

Gender-based comparison of factors attributing to varying attitude toward COVID-19 vaccination among general public

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Abstract

Objective: The objective of this study is to determine the gender-based differences in factors responsible for hesitancy and acceptance towards COVID-19 vaccination among the general public residing in different cities of Pakistan.

Material and Methods: This cross-sectional comparative study was conducted among the general public residing in different cities of Pakistan. Data was collected from 15th April to 30th April 2021. The estimated sample size was found to be 380, convenience sampling was used for data collection. The Chi-square test was applied to find gender-based differences in reasons responsible for refusal and uptake of vaccination. P-value < 0.05 was taken as significant. Data were analyzed by using SPSS version 26.0.

Results: Out of the total of 380 participants, 101 (27%) were males and 279 (73%) were females. Significant motives for vaccine uptake include family and friend recommendations, helping society to get back to normal again (75%) and health care recommendations (30%). Males were more receptive to vaccine uptake (p=0.001). Major factors contributing towards vaccine refusal were a perception that Corona Virus is not harmful (90%), mistrust (89%), reservations about vaccine safety (90%) and efficacy (80%), the opposition of friends and family (55%). Females were more hesitant towards COVID vaccination (p=0.04). One of the major reasons for hesitancy towards vaccination was vaccine-associated misinfodemic disseminated by social media.

Conclusion: The study concluded the gender-based differences in factors responsible for hesitancy and acceptance of COVID vaccination among the general public. COVID-19 vaccination awareness campaigns should be launch with a special focus on the issues related to vaccine safety and efficacy, offering reassurance and trust-building, addressing misconceptions, especially in females.

Keywords: Vaccine, Hesitancy, COVID-19, Misinfodemic.

Introduction

Corona Virus was declared as a global pandemic on March 11, 2020, by World Health Organization.¹ This deadly virus has affected many countries worldwide. Globally, as of April 30 2021, 150,110,310 confirmed cases of COVID-19, including 3,158,792 deaths were reported by WHO. The incidence reported in different regions include America (61,853,321 confirmed cases), Europe (51,614,588 confirmed cases) South-East Asia (21,847,392 confirmed cases), Eastern Mediterranean (9,064,521 confirmed cases), Africa (3,301,086 confirmed cases), Western Pacific (2,428,656 confirmed cases).² The first case of COVID-19 was reported in Pakistan on February 26, 2020, then the virus spread rapidly into various regions countrywide and become an epidemic.³ As per WHO Data on 30 April 2021, there have been 815,711 confirmed cases of COVID-19 with 17,680 deaths. The WHO has warned Pakistan regarding rapid surge and great challenge against COVID-19 in coming days.²

The world is in the midst of a COVID-19 pandemic. Health agencies worldwide are working together to devise effective strategies in order to combat the pandemic, endorse clinical interventions, focus on preventive strategies and ensure equitable distribution of medical supplies to the most vulnerable and affected population.⁴ This paper is being written in a time when vaccination has become available and proven to be an effective measure for the reduction of COVID related mortality and morbidity and prevention of serious illness.¹ FDA approved Pfizer and BioNTech in December 2020. Various global companies also launched the COVID-19 vaccines. In Pakistan vaccination for COVID-19 started in February 2021. To date Drug Regulatory Authority of Pakistan (DRAP) has approved the use of Sinopharm, Russia's Sputnik V, and the Oxford-AstraZeneca and recently CanSino and locally produce PakVac vaccine has also been introduced.⁵

The latest WHO recommendation states "take *whatever vaccine is made available to you first, even if you have already had COVID-19. It is important to be vaccinated as soon as possible once it's your turn and not wait*".⁵ The COVID-19 vaccines approved by regulatory authorities are known to be much effective and reduce the risk of mortality, although no vaccine is 100% protective.⁶

As of the latest data on April 28, 2021, a total of 1,011,457,859 vaccine doses have been administered worldwide. In Pakistan, on April 25, 2021, a total of 1,735,515 vaccine doses have been administered.⁵

Unfortunately all these measures are not proving to be sufficient to control pandemic and there is a continuous trend of rising cases all over the world. WHO regional director for Europe, Dr Hans Klug labelled this phenomenon as a pandemic paradox.⁷

An effective strategy to halt this pandemic is to maximize the vaccination for the attainment of herd immunity. The possible barrier to successful mass vaccination and attainment of herd immunity could be vaccine hesitancy. Vaccine hesitancy refers to reluctance in the uptake of vaccination despite its availability.⁸ It is a complex phenomenon and influenced by "convenience, complacency and confidence".⁹ Vaccine hesitancy has been recognised as one of the ten global health threats of 2019.¹⁰

The present study is planned to establish the gender-based differences in the factors contributing to acceptance and hesitancy towards COVID vaccination among the general public. This study will provide baseline data to our policymakers that will facilitate them in devising strategies for the promotion of COVID vaccination in the goodwill of our population.

