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"A STUDY TO ASSESS MATERNAL AND NEONATAL OUTCOME AMONG COVID 19 POSITIVE AND NEGATIVE MOTHERS IN SELECTED HOSPITALS OF CITY: A RETROSPECTIVE STUDY"

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Abstract: The novel coronavirus was first detected in Wuhan City, the capital of Hubei Province with a population of 11 million. Pregnant women are particularly vulnerable to infections with potential for adverse pregnancy or perinatal outcomes. Objectives of the studies are, to assess the maternal and neonatal outcome in COVID-19 positive mothers. to assess the maternal and neonatal outcome in COVID-19 negative mothers. To correlate the maternal and neonatal outcome in COVID-19 positive mothers with COVID-19 negative mothers.to find out association between maternal and neonatal outcome in COVID-19 positive mothers with selected demographic variable, to find out association between maternal and neonatal outcome in COVID-19 negative mothers with selected demographic variable. A Quantitative approach. Case Control retrospective research design used to assess the maternal and neonatal outcome among COVID-19 positive and negative mothers in selected hospitals of city. Among 100 samples 50 in each group by using simple random sampling technique by random table method by implementing self-structured questionnaire. Majority of samples 43(86%) were high risk related to COVID-19 infection in COVID-19 positive mothers. majority of samples 37(74%) had poor neonatal outcome in COVID-19 positive mothers. In this study researcher observe that higher rate of caesarean section in COVID19 positive women. Researcher also found that majority 74% of neonate required NICU admission. COVID-19 positive mothers have good maternal outcome but neonate have poor outcome were as in COVID-19 negative mothers there is good maternal and neonatal outcome.

Keywords: - COVID-19, maternal, neonatal, outcome .

I. INTRODUCTION

The novel coronavirus was first detected in Wuhan City, the capital of Hubei Province with a population of 11 million. During the first weeks of January 2019, the COVID-19 virus spread rapidly to other countries including Thailand, Japan, Korea, United states, and Iran. . The first case of COVID-19 in India was reported on 30 January 2020.[1] WHO on February 11, 2020 announced name for the new corona virus disease: COVID 19 and International Committee on Taxonomy of viruses has proposed SARS-CoV-2 as the name of the virus that causes COVID-19. The most common manifestations of COVID-19 consist of fever, cough, and fatigue, or myalgia, sputum production headache and breathlessness.

II. SUBJECTS AND METHODS

Research design is the overall plan for obtaining answers to the question being studied and for handling of the difficulties encountered during the research process. The research design used in this study is case control retrospective research design study was conducted among 100 samples 50 in each group at selected hospital of the city by using simple random sampling technique by random table method by implementing the self-structured questionnaire.

III. RESULTS AND DISCUSSION

The research study finding have been discussed with relevance to the objectives and with other research study findings.

In this research study that maximum number of samples (88%) have good maternal outcome in COVID-19 positive mothers and minimum number of samples (12%) had poor maternal outcome, we are as in COVID-19 negative mothers maximum number of samples (100%) have good maternal outcome.

In this research study that maximum number of samples (74%) have poor neonatal outcome in COVID-19 positive mothers and minimum number of samples (26%) have good neonatal outcome in COVID-19 positive mothers, were as in COVID-19 negative mothers' maximum number of samples (74%) have good neonatal outcome in COVID-19 negative mothers and minimum number of samples (26%) have poor neonatal outcome. The most prevalent symptoms related to COVID-19 were breathlessness (60%) fewer common symptoms include fever, sore throat, myalgia, loss of taste. In this study researcher observe that women with COVID-19 had higher rate of caesarean section than COVID-19 negative women's also higher rate 62% of preterm labor in COVID-19 cases and 2% had maternal death due to COVID-19 infection. Researcher also found that majority 74% of neonate required NICU admission and majority 74% had respiratory distress, 66% required supplemental oxygen therapy, 72% had symptoms, 16% neonate had death. In COVID-19 positive mothers there is good maternal outcome but poor neonatal outcome has found.

