Attitude of Pregnant Women for Covid-19 Vaccination

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ABSTRACT

Objective: Coronavirus disease 19 (COVID-19) Vaccination is critical approach in restricting the COVID-19 epidemic in order to curb infections and diminish the severity of ill health, particularly among the most vulnerable groups such as pregnant women. Therefore, this study was intended to assess the attitude of women in pregnancy toward COVID-19 vaccination.

Methodology: This was a cross-sectional observational study conducted in the outpatient Department of Gynecology and Obstetrics of Abbasi Shaheed Hospital, Karachi by using non-probability convenient sampling technique. The duration of the study was about 6 months from October 2021 to March 2022. A total of 325 pregnant women having pregnancy of after 14 weeks and before 34 weeks, who were physically and mentally fit with no past history of acute or chronic systemic disorder were included in the study. For quantitative variables mean and standard deviation was recorded and for qualitative variables frequency and percentages were reported.

Results: The study results showed that the mean age of the participants was 28.92 ± 5.18 years, mean parity was 2.61 ± 1.80, and mean gravidity was 3.66 ± 1.86. When asked about their intention to receive the COVID-19 vaccine, 167 (51.4%) participants indicated fear of pregnancy complication while 158 (48.6%) had no fear. 170 (52.3%) participants showed fear of complication related to baby. About 65 (20.0%) were concerned about safety of vaccine. Most of the participants 290 (89.2%) agreed that isolation methods and social distancing are not enough. 235 (72.3%) believed that COVID-19 vaccine can protect from the infection only 90 (27.7%) participants did not believe on effectiveness of vaccine.

Conclusion: This study concluded that despite the low educational level of pregnant women, most of the participants showed positive attitude and willing to be vaccinated. However, majority pregnant women had fear of detrimental effects for the fetus and mother that were two major concerns among pregnant women when considering COVID-19 vaccination.

Key Words: Coronavirus disease 2019, Pregnant women, COVID-19 vaccines, Vaccine acceptance

INTRODUCTION

Coronavirus disease 2019 (COVID-19), the extremely communicable viral disease that is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has had a terrible influence on the globe’s demographics leading to above 3.8 million deaths internationally, evolving as the most substantial universal health catastrophe the period of the influenza epidemic of 1918.[1] According to WHO (World Health Organization), it is predicted that more than 2 million deaths were documented in a year or so. Therefore, it is vital to protect individual from getting this contagion. Most effective means for protecting from infection are the implementation of Standard operating procedures (SOPs) for instance use of face masks, social distancing and maintenance of individual cleanliness, but to keep such actions for prolong duration basically is unmanageable.[2]

Internationally, COVID-19 has executed huge encumbrances of morbidity and mortality amongst the general populace.[3] In Pakistan, it is predicted that 560,000 cases were diagnosed wherein 12,218 deaths were reported [4]. In
spite of the implementation of SOPs, it is imperative to be vaccinated for COVID-19 in order to restrict the spread of contagion in Pakistani population.[5]

Vaccination is a critical approach in restricting the spread of COVID-19 epidemic and reducing the disease severity. As in other viral endemic infections in an earlier years, vaccination has definitely developed a substantial influence to human and animal wellbeing, particularly in emerging nations. [6] Vaccination would be more effective on recognition of vaccination barriers in the population, particularly in more susceptible groups such as pregnant women. Commendations from the Society for Maternal-Fetal Medicine and American College of Obstetricians and Gynecologists (ACOG) have retained that pregnant and lactating women should be vaccinated based on their risk, so vaccines based on mRNA are believed to pose less harm to the fetus because of degradation of mRNA in the circulation.[7,8]

According to the statistics, pregnant women are at greater risk to develop severe COVID-19 infection.[9] According to a report from the Centers for Disease Control and Prevention (CDC), it is stated that pregnant women were three folds more expected to be hospitalized in critical condition or need intubation as compared to non-pregnant women, and death occurs from COVID-19 exceeds more probably one and half times.[10]

