people's percentage those are having false beliefs regarding the vaccination process and their concerns regarding the vaccine. When problem is diagnosed correctly, this research will help in making people compliant to the vaccination process. Making the whole story short, a bird's eye view is that our study's main purpose is to find strategies to make people confidant regarding the vaccination process and getting them vaccinated even with any future endemics or pandemics.

OBJECTIVES

The objective of this study is to find general public perception about covid-19 vaccine; factors causing vaccine hesitancy, and environmental and social factors affecting vaccination process.

METHODOLOGY

An analytical cross-sectional study was conducted during a period of 6 months (March 2021 to August 2021) in Rawalpindi mainly, which included total 210 participants via non probability convenience sampling between the age ranges 16 to 70. . Online sample size calculator was used with confidence interval of 93% and margin of error 7%. All participants, male (153) and female (57) who gave informed consent were included in the study. The people refused to give the consent were excluded. Literature based questionnaire was made in English and translated into Urdu. Questionnaire was tested and approved by the content expert. The questionnaire consisted of 26 variables. Ethical aspects of this study and its design was approved by the Ethical Review Committee of the institute. Data analysis was done using IBM SPSS version 26.00 for windows.

RESULTS

A total of 210 participants were included in the study. The study included both male and female participants with the age range of 16 to 70 years catering for both younger and older part of the community in order to obtain better and wide-ranging results. The mean age of the participants was 26.41 years.

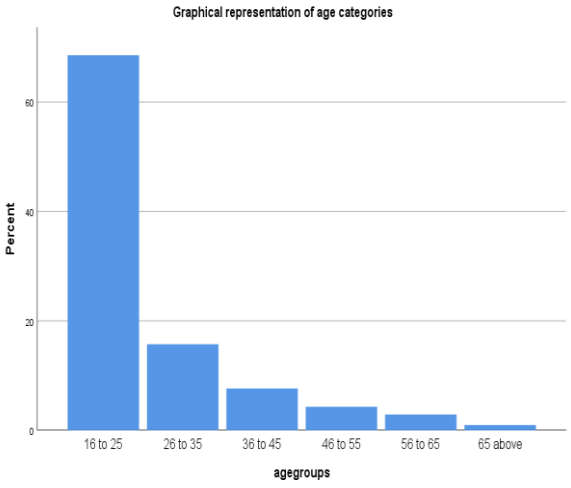

Chart 1: Bar chart of age categories.

Gender distribution in sample size is shown in the chart 2.

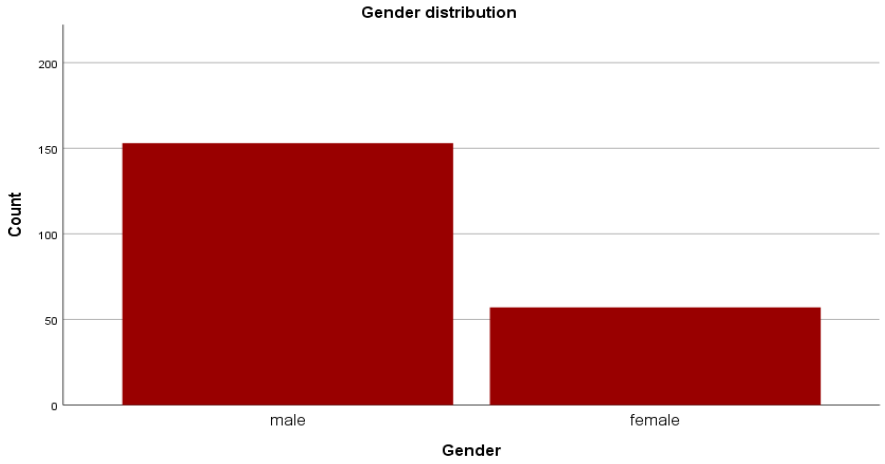

Chart 2: Gender distribution by number.

