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Original Article

Anti-Vaccination Attitude regarding Corona Virus and its Associated Factors among Pregnant Women during Antenatal Care at D.H.Q Hospital Kasur, Pakistan

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ABSTRACT

Millions of individuals were impacted by COVID-19, a pandemic illness that spread throughout the entire world. The overall population has been severely burdened by the corona virus infection (COVID-19). There is evidence that COVID-19 contributed to more than 2.5 million fatalities globally. **Objectives:** To determine anti vaccine attitude regarding Corona-Virus Disease 2019 (COVID-19) among pregnant women visiting DHQ Hospital, Kasur. And to identify associations of anti-vaccine attitude regarding corona virus with socio-demographic variables among pregnant women visiting DHQ Hospital, Kasur. **Methods:** A quantitative analytical cross-sectional design was used for this study. The study was carried out in DHQ Hospital Kasur after Ethical approval of Research Committee of University of Lahore. The study Sample size was 221 pregnant females. Data were collected using Self developed demographic form and the Vaccine Attitude Examination (VAX) Scale. **Results:** The results showed that among 221, most of the participants were of the age group of 26-35 years. Out of 221, nearly 45% the participants had thought that the vaccinations are safe. One third of the participants disagreed to acceptance of vaccine. The results of study showed a significant association of demographic variables with anti-COVID-19 vaccination attitude. **Conclusions:** In conclusion, pregnant women in Pakistan who were concerned about the safety of their unborn children had anti-vaccination attitudes against COVID-19, and other demographic factors were not linked to this attitude.

INTRODUCTION

Infectious diseases can play an important role in pregnancy, particularly if they have an impact on the mother and the fetus. Infections of the fetal respiratory system can potentially cause miscarriage, stillbirth, and preterm birth. Millions of people have been impacted by the global pandemic disease COVID-19 [1]. Severe Acute Respiratory Coronavirus 2 (SARS-CoV-2) is the virus that causes COVID-19 illness. The general population is currently facing significant morbidity and death costs as a result of the corona virus infection (COVID-19). The World Health Organization (WHO) designated this epidemic a major global health emergency on January 31, 2020. There is proof that COVID 19 contributed to more than 2.5 million fatalities globally. The most vulnerable groups include those with impaired immune systems, people with medical conditions, and women who are pregnant [2]. Few adults and children who have had Corona virus suffer multisystem inflammation thereafter [3]. Indeed, those who suffer the most from the Corona virus outbreak are the elderly and those with enduring, serious health problems. They pose the greatest risk of producing dangerous and deadly varieties of the Corona virus, with a 25% case fatality rate in people over the age of 80 as compared to 1% in those under the age of 50, and the risk of mortality increasing with the

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rise in the number of concomitant ongoing disorders [4]. WHO reports that as of June 23, 2022, there were 539,893,858 confirmed cases of COVID-19 and 6,324,112 fatalities worldwide [5]. According to the official Punjab government website, there were 1,532,470 confirmed COVID-19 cases in Pakistan as of 23 June 2022, and 30,384 people died from the disease [6]. Women who are pregnant are more susceptible to infection since pregnancy weakens their immune systems. Pregnant women all over the world are experiencing a great deal of stress and anxiety as a result of this abrupt COVID-19 epidemic. Pregnant women are more likely than non-pregnant people to become seriously infected with COVID-19, according to statistics. Pregnant females are among the vulnerable prone to breathing infections, weak gatherings more helpless to viral respiratory contamination and pneumonia because of physiological and immunological scale [7]. Pregnant women are more likely to experience negative pregnancy outcomes, including preterm births, intensive care unit admissions, caesarean sections, artificial ventilation, and even death [2]. Alternative Hypothesis $H_1$of the study was: There is a significant association between COVID-19 anti-vaccine attitude and associated Socio demographic factors among pregnant women during antenatal period. Null hypothesis H_0 of the study was: There is no significant association between COVID-19 anti-vaccine attitude and associated Socio demographic factors among pregnant women during antenatal period. Study objectives were to determine anti-vaccine attitude regarding COVID-19 among pregnant women visiting DHQ Hospital, Kasur. And to identify associations of anti-vaccine attitude regarding COVID-19 with Socio demographic variables among pregnant women visiting DHQ Hospital, Kasur.