Vaccination’s acceptance based on society’s awareness of disease risk, attitudes and acquaintance about vaccine, and is essential for vaccination programs to attain high vaccination reportage rates, predominantly for newly evolving infectious diseases.[11] Even before the existing COVID-19 endemic, the WHO recognized vaccine hesitancy that is characterized by the deferral in accepting vaccines or rejection of them that are one of the top ten dangers to world health.[12]

In general population of China, it is estimated that acceptance of the COVID-19 vaccine was 90%, [13] in the United States it is reported 70%, [14] and in France, it is predicted 75%. [15] This is contrary to a former research piloted in the United States in year of 2020 wherein not more than half of pregnant women indicated they were expected to get the COVID-19 vaccination.[16] Similarly, one more research stated that pregnant participants had a 44.3% acceptance rate of vaccine which was lower as compared to non-pregnant women (76.2%).[17]

In order to augment the vaccine acceptance, counseling exhibits a key role in alleviating uncertainties and supports women deal with health concerns associated with pregnancy. Providers should aware about concerns and current knowledge of their patient for appropriate counseling.[18] A lot of researches explored the influence of social media on vaccine acceptance that directed different advice of this impact, as media stands may hasten the infodemic in public health emergencies to an extent that hampers healthy decisions from being made [19-21]. Social media platforms can also be used to lessen the possibility of misrepresentation by presenting high-quality evidences from reliable and appealing means to pregnant and lactating women [22].

COVID-19 infection is ever-so rising in incidence and severity along with the rising rate of occurrence of COVID-19 infection in pregnant women. Formerly, pregnant women stay un-vaccinated owing to misperception and lack of acquaintance provided by public health experts concerning COVID-19 vaccination. Therefore, the present study was planned to evaluate and attain insight into the attitude of pregnant females regarding their choice of preference of COVID-19 vaccination.

**METHODOLOGY**

This was a cross-sectional observational study conducted in the outpatient Department of Gynecology and Obstetrics of Abbasi Shaheed Hospital, Karachi by using non-probability convenient sampling technique. The duration of the study was about 6 months from October 2021 to March 2022. This study was ethically approved by the concerned ethical committee. A total of 325 pregnant women having pregnancy of after 14 weeks and before 34 weeks, who were physically and mentally fit with no past history of acute or chronic systemic disorder were included in the study whereas pregnant women below 18 or above 35 years of age, intrauterine pregnancies having stillbirth, intrauterine growth retardation, miscarriage and medical complications, having contraindication to COVID-19 vaccine, refusing to participate in the study, pregnancy of before 14 weeks and after 34 weeks were excluded from the study.

Demographics details included age, weight, gravidity, parity, gestational week, estimated date of delivery, residence, socio-economic status, past obstetrics history complication, risk factor in current pregnancy were documented. After demographics details, pregnant women were asked about their acceptance for COVID-19 vaccination, in case of refusal of vaccination, the reasons and causes behind refusal were recorded.

Data analysis was performed by using SPSS version 23.0. For quantitative variables mean and standard deviation was documented and for qualitative variables frequency and percentages were reported.

**RESULTS**

A total of 325 pregnant women were participated in this study. The mean age of the participants was 28.92 ± 5.18 years. The mean parity was 2.61 ± 1.80. The mean gravidity was 3.66 ± 1.86. The mean of estimated date of delivery...
was 27.45±3.58 weeks. The mean weight of participants was 73.48±11.46 kg. Women 42(12.9%) residing in rural areas and 283(87.1%) belonging to urban areas were ready to take the vaccine. About 81(24.9%) who never visited school were accepted the vaccination during pregnancy, 74(22.8%) women with matric level 74(22.8%) women who studied primary level, 39(12.0%) middle pass accepted the vaccination. Concerning profession, 209(64.3%) housewives and 51(15.7%) maid were aware about vaccination. Past pregnancies had complications such as 62(19.1%) participants had anemia, Pregnancy-induced hypertension 21(6.5%), Diabetes Mellitus 6(1.8%), Postpartum hemorrhage 17(5.2%), Preterm Birth 3(0.9%), Abortion 3(0.9%), 21(6.5%) had 1 Cesarean section, 30(9.2%) had 2 Cesarean section, 24(7.4%) had 3 Cesarean section. High-risk pregnancies such as anemia was reported in 133(40.9%) participants, gestational diabetes was reported in 6(1.8%) participants, Pregnancy-induced hypertension was reported in 6(1.8%) participants whereas most of the participants 177(54.5%) had no risk factor in pregnancy, as shown in Table I.