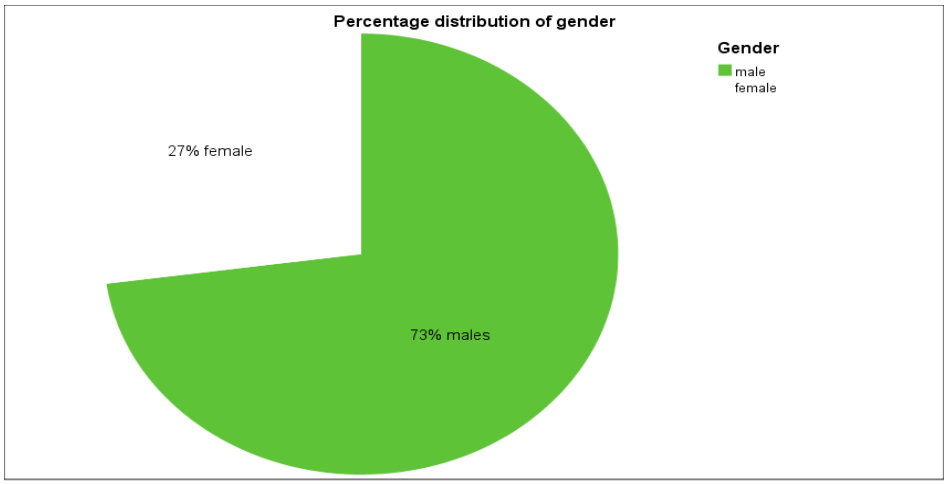

Chart 3: Pie chart of gender distribution by percentage.

Table 1: General Perception of Public about Covid-19.

QUESTION	YES	NO	DON'T KNOW
corona virus exists	177(84.3%)	28(13.3%)	5(2.4%)
Covid-19 is a serious disease	187(89%)	18(8.6%)	5(2.4%)
Covid-19 is preventable	184(87.6%)	10(4.8%)	16(7.6%)
vaccine is available in Pakistan	137(65.2%)	57(27%)	16(7.6%)

177(84.3%) participants agreed that corona virus exist, 28(13.3%) agreed that covid-19 is a serious disease, 184(87.6%) agreed that covid-19 is preventable and 137(65.2%) agreed that vaccine is available in Pakistan.

Table 2: Vaccine Status.

QUESTION	YES	NO
vaccine is available in Pakistan	200(95.2%)	10(4.8%)
I have been vaccinated	139(66.2%)	71(33.8%)
I have met many persons who got vaccine	189(90%)	21(10%)
I know some people who got post vaccination complications	94(44.8%)	116(55.2%)
I know some people who was infected by corona virus after vaccination	94(44.8%)	116(55.2%)
Covid-19 recovered patients require vaccination	160(76%)	48(22.9%)

139(66.2%) participants have been vaccinated, 94(44.8%) participants knew some people who was infected by corona virus after vaccination and 160(76%) thought that covid-19 recovered patients require vaccination.

Table 3: Conspiracies about Covid-19 vaccine.

QUESTION	MEAN	S.D
Covid-19 vaccine is really effective in prevention	3.88	0.943
Vaccine process in Pakistan is an experiment	2.9	1.197
Vaccination causes blood clot	2.27	1.034
Vaccine is an attempt of family planning	2.1	1.137
I will get vaccinated if available in my locality	4.18	1.18
Getting mild fever after vaccination is normal	3.97	1.095
Getting mild body aches after vaccination is normal	3.82	1.112
I think after vaccination it will be helpful in covid-19 prevention	4.12	0.995
Getting myself vaccinated is good contribution to community	4.26	1.009

For the third part of the questionnaire, we used mean and standard deviation as a calibration for measure of their perceptions regarding conspiracy theories. As a standard we took 3 as a cut off value beyond which there is a positive attitude toward COVID 19 vaccination and a dissent toward unfounded conspiracy theories. A majority of the participants viewed vaccine as effective with a mean value of 3.88+_ 0.943. Vaccination as a tool of family planning was also refuted by participants in a favourable number as of mean value of 2.1+_ 1.137. Many viewed the adverse effects as a normal outcome. Many denied the rumours of vaccination for causing blood clots. Most of the participants regarded vaccination as a national duty.

Table 4: Environmental and social factors affecting vaccine acceptance.

Variable	Mean	S.D
Vaccination is waste of time	1.87	1.133
Double doses of vaccine bothers me	2.6	1.1242
Vaccine causes economic burden	2.4	1.182
My family promotes vaccination	4.03	1.192
People above 50 years require vaccination	4.45	0.953
Children below 10 years require vaccine	2.96	1.429
Covid-19is an international propaganda	2.48	1.452

In the next part of the questionnaire, different social and environmental factors are studied and this showed a general positive attitude towards different external factors. Majority are not bothered by hassle or the fact that they have to get doubly vaccinated. Many believe that economic burden of vaccine is not a problem and neither is it an international propaganda. Participants held a positive attitude towards vaccinations of elderly but were reluctant about children younger than 10 years about getting vaccinated. For a majority of participants, family was a supporting factor for getting vaccinated.

Table 5: Mean perception of public according to vaccine acceptance scale.

VARIABLE	MEAN
ADVERSE EFFECTS AND LIMITATIONS	3.8862
ENVIRONMENTAL AND SOCIAL FACTORS	3.7286
BOTH ABOVE COMBINED	3.8074

Table 6: Male and female perception analysis.