SECTION I

Demographic variables of mother's history with positive and negative covid-19 infection.

Table No.1 : Distribution of Demographic variables of mother's with positive and negative covid-19 infection.

N=100

Sr. no	Demographic variable	Category	Frequency (Covid-19 Positive)	Percentage	Frequency (Covid-19 Negative)	Percentage
1	Age	<20 years	4	8	12	24
		21-30 years	23	46	20	40
		31-40 years	13	26	11	22
		>40 years	10	20	7	14
2	Religion	Hindu	20	40	25	50
		Muslim	22	44	16	32
		Christian	8	16	9	18
		Any other	0	0	0	0
3	Occupation	Housewife	27	54	26	52

		Farmer	11	22	12	24
		Govt. sector	9	18	7	14
		Private sector	3	6	5	10
4	Mode of delivery	Normal vaginal delivery	13	26	29	58
		Cesarean section(LSCS)	33	66	16	32
		Vacuum delivery	3	6	2	4
		Forceps delivery	1	2	3	6
5	Covid-19 status	RTPCR positive	50	100	0	0
		RTPCR negative	0	0	50	100
6	Parity	Primigravida	22	44	23	46
		Multigravida	28	56	27	54
7	Gestational age	<20 weeks	0	0	0	0
		21-30 weeks	15	30	11	22
		30-40 weeks	35	70	32	64
		>40 weeks	0	0	7	14

8	Previous bad history	Abortion	8	16	13	26
		IUD's	5	10	3	6
		Still birth	3	6	3	6
		Death of new-born	7	14	4	8
		Ectopic pregnancy	3	6	0	0
		None	24	48	27	54
9	How many days back she had covid-19 infection	<3 months	0	0	0	0
		3-4 months	14	28	0	0
		6-12 months	15	30	0	0
		>1 year	21	42	0	0
		None	0	0	50	100
10	Source of health care	Govt. hospital	11	22	21	42
		Covid-19 care centre (CCC)	0	0	0	0
		Private hospital	19	38	29	58
		Dedicated care hospital (DCH)	20	40	0	0