When asked about their intention to receive the COVID-19 vaccine, 167(51.4%) participants indicated fear of pregnancy complication while 158(48.6%) had no fear. 170(52.3%) participants showed fear of complication related to fetus. About 65(20.0%) were concerned about safety of vaccine. Almost 57(17.5%) Participants did not accept vaccination due to husband refusal. Up to 35(10.8%) felt that social Distancing and implement of Isolation means are enough to prevent the infection; however most of the participants 290(89.2%) agreed that isolation methods and social distancing are not enough. In contrast to, 235(72.3%) believed that COVID-19 vaccine can protect from the infection only 90(27.7%) participants did not believe on effectiveness of vaccine, as shown in Table II.

### Table I: Demographic details of pregnant women. (n=325)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean±SD n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>28.92±5.18</td>
</tr>
<tr>
<td>Parity</td>
<td>2.61±1.80</td>
</tr>
<tr>
<td>gravidity</td>
<td>3.66±1.86</td>
</tr>
<tr>
<td>Estimated date of Delivery (weeks)</td>
<td>27.45±3.58</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>73.48±11.46</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>42(12.9%)</td>
</tr>
<tr>
<td>Urban</td>
<td>283(87.1%)</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>74(22.8%)</td>
</tr>
<tr>
<td>Middle</td>
<td>39(12.0%)</td>
</tr>
<tr>
<td>Matric</td>
<td>74(22.8%)</td>
</tr>
<tr>
<td>Inter</td>
<td>33(10.2%)</td>
</tr>
<tr>
<td>B. A</td>
<td>12(3.7%)</td>
</tr>
</tbody>
</table>

### Table II: Prevalence of acceptance and refusal attitude towards the COVID-19 Vaccine of pregnant women.

<table>
<thead>
<tr>
<th>Variable</th>
<th>n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear of Pregnancy Complication</td>
<td>167(51.4%)</td>
</tr>
<tr>
<td>Fear of Complications to Baby</td>
<td>170(52.3%)</td>
</tr>
<tr>
<td>Need Further Reassurance regarding Safety of Vaccine</td>
<td>69(20.0%)</td>
</tr>
<tr>
<td>Husband Refusal for Vaccination</td>
<td>57(17.5%)</td>
</tr>
<tr>
<td>Husband Refusal for Vaccination</td>
<td>268(82.5%)</td>
</tr>
</tbody>
</table>
Table II: (Continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feels Social Distancing and Isolation are Enough</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>35(10.8%)</td>
</tr>
<tr>
<td>No</td>
<td>290(89.2%)</td>
</tr>
<tr>
<td>Does not Believe in Vaccination</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>90(27.7%)</td>
</tr>
<tr>
<td>No</td>
<td>235(72.3%)</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Vaccination programs can implemented effectively only with high level of acceptance and coverage. Evaluating COVID-19 risk awareness is critical to attaining this, as considering the appropriateness of COVID-19 vaccination and reliance on the health system and media sources, mainly those used to acquire about the COVID-19 disease.[23]

One of the studies focused that the women living in rural areas have low rate of vaccine acceptance. [24] This is troublesome as nearly 70% of the Indian people belong to rural areas [25]. Therefore, delivery of proper evidence-based information is essential for awareness of the rural people. The present study was inconsistent with the above reported researches and showed that most of the participants 283(87.1%) were resident of urban areas had good information about COVID-19 vaccination.

The educational level of pregnant women is an important predictor for their vaccination acceptance and their situation on professionals’ suggestions.[26] On the contrary, one study by Mohan et al., in 2021 conducted in Qatar reported that vaccine acceptance is not dependent on level of education [27] whereas Chinese research investigated pregnant women found that low education level was related with higher COVID-19 vaccine acceptance [28]. As far as the present study is concerned, mostly participants had low education level but they were willing to accept COVID-19 vaccine.

