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COVID 19 Vaccination Related Misconceptions and Myths

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ABSTRACT

Background: Mass vaccination is the most effective way to fight against COVID 19 but a significant number of people are unwilling to be vaccinated, mainly due to misinformation and false beliefs, associated with this drive. The objective of this study was to identify these misconceptions and myths and associate them with sociodemographic factors.

Methodology: This cross sectional survey was conducted on 562 residents of Rawalpindi and Islamabad from July 2021 to November 2021. Data was collected through structured questionnaire both in English and Urdu, analysed by SPSS version 23. χ2-test was used to check the association of categorical data with sociodemographic factors.

Results: Out of all the participants, 328 (58.4%) had received COVID19 vaccination. Among these vaccinated individuals, 81.8% were graduates or above and 74.2% had family income more than Rs.50,000. Out of total, 40.7% respondents believed that, vaccine is harmful for diabetics, hypertensive and heart patients, 40.6% agreed that it is not safe for pregnant or lactating women and 40.4% assumed that they have acquired immunity through natural infection. A strong association of misconceptions and myths was found with residence (p value 0.0001), educational level (p value 0.0010) and monthly income (p value 0.0001).

Conclusion: Several misconceptions and myths are related with COVID 19 vaccination, strongly influenced by various socio demographic factors. Hence, there is a need to launch various campaigns regarding the safety and effectiveness of vaccination.

Key words: COVID-19, Misinformation, Vaccine

Authors' Contribution:
[1]Conception; Literature research; manuscript design and drafting; [2,3] Critical analysis and manuscript review; [4,5]Data analysis; Manuscript Editing.

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Introduction

Vaccination coverage is generally associated with low incidence of infectious diseases.[1] From the very early days of COVID 19 pandemic which has affected more than 185 countries[2], scientists have been struggling to develop vaccines which can be effective in the control of this disastrous infection. Although around the world, manufacturers have succeeded to introduce various brands of vaccines but unfortunately varied objections and doubts have also been linked with the vaccination, making this campaign a big challenge for the organizers.

General public has a wide range of opinions regarding the production and safety of vaccine. Although many are considering it safe and enthusiastic to get benefit from it, a huge portion of population is not willing to avail this opportunity. The resistance has aroused due to the poor concepts and false beliefs [3] which are basically influenced by the intellectual level and associated sociodemographic factors.[4] People seem to get deceived by misinformation linked with vaccine due to lack of knowledge, and false religious beliefs.[5] Conspiracy theories related with the side effects of vaccine are also a basis of demotivation.[6]

In a country like Pakistan where the polio drive has already been suffered due to untrue and fictitious news being circulated in the less educated segment of population[7], COVID vaccination campaign is in a big danger as people are concerned about the manufacturing, storage, side effects and reliability of vaccine. In this scenario, WHO and health professionals believe that responsibility lies with both the state and local organization to counter the misleading information.[8,9]As predicted that control of COVID 19 pandemic won't be possible without the mass vaccination coverage,[10] comprehensive awareness programs are needed to modify the views, change perception and create willingness of the people regarding vaccination. The purpose of the current study was to identify the misconceptions and myths related with COVID 19 vaccine and associate them with the sociodemographic factors.

Methodology

It was a cross sectional survey conducted in urban and rural areas of Rawalpindi and Islamabad from July 2021 to November 2021. Sample size was 562 calculated by open epi calculator with anticipated frequency 50% , Confidence limit 2% and design effect 1. Male and female participants were selected through non- probability consecutive sampling technique. People under the age of 19 were excluded because of non-eligibility for vaccination for them at the time of data collection. Ethical approval was taken from IRB of National University of Medical Sciences. Informed written consent was taken from the study participants.

Data was collected through a pretested self-administered structured questionnaire written in both English and Urdu. It comprised of two sections. First was related to socio demographic profile including the vaccination status. The second part included close ended questions associated with misconception and myths related to COVID vaccination, the items were constructed through the available published literature of WHO, CDC and health care departments.[11,12,13] Data was analyzed by SPSS version 23. For categorical variables, frequency and percentages were calculated. Inferential analysis was done, using the $\chi 2$-test to check the association of categorical data where required and p values less than 0.05 was considered statistically significant.