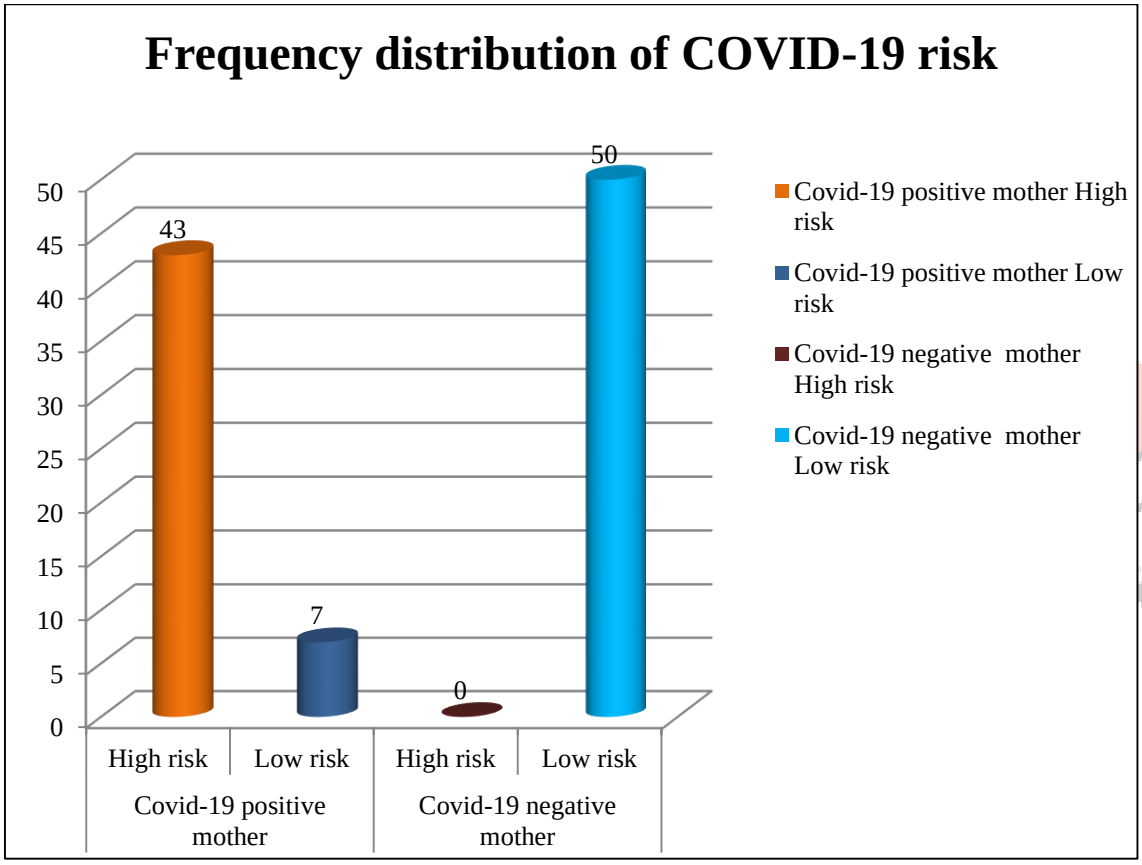
SECTION II

a) Assessment of covid-19 risk among covid-19 positive and negative mothers.

Table No. 2: Distribution of level of risk related to covid-19 infection among covid-19 positive and negative mother

N=100

Sr. No	Particular	Score	Level	Frequency	Percentage
1.	Covid-19 positive mother	0-4	High risk	43	86
		5-8	Low risk	7	14
2.	Covid-19 negative mother	0-4	High risk	0	0
		5-8	Low risk	50	100



Bar Graph No.1 : Frequency distribution of COVID-19 risk among COVID-19 positive and negative outcomes.

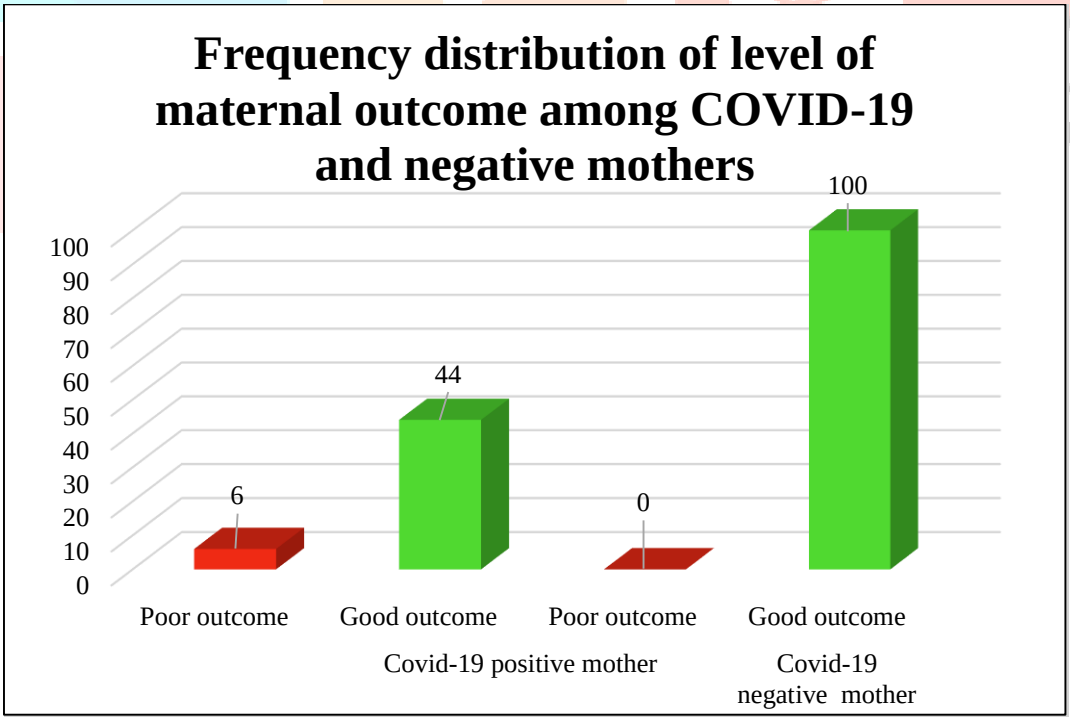
The table no 2 and fig no 1 shows that, in covid-19 positive mothers, majority of the sample 43(86%) were high risk related to covid-19 infection and 7(14%)were low risk, were as in covid-19 negative mother, it was observed that there were all the samples were at low risk related to covid-19 infection.