METHODS

A quantitative analytical cross-sectional design was used for this study. The study was carried out in DHQ Hospital Kasur. Duration for data collection was from 1st April, 2022 to 31st December, 2022 after the approval of Research Ethical Committee of University of Lahore. Sample size of 221 participants was calculated with 95% confidence interval and 6% margin of error [8]. The sample of pregnant women was recruited from those who attended the antenatal clinic during the study period using a convenient sampling approach. The study included all pregnant women between the ages of 18 and 45, regardless of gestational age. Those pregnant women having symptoms of COVID-19 were excluded from the study. A written invitation with aim and objectives were explained to the participants. A self-developed demographic tool was used to collect baseline information. Vaccination Attitudes Examination (VAX) Scale was adopted to examine the attitude of pregnant women towards COVID-19 vaccination [9]. VAX scale consists of 12 questions, ranged from strongly disagree to strongly agree on 6 point Likert Scale. The questionnaire was both in English and local language Pakistan. SPSS version 24.0 was used to measure the frequency and percentage of categorical variables. Chi-square test was utilized to discover associations. Statistics were considered significant at p-values under 0.05.

RESULTS

An overall response rate of 100% was achieved with a total of 221 pregnant women. The majority of participants (96, or 43.4%) were between the ages of 26 and 35, while 75, or 33.9%, were between the ages of 18 and 25, and 50(22.6%) were 36 to 45 year of age. When we look at the educational level of the Participants, majority of them were illiterate 48(21.7%) and 43(19.5%) have the middle level education, while secondary school level is the next highest percentage (n=41, 18.6%) educational level, while only 10(4.5%) of them have master level education. Most of the participants 55(24.95) have Gravida 3 score, 54(24.4%) have Gravida 1 score, and 49(22.2%) had Gravida 2 score. About 86(38.9%) were within their 1st trimester and 72(32.6%) were in second trimester. Majority of participants 200(90.5%) had no chronic illness and 190(86%) had no history of vaccine related complications. Majority of respondents 163(73.8%) had mild level of stress related to work, 100(45.2%) had moderate level of stress related to pregnancy, 95(43%) had moderate level stress related to family health, and 100(45.2%) had moderate level of anxiety related to COVID -19 vaccination (Table 1)..

Table 1: Demographic characteristic of participants

Demographic characteristics	Frequency (%)
Age	
18-25 years	75 (33.9)
26-35 years	96 (43.4)
36-45 years	50 (22.6)
Educational level	
Illiterate	48 (21.7)
Primary	15 (6.8)
Middle	43 (19.5)
Matric	41 (18.6)
Intermediate	34 (15.4)
Bachelor	30 (13.6)
Masters	10 (4.5)
Gravida of respondent	
1	54 (24.4)
2	49 (22.2)
3	55 (24.9)
4	24 (10.9)
5	34 (15.4)
6 and above	04 (2.3)

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Trimester of respondent	
1st trimester	86 (38.9)
2nd trimester	72 (32.6)
3rd trimester	63 (28.5)
History of chronic disease	
Yes	21 (9.5)
No	200 (90.5)
History of any previous vaccination complication	
Yes	31 (14.0)
No	190 (86.0)
Occupation	
House wife	165 (74.7)
Working women	56 (25.3)
Work related stress to respondent	
Mild stress	163 (73.8)
Moderate stress	36 (16.3)
Severe stress	22 (10.0)
Stress related to pregnancy and baby health	
Mild stress	78 (35.3)
Moderate stress	100 (45.2)
Severe stress	43 (19.5)
Stress related to family health	
Mild stress	86 (38.9)
Moderate stress	95 (43.0)
Severe stress	40 (18.1)
Level of anxiety	
Mild	58 (24.8)
Moderate	100 (45.2)
Severe	63 (30.0)

Table 2 shows the overall attitude of the pregnant women towards the COVID vaccination, this shows that there is very high negative attitude towards COVID-19 vaccination as they are concerned about their own health and the health of the baby. The 82.8% (183) of participants had shown negative attitude while just 17.2% (38) of the participants showed positive attitude towards COVID vaccination.

