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A CROSS SECTIONAL STUDY ON COVID 19 VACCINATIONS AND PREGNANCY OUTCOME AMONG SELECTED MOTHERS IN VADODARA

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ABSTRACT

Background: The COVID 19 vaccination has been expanded to include all citizens from 18 years of age onwards, making more than 69% of population eligible, of which nearly half are women. Pregnant women who develop COVID 19 are more likely to require intense care than their non pregnant counterparts. COVID19 infection during pregnancy may result in rapid deterioration of health of pregnant women and might affect the fetus also, information related COVID 19, the impact of the disease on pregnancy and data related to COVID 19 vaccine are rapidly evolving.

Aims: To assess the pregnancy outcome, pregnancy, delivery and neonatal complications faced by pregnant woman.

Method: A non experimental study was conducted to assess the pregnancy outcome, pregnancy, delivery and neonatal complications faced by pregnant women at selected U PHC, U CHC of Vadodara, by using non probability convenient sampling technique. The tool used for the present study was self-structured checklist. Descriptive and inferential statistics were applied to analyze the data by using SPSS-20 software.

Result: Results show that majority 82.5% mothers experienced good outcome whereas 17.5% mothers

experienced poor outcome of covid vaccination.

Conclusion: The present study on covid 19 vaccination and pregnancy outcome among selected mothers in Vadodara City. it is found that mothers with covid vaccination mean score was 20.20±5.27 and among without covid vaccination mean score was 15.69±5.03 with mean difference of 4.51 with obtained value was statistically significant.

Keywords: Covid 19 vaccine, pregnant women

INTRODUCTION

A novel corona virus named "2019 Nov" or "2019novel corona virus" or "COVID-19" By the world health organization (WHO). Corona virus disease caused by severe acute respiratory syndrome corona virus 2. The first known case was identified in Wuhan China in December 2019 **[1]**. The disease has since spread worldwide, leading to an ongoing pandemic. COVID 19 transmits when people breathe in air contaminated by droplets and small airborne particles containg the virus. The risk of breathing these in is highest when people are in close proximity but they can be inhaled are in close proximity particularly indoors **[2]**.

Symptoms of COVID 19 are fever, cough, headache, fatigue, breathing difficulties, loss of smell and loss of taste. Symptoms may be beginning one to fourteen days after exposure to the viruses. Several testing methods have been developed to diagnose the disease like RTPCR, TMA or RT-LAMP **[3]** COVID 19 infection during pregnancy may result in rapid deterioration of health of pregnant women and could also affect the fetus. Experts are of the view that the benefits of vaccination to the pregnant women outweigh its potential risks. Based on the recommendations from national technical advisory women against COVID 19 with the condition that the pregnant women may be informed about the risks of exposure to COVID 19 infection along with the risk and benefits associated with the COVID 19 vaccines available in the country **[4]**.

Pregnant women who develop COVID 19 are more likely to require intense care than their non pregnant counterparts. COVID19 infection during pregnancy may result in rapid deterioration of health of pregnant women and might affect the fetus also, information related COVID 19, the impact of the disease on pregnancy and data related to COVID 19 vaccine are rapidly evolving. In the context of current situation of the SARS-CoV-2 pandemic, experts have suggested that the COVID 19 vaccine may be offered to the pregnant women, if no contraindications exist. The intent is to weigh risk versus benefits on individualized basis, so that a

pregnant woman can take an informed decision. The decision is based on the women's understanding that the risk of infection and /or morbidity from COVID 19 outweighs the undescribed risk of being vaccinated during pregnancy **[5]**.

A pregnant women who opts for vaccination, could be vaccinated at any time of the pregnancy. To help pregnant women make an informed decision to be vaccinated, they should be provided with the information about the risks of COVID 19 infection in the pregnancy, the benefits of vaccination, along with the likely side effects of vaccination **[6-12]**.

MATERIAL AND METHODS

A Cross-sectional research on covid19 vaccination and pregnancy outcome among selected mothers, the data collection was schedule on August 2023. Before the data collection the investigator obtained the formal permission from district medical health officer of (Mahanagar palika seva sadan) various PHC and CHC of Vadodara district.

The investigator selected 400 sample, assess by self structured interview method and assess the pregnancy outcome, delivery, neonatal complication and to compare the pregnancy outcome among mothers with or without COVID - 19 vaccination.