Results

Total respondents were 562 with mean age of 33 ± 12.5 SD (19 to 71 years). Out of total, 328 (58.4 %) were males and 384 (61.9 %) were married. The number of participants residing in urban areas was 329 (58.5 %). 298 (53%) respondents were graduate or above and 353 (62.8 %) had monthly family income of 50,000 PKR or below. (Table 1)

Out of 562 respondents, 328 (58.4%) were either fully or partially vaccinated for COVID 19. History of vaccination was strongly related with sociodemographic factors namely residence, educational level and per month family income. (Table: 2)

Table: I Sociodemographic Characteristics	
Characters	Frequency(Percentage)
Gender	
Male	328 (58.4%)
Female	234 (41.6%)
Residence	
Urban	329 (58.5%)
Rural	233 (41.5%)
Marital Status	
Married	348 (61.9%)
Unmarried	214 (38.1%)
Occupation	
Students	118(21.0%)
Labourer	98(17.4%)
Private Officer	112(19.8%)
Public Officers	137(24.4%)
Teachers	42(7.5%)
Businessmen	26(4.6%)
Others	29(5.3%)

Table: II Association of Vaccination with Sociodemographic Factors

Variables		History of Vaccination			
		Yes N=328 (58.4)	No N= 234(41.6)	Total	p-value
Age	30 and below	145 (53.5%)	126 (46.5%)	271	0.021*
	Above 30	184 (63.3%)	107 (36.7%)	291	
Gender	Male	196 (59.7%)	132 (40.3%)	328	0.428
	Female	132 (56.4%)	102 (43.6%)	234	
Residence	Urban	220 (66.8%)	109 (33.2%)	329	0.0001*
	Rural	108 (46.3%)	125 (53.7%)	233	
Marital Status	Married	202 (58.0%)	146 (42.0%)	348	0.038*
	Un married	126 (58.8%)	88 (41.2%)	214	
Education	Under graduate	84 (31.8%)	180 (68.2%)	264	0.0001*
	Graduate or above	244 (81.8%)	54 (18.2%)	298	
Income/ month in PKR	50,000 and below	173 (49.0%)	180 (51.0%)	353	0.0001*
	Above 50,000	155 (74.2%)	54 (25.8%)	209	

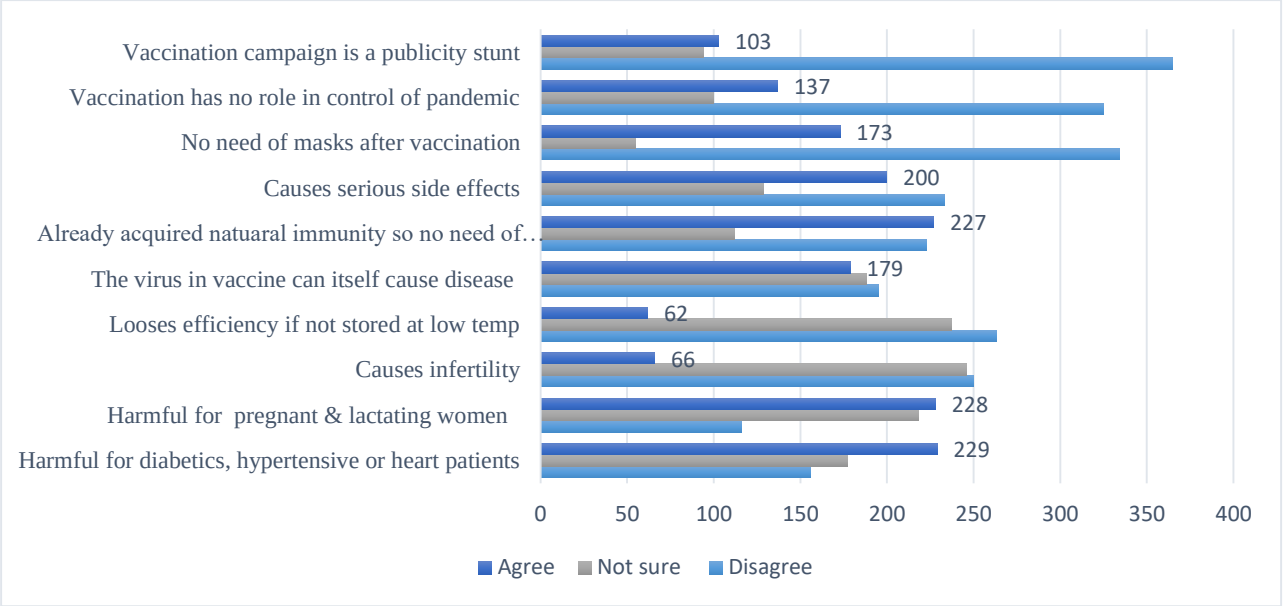

Figure 1: Misconceptions and myths regarding Covid 19 vaccination.