Table 2: General Attitude towards Covid-19 Vaccination

Type of attitude	Frequency (%)
Positive attitude	38 (17.2)
Negative attitude	183 (82.8)

Table 3 shows the association of demographic variables with COVID-19 vaccination attitude. The age group of 26-35 years show maximum negative attitude, and p-value is less than 0.05, so it shows an association of age with anti-vaccination attitude. Level of education, gravida, trimester, and chronic diseases had an association with anti-vaccination attitude as p-value is less than 0.05.

Table 3: Association of Demographic variables with COVID-19 Vaccination attitude

Variable	COVID-19 Vaccination Attitude		Chi-Squared Value	p-value
	Positive attitude	Negative attitude		
Age				
18-25 years	15	54	25.45	0.02
26- 35years	12	84		
36-45 years	11	45		
Education				
Illiterate	9	34	22.67	0.004
Primary	6	15		
Middle	6	44		
Matric	7	42		
Intermediate	6	23		
Bachelor	4	18		
Master	0	7		
Gravida				
1	13	40	27.90	0.000
2	10	44		
3	5	46		
4	2	22		
Trimester				
1st trimester	17	79	23.32	0.05
2nd trimester	12	60		
3rd trimester	09	53		
Chronic disease				
Yes	4	20	26.78	0.001
No	34	163		

Table 4 shows the cross tabulation of stress among the pregnant mothers and the attitude towards COVID vaccination. Work related stress, stress related to pregnancy and baby health, stress about family health, and level of anxiety has significant association with COVID-19 Vaccination attitude of respondents as p-value is less than or equal to 0.05. Therefore, null hypothesis rejected as there is a significant association between COVID-19 anti-vaccine attitude and associated socio-demographic factors among pregnant women during antenatal period.

Table 4: Association between COVID-19 Vaccination Attitude and Stress

Variable	COVID-19 Vaccination Attitude		Chi-Squared Value	p-value
	Positive attitude	Negative attitude		
Work related stress				
Mild stress	30	137	9.67	0.050
Moderate stress	9	24		
Severe stress	0	22		
Stress about their pregnancy and baby health				
Mild stress	19	65	16.23	0.006
Moderate stress	11	92		
Severe stress	8	26		

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Moderate stress	11	92	16.23	0.006
Severe stress	8	26		
Stress about their family health				
Mild stress	19	74	18.31	0.004
Moderate stress	15	86		
Severe stress	4	23		
Level of anxiety				
Mild	34	155	17.82	0.007
Moderate	4	27		
Severe	0	1		