Before conducting the study Ethical clearance will be obtained from the ethical committee of Sumandeep Vidyapeeth (SVIEC) and consent form will be filled by the participants before data collection of the study.

DATA ANALYSIS

SECTION – I

All data collected was coded and put into Microsoft Excel. To summarize the results, descriptive statistics were employed. The results in terms of percentages were then derived using the statistical analysis of the completed data.

Table 1 depicts the frequency and percentage distribution of socio- demographic variables of mothers. According to their age, among mothers with vaccination majority 108(54%) were in 20-25 years of age. 83(41.5%) were in 25-30 years of age and 9(4.5%) were in above 30 years of age. Among mothers without vaccination majority 98(49%) were in 20-25 years of age. 56(28%) were in 25-30 years of age and 46(23%) were in above 30 years of age.

SECTION II

Regarding mothers with vaccination how many doses received, maximum 188(94%) had received 1st dose, 7(3.5$) had 3rd dose and 5(2.5%) had 2nd dose.

With regard to what is the reason for covid vaccine not received, most 92(46%) had afraid of getting vaccine, 73(36.5%) don't know about the vaccination and 35(17.5%) had doubt regarding the vaccine.

As per mothers received covid vaccine 1st dose, majority 158(79%) had before pregnancy and 42(21%) had received vaccination at 1st trimester. With regard to mothers received covid vaccine 2nd dose, maximum 95(47.5%) had received at 1st trimester, 81(40.5%) before pregnancy and 24(12%) had received vaccination at 2nd trimester. According to mothers received covid vaccine booster dose, majority 77(38.5%) had received at 2nd trimester, 63(31.5%) before pregnancy, 31(15.5%) at 1st trimester and 29(14.5%) had received vaccination at 3rd trimester.

Regarding covid infection during pregnancy among mothers with vaccination, majority 179(89.5%) had no covid infection during pregnancy and 21(10.5%) had covid infection during pregnancy. Among mothers without vaccination maximum 181(90.5%) had no covid infection during pregnancy and 19(9.5%) had covid infection during pregnancy.

As per covid infection before pregnancy among mothers with vaccination, majority 179(89.5%) had no covid infection before pregnancy and 21(10.5%) had covid infection before pregnancy. Among mothers without vaccination maximum 169(84.5%) had no covid infection before pregnancy and 31(15.5%) had covid infection before pregnancy **(Table 2)**.

Table 2 depicts the frequency and percentage distribution of pregnancy outcome among mothers with or without covid 19 vaccinations. Result showed that among mothers with covid vaccination majority 108(54%) had poor pregnancy outcome and 92(46%) had good pregnancy outcome. Among mothers without covid 19 vaccinations majority 165(82.5%) had good pregnancy outcome and 35(17.5%) had poor pregnancy outcome.

SECTION III

Table 3 illustrates to compare the pregnancy outcome among mothers with or without covid 19 vaccinations which was tested by using unpaired t test. Findings showed that among mothers with covid vaccination mean score was 20.20±5.27 and among without covid vaccination mean score was 15.69±5.03 with mean difference of 4.51 with obtained value (t=8.751, df =398, p=0.001) was statistically significant. findings revealed that there is significant difference in pregnancy outcome among mothers with or without covid 19

vaccinations.

SECTION – IV

Table 4 depicts the association between covid 19 vaccinations and pregnancy outcome among selected mothers which was tested by using chi-square test. Result revealed that age, covid vaccine 2nd dose and covid vaccine booster dose was found significant association with pregnancy outcome of mothers with vaccination but how many doses, covid vaccine 1st dose, covid infection during pregnancy and covid infection before pregnancy were no significant at $p<0.05$.

Table 5 depicts the association between without covid 19 vaccinations and pregnancy outcome among selected mothers which was tested by using chi-square test. Result revealed that age was found significant association with pregnancy outcome of mothers without vaccination but reason for not vaccination, covid infection during pregnancy and covid infection before pregnancy were no significant at $p<0.05$.