It was suggested in another research that most concerned priority related to vaccine is the protection of fetuses from the harmful effects of COVID-19 vaccines.[26] An international research by Skjefte et al., in 2021 revealed that the main cause for COVID-19 vaccine hesitancy in pregnant women was the possibleadverse effects of vaccines for unborn babies [29]. These findings were endorsed by the present study and revealed that majority of the participants 170(52.3%) had fear of complication associated with the fetus.

Similarly, another most significant priority is the protection of pregnant women from the harmful effects of COVID-19 vaccines; [26] these results were corroborated with the researchers conducted in China and Turkey amongst pregnant women where safety of vaccine was a robust element of vaccine reluctance [28,30]. These findings were consistent with the present study as most of the pregnant women showed vaccination hesitancy due to fear of pregnancy complication.

Interestingly, the role of partner is a critical element in acceptance of vaccines. Likewise, in one research, male partners have a positive attitude towards the COVID-19 vaccine acceptance among pregnant women. [26] Furthermore, another study by Meharry et al., conducted in 2013 reported the negative role of husbands among pregnant women vaccine acceptance owing to inadequate acquaintance or lower vaccine application [31]. In the present study, the role of husbands was positive 268(82.5%) in acceptance of COVID-19 vaccine among pregnant women due to awareness of consequences of COVID-19 infection.

In spite of national programs to encourage vaccination against COVID-19, the rate of acceptance of vaccination for COVID-19 among Thai pregnant women was about 60%. [32] This research was similar to the Vietnamese pregnant cohort in which 60% acceptance rate was observed [33]. These findings were contradictory to other Asian countries with moderate socio-economic status wherein higher acceptance rate was reported in Chinese (77%), Indian (82%), and Filipino (65%) pregnant women [28,29]. The major cause for the low acceptance rates in Thai couples was the doubtfulness of regarding safety of vaccine, just because of detrimental effects related to vaccines transmitted to fetus and mother as well. Moreover, additional factor for vaccine refusal was uncertainty of vaccine effectiveness. Thai research indicated that <50% of the couples reported that they were assured about effectiveness of COVID-19 vaccination. These results showed consistency with the effects of former researches [28,33,16], advocated that the people anxiety of novel COVID-19 vaccines was an important hurdle to effective vaccination. Our results showed that most of the participants had fear of complications associated with fetus and mother and 90(27.7%) believed that COVID-19 vaccination is not effective to protect from infection.

Similarly, one research assessed pregnant women who believed that the vaccine is potentially harmful for the babies eventually showed reluctance to vaccination.[34] According to the CDC, efficacy and safety of COVID-19 vaccination for pregnant women has been authentically proved.[35] In addition to, ACOG reported no indication of complications related to mother or fetus from immunizing pregnant women with COVID-19 vaccines.[36] Similarly, the WHO suggested that Pfizer-BioNTech COVID-19 vaccine is appropriate vaccine in pregnant women wherein the advantages of vaccination bypass the risks. Therefore, to make decision, evidences about the risks of COVID-19 in pregnancy, the probable benefits of vaccination, and the prevailing boundaries of safety indication should be delivered.[37] As far as the present study is concerned, majority participants were reluctant for vaccination owing to harmful effects on mother as well as...
on baby. They also worried about the safety and efficacy of COVID-19 vaccination for pregnant women.

Persistent public health campaigns, like educational television programs and awareness programs relevant to safety of the COVID-19 vaccine in pregnant women, are mandatory to increase responsiveness. Further researches are needed on safety and efficacy of COVID-19 vaccine in pregnant women, and should be planned to overwhelming these difficulties and decline vaccine hesitancy.

**CONCLUSION**

This study concluded that despite the low level of education of pregnant women, most of the participants showed positive attitude and willing to be vaccinated. However, majority pregnant women had fear of detrimental effects for the fetus and mother that were two major concerns among pregnant women when considering COVID-19 vaccination. Therefore, the representatives should promote, explore, and advertise significant information on vaccine effectiveness and safety among pregnant women because safety of COVID-19 vaccine during pregnancy is a fundamental reason that leads to vaccine hesitancy.

**REFERENCES**