a) Assessment of maternal outcome in COVID-19 positive and negative mothers.

Table No.3 Frequency and percentage distribution of maternal outcome among covid-19 positive and negative mother

N=100

Sr. No	Particular	Score	Level of outcome	Frequency	Percentage	Mean	SD
1.	Maternal outcome among Covid-19 positive mother	0-14	Poor outcome	6	12	17.8	3.36
		15-28	Good outcome	44	88		
2.	Maternal outcome among Covid-19 negative mother	0-14	Poor outcome	0	0	22.06	2.71
		15-28	Good outcome	100	100		



Bar Graph No2: Frequency distribution of level of maternal outcome among covid-19 positive and negative mother

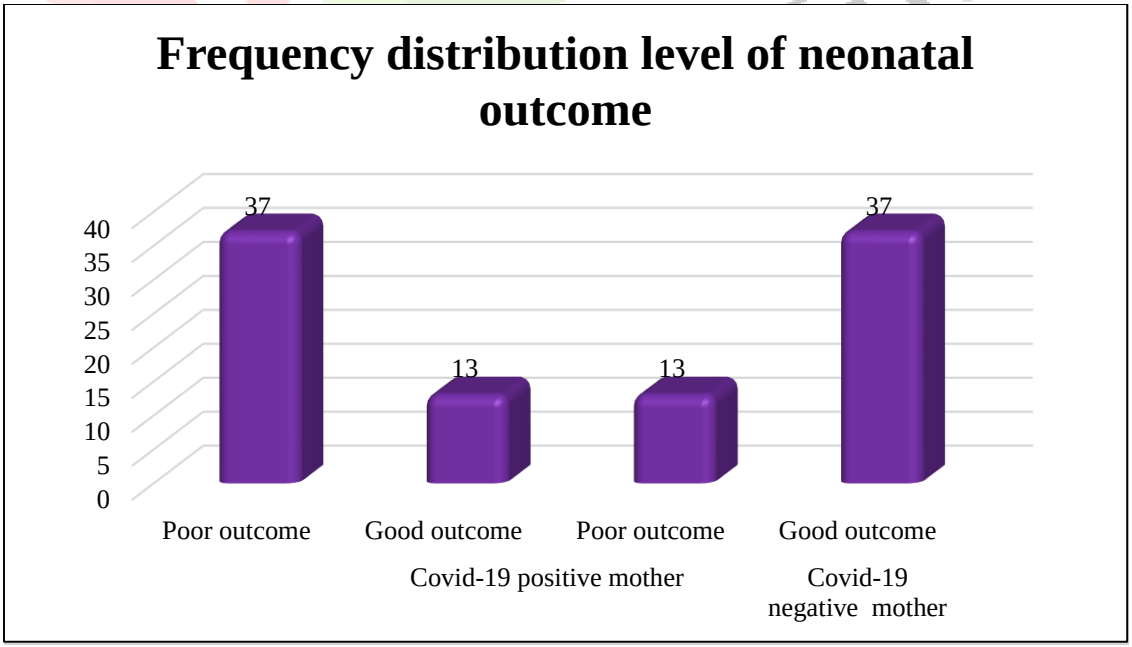
Table no 3 and figure no 2 depicts that in covid-19 positive mothers, majority of the sample 44(88%) had good maternal outcome and 6(12%) had poor maternal outcome with mean score 17.8 and SD 3.36 were as in coivd-19 negative mother all samples had good maternal outcome and none of them had poor maternal outcome with mean score 22.06 and SD was 2.71.

b) Assessment of neonatal outcome in COVID-19 positive and negative mothers.