A strong association between socio demographic factors and misconception and myths related with COVID-19 vaccination was found. Fears that vaccination is harmful for diabetics, hypertensive or heart patients and for pregnant and lactating women were found to be associated with residence (p = 0.0001), educational level (p = 0.001) and monthly income of family (p=0.0001). There was a significant difference among people belonging to different residence (p = 0.001), having diverse educational level (p =0.0010) and monthly income of family (p = 0.0001) in believing that vaccine may cause infertility. Misconception that virus in the vaccine may itself cause the disease was found to be strongly related with gender (p = 0.0001), residence (p = 0.0001), educational level (p = 0.0010) and monthly income of family (p = 0.0001). Similarly, misunderstanding that vaccine has serious side effects was associated with gender (p =0.006), residence (p = 0.0001), educational level (p = 0.0001) and monthly income of family (p = 0.0001). A strong association of gender (p=0.002), residence (p = 0.0001), educational level (p = 0.0001) and monthly income of family (p =0.0001) was revealed with the misinformation that there won't be any need of masks after vaccination and also with the concept that sufficient immunity is acquired through natural infection so no further need of vaccination with p=0.001, 0.0001, 0.0001 and 0.0001 for gender, residence, educational level and monthly income respectively. Additionally the belief that COVID-19 vaccination has no role in control of pandemic was also associated with residence (p = 0.0001), educational level (p =0.001) and monthly income of family (p = 0.0001).

Discussion

According to the present study conducted among the general population, 328 (58.4%) respondents were vaccinated. A strong association was observed with history of vaccination and sociodemographic factors specially age, marital status, residence, educational standard and monthly family income. The results are comparable with various international and national studies. A study conducted in Saudi Arabia indicated that 44.7%

population agreed to accept vaccination[14] because of higher educational level while in Bangladesh only 35.1% respondents were ready for immediate vaccination and regression analysis showed that gender, residence, education level and income were closely associated with readiness for vaccination.[15] However, the study conducted in Romania and Vietnam showed no relationship of gender or education with the acceptance level of vaccination.[16,17].

The current study also concluded that various misconception and myths were related with COVID 19 vaccination, as participants were of the view that they have acquired immunity through natural infection so there is no need of any further vaccination and also agreed that vaccine has serious side effects besides it may itself cause disease. Similarly, respondents believed that vaccine is neither safe for diabetics, hypertensive or cardiac patients nor for pregnant or lactating women. These findings are comparable with an international study conducted in England and some national studies of Sindh and Punjab which state that people think of vaccine as being unsafe because it has serious side effects and may itself can cause disease.[1,18] According to another national cross sectional study, health care workers were concerned about the side effects and had denied vaccination due to prior exposure with COVID 19.[19] Our study shows that a small minority feared infertility as a result of vaccination which is comparable with a study conducted in a rural area of Sindh, where people believed that it's a western conspiracy.[20]Similarly another study conducted in various districts of Sindh revealed that conspiracies, beliefs and safety issues were related with vaccination comparable with the present study.[21]

According to our study, sociodemographic factors like gender, residence, education and family income were found associated with various misconception and myths related with vaccination. A United States based study established that blacks, people with low educational standards and unvaccinated individuals have similar misconception.[22] The studies conducted at national level revealed the same association of misconceptions with sociodemographic factors.[23, 24]

Our study has several limitations. Firstly the study was restricted to the twin cities of Rawalpindi and Islamabad and the nation wide data was missing. Secondly study was based on non-probability sampling technique thus compromising the validity and reliability. Thirdly the time period was limited as it can be predicted that the data collected over a longer period of time might have revealed difference in the opinion of the respondents. As a way forward study may be conducted at the national level. Furthermore, a qualitative research on the subject may help to get an in depth analysis. This cross sectional study addresses wide range of sociodemographic barriers creating hindrance in the vaccination drive. Moreover as the study is based on the knowledge and attitude, we can anticipate to create awareness among the general public which may assist in changing their behaviour towards this valuable campaign.

Conclusion

Various misconceptions and myths are related with COVID 19 vaccination. Sociodemographic factors especially residence, education and income strongly influence these opinions and beliefs**.**

Recommendation

Various campaigns should be launched in the masses regarding the safety and effectiveness of vaccination. Responsibility lies with the state to promote the facts over doubts and provide proper guidance to change the views and perception.

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