QUESTION	Gender	number	Mean	Standard deviation
ADVERSE EFFECTS AND LIMITATIONS	Male	153	3.9332	0.68426
	Female	57	3.7602	0.80884
ENVIRONMENTAL AND SOCIAL FACTORS	Male	153	3.7479	0.78448
	Female	57	3.6767	0.88168
BOTH ABOVE COMBINED	Male	153	3.8405	0.70095
	Female	57	3.7185	0.80855

Table 7: T test with 95% confidence interval.

		F	Sig.	T value	95% Confidence Interval of the Difference	
					Lower	Upper
ADVERSE EFFECTS AND LIMITATIONS	Equal variances assumed	1.1	0.288	1.548	-0.04729	0.3932
	Equal variances not assumed			1.434	-0.06668	0.41259
ENVIRONMENTAL AND SOCIAL FACTORS	Equal variances assumed	1.2	0.278	0.565	-0.17714	0.31955
	Equal variances not assumed			0.536	-0.19276	0.33518
MEAN PERCEPTION	Equal variances assumed	1.4	0.24	1.076	-0.10169	0.34586
	Equal variances not assumed			1.008	-0.11866	0.36283

DISCUSSION

In light of several other studies, some people wanted more economical version of vaccine. Studying covid-19 vaccine acceptance and implication of various interventions, women were found less willing to accept the vaccine. Younger population is actually more respondents to take vaccine. It was felt that uneducated masses have fewer reservations about vaccine than the highly educated ones, but the difference seemed to be insignificant. Educated masses were more conscious about their health and adverse effects of vaccine. Villagers seemed to be more compliant. Russia and USA population were very sensitive about their self-protection and vaccine impending hazards. Some thought mask and proper hand sanitation is enough to some extent. Only 6% of the respondents reported at least one adverse effect in Pfizer vaccine trial. Underreporting and widespread of authentic rumours about vaccine spread fear amongst 5general public.

An Indian survey amongst west Bengal, Indian population reported the acceptance and affordability of vaccine saying, 77% wanted to take the vaccine; 5% don't want to take the vaccine; 12% are still unclear. Regarding the version of vaccine, 58% wanted Indian version; 19% wanted foreign version; 23% wanted any vaccine. The key point is that they wanted a vaccine which costs less than 500 INR. Another study named ''a global survey of potential acceptance of Covid-19 vaccine'' says men were slightly more respondent to vaccine positively. Those people whose family members got Covid-19 infection were more respondents to take the vaccine dosage. Perhaps it was the psychosocial behaviour of fear and desire emotion. Those were more compliant who had belief in their government that the process is not an experiment. This research done amongst Pakistani population also hammers that the general public of Pakistan has firm belief about sincere thinking of NCOC and Pakistani government. More than 60.1 % population of the selected sample had firm belief in the authorities' good intentions. Wide spread of public service message and good management can be the reason probably. Amongst Arabs and Kuwait, high education and history of chronic disease were the positive factors. In this whole study, the belief that the virus is a biological warfare and manmade was 60%. An alarming situation, 23.4% population believed that it will cause infertility. Microchip and global propaganda were other reservations. Same survey was conducted in this research which showed some suspicious population, but majority was ready to accept the vaccine for the welfare of Pakistan and their own loved ones. The research aims at unveiling the real factors behind vaccine hesitancy and acceptance in the sample population, keeping authenticity and reliability as priority in the whole research process.

CONCLUSIONS

This study aimed at the behavioural aspects of Covid-19 vaccine acceptance and showed very positive results. Public has fair knowledge about the Covid-19 vaccine, people know about Covid-19 and want to protect themselves from it. We also studied the factors associated with vaccine hesitancy. Participants had a general refusal for widespread conspiracy theories and other social and environmental factors had little negative influence on their perception of vaccination. Enabling environment, widespread public service messages and psychosocial motivation from political, religious and social leadership would make the process of awareness available far and wide.

RECOMMENDATIONS

Following are the recommendations based upon the observations made in this research.

- For vaccination to be done more easily, quick and effectively, more and more enabling environment is necessary.
- Effective leadership, motivation and taking general public in confidence is very crucial.
- Reading researches and effective literature specifically about Covid-19 and other related topics removes ignorance and false beliefs among general public.

LIMITATIONS

This study may have several limitations. The data was mostly collected from tertiary care hospitals, a few from urban areas too. The sample size was not very large as compared to the whole population mentioned in the title

of the research. So, the results may not be generalized to the whole population. A self-made questionnaire was used, so it may differ a bit from other conventional researches done at undergraduate level. Perhaps some barriers to covid-19 vaccination hesitancy could not be mentioned. There may be personal bias or researcher bias, but reasonable efforts were done to perform blinding in the research and give as much unbiased results as possible.

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