Table 1: Frequency and percentage distribution of the demographic variables (N=400)

S. No	Demographic variables	With Vaccine (n=200)		Without Vaccine (n=200)	
		f	%	f	%
1	Age				
	a. 20-25 years	108	54	98	49
	b. 25-30 years	83	41.5	56	28
	c. > 30 years	9	4.5	46	23
2	Covid vaccine received				
	a. Yes	200	100	0	0
	b. No	0	0	200	100
3	If yes, how many doses				
	a. 1st dose	188	94	0	0
	b. 2nd dose	5	2.5	0	0
	c. 3rd dose	7	3.5	0	0
4	If no, what is the reason				
	You don't know about the vaccination	0	0	73	36.5
	You have doubt regarding the vaccine				
	c. Afraid of getting vaccine	0	0	35	17.5
		0	0	92	46
5	Covid vaccine 1st dose				
	a. Before pregnancy	158	79	0	0
	b. 1st trimester	42	21	0	0
	c. 2nd trimester	0	0	0	0
	d. 3rd trimester	0	0	0	0
6	Covid vaccine 2nd dose				
	a. Before pregnancy	81	40.5	0	0
	b. 1st trimester	95	47.5	0	0
	c. 2nd trimester	24	12	0	0
	d. 3rd trimester	0	0	0	0
7	Covid vaccine booster dose				
	a. Before pregnancy	63	31.5	0	0
	b. 1st trimester	31	15.5	0	0
	c. 2nd trimester	77	38.5	0	0
	d. 3rd trimester	29	14.5	0	0

8	Covid infection during pregnancy				
	a. Yes	21	10.5	19	9.5
	b. No	179	89.5	181	90.5
9	Covid infection before pregnancy				
	a. Yes	21	10.5	31	15.5
	b. No	179	89.5	169	84.5

Table 2: Frequency and percentage distribution of pregnancy outcome among mothers with or without covid 19 vaccinations (N=200)

Pregnancy outcome	With Vaccine (n=200)		Without Vaccine (n=200)	
	F	%	F	%
Poor outcome (> 19)	108	54	35	17.5
Good outcome (< 19)	92	46	165	82.5

Table 3: Compare the pregnancy outcome among mothers with or without covid 19 vaccinations (N=400)

Pregnancy outcome	Mean	SD	Mean D	t value	df	p value
With vaccine	20.20	5.27	4.51	8.751	398	0.006*
With out vaccine	15.69	5.03				

*P<0.05 level of significance; NS-Non significance

Table 4: Association between covid 19 vaccination and pregnancy outcome among selected mothers (N=200)

S. No.	Demographic variables	Pregnancy outcome		χ2 value	df	p value
		Good	Poor			
1	Age					
	a. 20-25 years	42	66	16.64	2	0.001*
	b. 25-30 years	50	33			
	c. > 30 years	0	9			
2	If yes, how many doses					
	a. 1st dose	87	101	5.167	2	0.076^{NS}
	b. 2nd dose	4	1			
	c. 3rd dose	1	6			
3	Covid vaccine 1st dose					
	a. Before pregnancy	76	82	1.337	1	0.248^{NS}
	b. 1st trimester	16	26			
	c. 2nd trimester	--	--			
	d. 3rd trimester	--	--			
4	Covid vaccine 2nd dose					
	a. Before pregnancy	55	26	28.80	2	0.001*
	b. 1st trimester	33	62			
	c. 2nd trimester	4	20			
	d. 3rd trimester	--	--			
5	Covid vaccine booster dose					
	a. Before pregnancy	33	30	13.61	3	0.003*
	b. 1st trimester	19	12			
	c. 2nd trimester	35	42			
	d. 3rd trimester	5	24			
6	Covid infection during pregnancy					
	a. Yes	7	14	1.516	1	0.218^{NS}
	b. No	85	94			
7	Covid infection before pregnancy					
	a. Yes	7	14	1.516	1	0.218^{NS}
	b. No	85	94			

*p<0.05 level of significance; NS-Non significant

Table 5: Association between without covid 19 vaccination and pregnancy outcome among selected mothers (N=200)

S. No	Demographic variables	Pregnancy outcome		χ2 value	df	p value
		Good	Poor			
1	Age a. 20-25 years b. 25-30 years c. > 30 years	 87 47 31	 11 9 15	10.02	2	0.007*
2	If no, what is the reason a. You don't know about the vaccination b. You have doubt regarding the vaccine c. Afraid of getting vaccine	 63 28 74	 10 7 18	1.154	2	0.562^{NS}
3	Covid infection during pregnancy a. Yes b. No	 18 147	 1 34	2.177	1	0.140^{NS}
4	Covid infection before pregnancy a. Yes b. No	 25 140	 6 29	0.087	1	0.767^{NS}