DISCUSSION

Vaccination Programme are successful where there is high rate of acceptance and coverage. To accomplish this, it is critical to understand risk perceptions about the acceptance of a COVID-19 vaccine. This study provides an insight into the demographic variables and attitudes towards the COVID-19 vaccine among a recognized vulnerable group of pregnant women. To our knowledge, this is the first study to look into pregnant women in Pakistan's attitudes on the COVID-19 vaccine and its related aspects. In this hospital-based cross-sectional study, we discovered that the majority of participants (43.3%) were in the 26–35 year age range. These results are in line with a study carried out in mainland China, where 78% of participants were aged between 21 and 35 [10]. Similarly, a cross-sectional study conducted in Western Australia, evaluated that 98 participants out of 218 were between 31-35 years of age. This is because majority of women got married between age group 21-35 year of age. This implied that the covid-19 vaccine's protective effect was mainly focused on in younger pregnant women. Therefore, majority of the participants belong to age group 21-35 year old. Out of 221, 48 (21.7%) participants were illiterate. In contrast, a study conducted in Ethiopia in 2021 revealed that majority of the participants were having secondary education [11]. This is because in Pakistan, education of women is considered much important and majority of people in Pakistan do not educate their women. According to the current study, 45.2% of pregnant women has moderate level of stress of COVID 19 vaccination related to pregnancy and baby health. This number is much lower than the results of comparable studies carried out in other nations., such as Kenya (37.1%) [12], and France (32.3%) [13]. This gap may be caused by higher COVID-19 morbidity and mortality rates as well as improved socioeconomic conditions, which may encourage pregnant women in these nations to receive the vaccine. Out of 221 pregnant women, 100(45.2%) has moderate level of anxiety related to COVID-19 vaccination. The results of the current study are in contrast to those of a cross-sectional study conducted in China, which discovered that 76.4% of study participants felt satisfied with their lives following vaccination [14]. The fact that the disease is a global public health concern that is discussed in a comparable way all over the world is one likely explanation. In Pakistan, the majority of the population lacks information and knowledge, are skeptical of the safety of vaccines, and are therefore more prone to have unfavorable attitudes towards the vaccine and refuse it [15, 16]. Table 2 shows that more than half (n=114) of the study participants did not feel protected after receiving a vaccination and believed that even if the majority of vaccines seem to be safe, there may be issues that we haven't yet identified. These results conflict with those of descriptive studies carried out in North West Ethiopia and Nigeria, where it was discovered that, respectively, 57% and 63% of expectant mothers felt protected following vaccination [8, 15]. Given that the public health programs are effective and that changing people's health may require certain basic principles, this is true. This study also revealed that 61 out of 221 people believe that immunizations may result in unanticipated issues in youngsters. Our results were in line with those of a prior study carried out in the US, where the majority of participants held the view that vaccinations could result in unanticipated issues in children [17]. There is a dearth of information regarding the COVID-19 vaccine's effectiveness and safety in pregnant women. Pregnancy-specific studies must be conducted, such as pregnancy-specific safety and bridging studies, as well as studies of participants who unintentionally become pregnant while participating in phase III trials in the future. More information on pregnant women's willingness to receive vaccinations and its connection to unanticipated issues in children is also required. The recent survey also discovered that 61 individuals were only marginally divided on whether they were concerned about future vaccine side effects. Our finding is supported by Olum *et al.*, where 40% participants were worried about the unknown effects of vaccine in future [18]. In a recent study, 80 percent of participants felt that government vaccine promotion is done more for financial gain than for the health of the public. The majority of participants (n=72) disagreed that vaccinations are more effective than naturally occurring immunity. Data from descriptive studies found that governments push vaccination for financial gain rather than for people's health support this conclusion [2, 14, 15]. This might be due to the fact that educated women are more likely to have access to the internet and other kinds of social media, which would allow them to learn about COVID-19. Additionally, they are more likely to comprehend what they have learnt. The majority of participants (n=68) disagreed that getting exposed to viruses and bacteria naturally provides the best defense. The majority of people think that getting vaccinated is better for your immune system than being

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exposed to infections naturally. This is consistent with earlier research that found a strong correlation between vaccination and immunization [19]. According to the majority of participants in a study by Goncu Ayhan *et al.*, from 2021, exposure to sickness does not boost immunity [20]. The current study examined pregnant women's attitudes on coronavirus vaccination and factors related to it. The current study demonstrates that pregnant women have a very high level of opposition to the COVID-19 immunization because they are worried about both their own and their unborn child's health. Just 17.2% (38) of the individuals had a favorable attitude towards the COVID vaccine, compared to 82.8% (183 total) who had a negative opinion. The results were at odds with a recent study conducted in Southwest Ethiopia, where COVID-19 vaccination uptake was shown to be 70.7% (95% CI, 66.7%–74.7%) [2]. The global acceptance of COVID-19 vaccinations spans from as low as 54.8% from Russia to as high as 88.6% from China, according to a study based on a sample from 19 countries with 13,426 individuals [21]. This could be explained by the fact that pregnant women were unaware about COVID-19 and believed that the vaccine could have harmful consequences on both them and their unborn children. As a result, they were reluctant to accept COVID-19[10].

CONCLUSIONS

In conclusion, we found that Pakistan was among the least-accepting nations for the COVID-19 vaccination, with a high percentage of its population (82.8%) indicating a refusal to receive the shot. As a result, the health authorities should develop interventions in the form of awareness campaigns using all forms of multimedia to spread more transparent information about the safety and efficacy of the vaccines. Health care providers were identified by the public as the most trusted source of information regarding information about COVID-19 vaccines.

Authors Contribution

Conceptualization: FB
Methodology: FB, SM, HS
Formal analysis: SM, FB
Writing-review and editing: SM, HS

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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