Materials and Methods

This cross-sectional comparative study was conducted among the general public residing in different cities of Pakistan (Gujranwala, Rawalpindi, Lahore, Islamabad). Data was collected from 15th April to 30th April 2021 using a structured questionnaire. The convenience non-probability sampling technique was employed to recruit the study participants. The sample size was calculated using the WHO sample size calculator, taking the confidence interval of 95%, prevalence estimate as 50%,¹¹ the margin of error 5%. The estimated sample size was found to be 384. Incomplete proformas were discarded and final analysis was run on 380 participants. The study participants were enrolled in this study irrespective of their COVID infection history, within the age range of 20-65 years, either gender and willing to participate in the study. The data was collected by using a self-reported questionnaire developed after an extensive literature search. Two senior faculty members from the Department of Public Health were requested to review the questionnaire for construct and content validity. After revision irrelevant items were deleted, double-barrel questions were removed, long questions were rephrased to make it convenient for participants to fill the proforma. The final version of the questionnaire was piloted on 20 participants and also translated into Urdu to make it understandable by the general public.

Before filling the questionnaire informed verbal consent was obtained. A brief description of the study purpose, details of different questions and instructions to fill questionnaire were given. The Data was analysed using SPSS Version 26. Descriptive statistics (i.e., frequencies, percentages) were calculated for categorical variables. The Chi-square test was applied to find the difference between males and females regarding the reasons for refusal and uptake of vaccination.

Results

Sociodemographic characteristics of the study participants are shown in Table 1. Out of a total of 380 participants, 101(27%) were males and 279(73%) were females.

Table 1: Sociodemographic Data

Variable	Categories	Frequency <i>n</i>	Percentage (%)
Gender	Male	101	26.5
	Female	279	73.4
Occupation	Employed	121	31.8
	Unemployed	145	38.1
	House wife	114	30
Age	20-30	112	29.4
	31-40	91	23.9
	41-50	80	21
	51-60	40	10.5
	>60	57	15
Level of education	Educated	235	61.8
	Uneducated	145	38.1

Reasons for uptake for vaccination are represented in Figure 1. While studying willingness to take the vaccine in terms of gender there was a significant difference ($p=0.001$), overall results showed that males tend to be more receptive to vaccine uptake. Significant motives for vaccine uptake include relative/ friend recommendation (85%), helping society to get back to normal again (75%) and health care recommendation (30%). Details are shown in Figure 1.

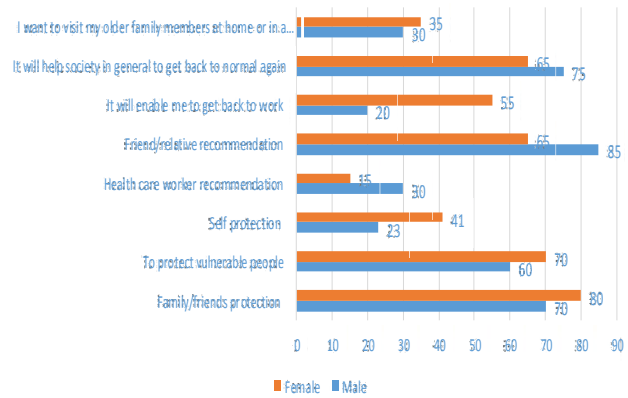


Figure 1: Reasons for COVID-19 vaccine uptake

Reasons for refusal of vaccination are represented in Figure 2. While studying the factors contributing towards the refusal to take the vaccine in terms of gender there was a significant difference ($p=0.04$), with females more hesitant to take the vaccine. Major factors contributing towards vaccine refusal were a perception that Coronavirus is not harmful (I don't think CORONA Virus possess enough risk) (90%), mistrust (89%), reservations about vaccine safety (90%) and efficacy (80%), the opposition of friends and family (55%). The rest of the details are shown in Figure 2.

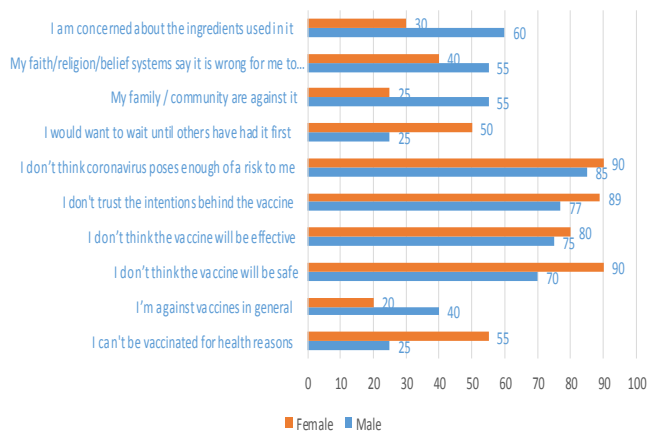


Figure 2: Reasons for refusal

A major factor contributing almost 70% is a due misconception about the side effects of vaccines on social media (misinfodemic). The rest of the factors contributing to indecisiveness are shown in Table 2.