*p<0.05 level of significance; NS-Non significant

RESULTS

In this study we conducted that pregnant women who had received covid 19 vaccine and who had not received covid 19 vaccine. Majority 82.5% had experienced good outcome whereas 17.5% had experienced poor outcome. Result revealed that age, covid vaccine 2nd dose and covid vaccine booster dose was found significant association with pregnancy outcome of mothers without vaccination and with vaccination respectively, whereas covid vaccine 1st dose, covid infection during pregnancy and covid infection before pregnancy were no significant association with vaccine and without vaccine respectively.

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Table 2 depicts the frequency and percentage distribution of pregnancy outcome among mothers with or without covid 19 vaccinations. Result showed that among mothers with covid vaccination majority 108(54%) had poor pregnancy outcome and 92(46%) had good pregnancy outcome. Among mothers without covid 19 vaccinations majority 165(82.5%) had good pregnancy outcome and 35(17.5%) had poor pregnancy outcome.

Table 3 illustrates to compare the pregnancy outcome among mothers with or without covid 19 vaccinations which was tested by using unpaired t test. Findings showed that among mothers with covid vaccination mean score was 20.20±5.27 and among without covid vaccination mean score was 15.69±5.03 with mean difference of 4.51 with obtained value (t=8.751, df=398, p=0.001) was statistically significant. Findings revealed that there is significant difference in pregnancy outcome among mothers with or without covid 19 vaccinations.

Table 4 depicts the association between covid 19 vaccinations and pregnancy outcome among selected mothers which was tested by using chi-square test. Result revealed that age, covid vaccine 2nd dose and covid vaccine booster dose was found significant association with pregnancy outcome of mothers with vaccination but how many doses, covid vaccine 1st dose, covid infection during pregnancy and covid infection before pregnancy were no

significant at p<0.05.

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DISCUSSION

This chapter deals with the discussion, based on the formulated objective of the study. The study was designed to the A cross sectional study on covid 19 vaccination and pregnancy outcome among selected mothers in Vadodara.

- Majority 54% were belongs to 20-25 years of age. 41.5%were belongs to 25-30 years of age and 4.5% were belongs to above 30 years of age.
- Majority of 49% were belongs to 20-25 years of age without vaccination.
- Majority 79% women had before pregnancy and 21%women had received vaccination at 1st trimester in mothers who received covid vaccine 1st dose.
- Majority 38.5% women had received at 2nd trimester, 31.5%women before pregnancy.
- Majority 89.5% had no covid infection during pregnancy and 10.5% had covid infection during pregnancy.
- Majority 90.5% had no covid infection during pregnancy and 9.5% had covid infection during pregnancy Among mothers without vaccination.
- Majority 54% had poor pregnancy outcome and 46% had good pregnancy outcome of vaccinated mothers.
- Majority 82.5% had good pregnancy outcome and 17.5% had poor pregnancy outcome of non vaccinated mothers.

In this study we conducted that pregnant woman who had received covid 19 vaccines and who had not received covid 19 vaccines. Majority 82.5% had experienced good outcome whereas 17.5% had experienced poor outcome. Result revealed that age, covid vaccine 2nd dose and covid vaccine booster dose was found significant association with pregnancy outcome of mothers without vaccination and with vaccination respectively, whereas covid vaccine 1st

dose, covid infection during pregnancy and covid infection before pregnancy were no significant association with vaccine and without vaccine respectively.

CONCLUSION

This study presents the conclusion drawn, implication, limitation and recommendation of the present study, covid 19 vaccinations and pregnancy outcome among selected mothers. The study undertaken to the covid 19 vaccination and pregnant women with non probability convenient sampling technique was used to draw the sample. The size of sample 400 and selection of sample was done according to inclusion criteria. A conceptual framework used for this study is "LudwigVon Bertalanffy`s general system theory. Analysis of obtain data was planned based on the objectives and hypothesis of the study, both descriptive and inferential statistics were used for the analysis of the data. The data is interpreted in the forms of tables and graphs.

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