Table 2: Reason for the uncertainty of taking vaccination

<i>Variables</i>	<i>Frequency n</i>	<i>Percentage (%)</i>
Distance from vaccination center	65	17
Travel expenses	55	14
Time for vaccine appointment	88	23
Afraid of getting exposed at the vaccination center	121	32
Planning for pregnancy	33	8.6
Allergic to latex	21	5.5
Not sure about cost-benefit	222	58
Afraid of long term side effects	155	41
Concerns about how long immunity last	134	35
Reservation about its constituent	89	23
Harmful substance in vaccine	141	37
Heard about side effects of vaccines on social media	267	70
Insecurity about vaccines offered by health authorities	190	50

Discussion

Undoubtedly, COVID-19 has impacted the entire human race at a pervasive level. As we stand on the precipice of global immunization with the rollout of COVID-19 vaccines, yet there has been a substantial increase in trends of vaccine hesitancy, the phenomenon labelled as vaccine paradox.⁷ The growing trend of rumours, misrepresentation, myths, cynicism and reluctance possess a complex challenge, particularly in the current digital era. As highlighted by GAVI, the vaccine alliance, 15 of 40 GAVI eligible countries had reported increased spread of rumours with a high impact on public trust for immunization.⁶ According to Lancet report on large-scale retrospective temporal modelling study mapping, global trends in vaccine confidence and investigating barriers to vaccine uptake has reported that Pakistan is already included in the list of one of six countries with high vaccine hesitancy, other countries including Indonesia, Afghanistan, Pakistan, South Korea and Philippines.¹² A significant factor contributing to vaccine hesitancy in the current pandemic crisis is misinfodemic.¹³ This

term refers to the spread of misinformation on social media, which strongly undermines the adoption of recommended preventive, curative and lifesaving policies. Misinfodemic has strongly influenced the vaccine uptake and source of creation of mistrust due to rumours and falsification.¹³ Same trend has been observed in our studies where almost 70% of the study participants were indecisive about vaccination and reported that they have heard about side effects of vaccination on social media. Government and health organizations around the globe are struggling hard to demystifying the misinformation. WHO team “myth busters” are working with social media companies like Google, Twitter, Facebook, Instagram, Pinterest, Tencent and YouTube to counter the spread of misinformation circulating on social media.¹⁴

In our study, the most significant factors contributing towards the vaccine refusal include doubts and concerns about vaccine safety and efficacy, mistrust of health care agencies, misconception about the virulence of the virus, although there is gender difference (more refusals in females) highest trend contributing towards hesitancy is because of these factors. This behaviour is in accordance with the theory of planned behaviour which states that personal compliance with a particular behaviour (vaccine uptake) is dependent on three factors, 1. Attitude toward vaccination 2. Attitude of “significant others” which has a strong influence on vaccine uptake, 3. perceived difficulty in performing behaviour due to perceived behaviour control. These factors are strongly influenced by the social representation of people as in our study recommendation by relatives and friends “significant others” has a strong influence on the participant’s behaviour for the vaccine uptake. Similar factors are highlighted in the result of a recent study also.¹⁵

In our study strong motives contributing towards vaccine uptake in both genders include protection of family members and friends, to protect people at higher risk of getting COVID-19, recommendation by healthcare workers which again corresponds with the theory of planned behaviour. Similar trends have been reported as a result of a recent study.¹¹

In our study, the significant gender difference was observed in trends towards vaccine uptake, although the evidence has supported that females are more receptive to follow preventive measures during pandemic¹⁶ but yet they are more hesitant to take the vaccine as they are less likely to believe that vaccination can protect them and have reservations regarding vaccine efficacy and effectiveness. Similar

trends have been reported from the results of two recent studies.^{16,17}

Although our study has fairly highlighted the factors that can influence vaccine uptake among the general public yet this study has certain limitations that should be kept in consideration while interpreting the findings. First, this is a cross-sectional study, so it is difficult to establish a casual association. The study was carried out using the self-reporting method which can be a source of potential bias in terms of recall and social acceptability. Nonetheless, this study provides baseline information to policymakers to develop targeted strategies to mitigate the deleterious impact of a pandemic by upscaling the vaccine acceptance.

Conclusion

While the devastating impact of the current pandemic on livelihood is still going, the advent of vaccination represents a beacon of hope for the future. Our study has fairly highlighted gender differences in uptake and refusal of COVID vaccination. Males have the willingness to take the vaccine and their strong motive was to protect the family and near and dear ones. A degree of hesitancy is present more in females, which is strongly influenced by the opinion of "significant others", such as friends, family. Misinfodemic has strongly influenced the vaccine uptake and the source of creation of mistrust was rumours and falsification. Therefore policymakers should develop targeted strategies, awareness campaigns need to be a launch to provide information about vaccine safety and efficacy. Measures should be taken to address the mistrust and to reassure the general public especially females.

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