Table no 4 Frequency and percentage distribution of neonatal outcome among covid-19 positive and negative mother.

N=100

Sr. No	Particular	Score	Level of outcome	Frequency	Percentage	Mean	SD
1.	Neonatal outcome among Covid-19 positive mother	0-7	Poor outcome	37	74	5.52	3.77
		8-14	Good outcome	13	26		
2.	Neonatal outcome among Covid-19 negative mother	0-7	Poor outcome	13	26	11.04	3.76
		8-14	Good outcome	37	74		



Bar Graph No 3: Frequency distribution of level of neonatal outcome among covid-19 positive and negative mother

Table no 4 and figure 3 depicts that in covid-19 positive mothers, majority of the sample 37(74%) had poor neonatal outcome and 13(26%) had good neonatal outcome with mean s core 5.52 and SD 3.77 were as in coivd-19 negative mother majority of the sample 37(74%) had good neonatal outcome and 13(26%) had poor neonatal outcome with mean score was 11.04 and SD was 3.76.

SECTION III:

a) Correlation between the maternal and neonatal outcome in COVID-19 positive mothers.

Table no 5: Comparison between maternal and neonatal outcome among covid-19 positive mothers.

N=100

Sr No	**Particular**	**Mean**	**SD**	**Karl Pearson's correlation coefficient value r**	**P value**
1	Maternal outcome among Covid-19 positive mother	17.8	3.36	r= 0.365	p=0.008*
2	Neonatal outcome among Covid-19 positive mother	5.52	3.77		

Table no 5 shows that in maternal outcome among covid-19 positive mother mean score was 17.8 with 3.36 SD were as in neonatal outcome mean score in covid-19 positive mother was 5.52 with 3.77 SD, the calculated r value was 0.365. The correlation between these two variables was found positive correlation and has statistically significant at 0.05 level.

b) Correlation between maternal and neonatal outcome among covid-19 negative mother .

Table no.6: Correlation between maternal and neonatal outcome among covid-19 negative mother

N=100

Sr No	**Particular**	**Mean**	**SD**	**Karl Pearson's correlation coefficient value r**	**P value**
1.	Maternal outcome among Covid-19 negative mother	22.06	2.71	r= 0.517	p=0.0001*
	Neonatal outcome among Covid-19 negative mother	11.04	3.76		

Table no 6 shows that in maternal outcome among covid-19 negative mother mean score was 22.06 with 2.71 SD were as in neonatal outcome mean score in covid-19 negative mother was 11.04 with 3.76 SD,

the calculated r value was 0.517. The correlation between these two variables was found positive correlation and has statistically significant at 0.05 level.

c) Correlation between maternal outcome among COVID-19 positive and negative mothers.

Table no. 7: Correlation between maternal outcome among COVID-19 positive and negative mothers.

N= 100

Sr No	Particular	Mean	SD	Karl Pearson's correlation coefficient value r	P value
1	Maternal outcome among Covid-19 positive mother	17.8	3.36	r= 0.157	p=0.27 NS
	Maternal outcome among Covid-19 negative mother	22.06	2.71		

Table no. 7 shows that maternal outcome in COVID-19 positive mother mean score was 17.8 with 3.36 SD were as in maternal outcome in COVID-19 negative mothers mean score was 22.06 with SD 2.71 the calculated r value was r= 0.157. The correlation between these two variables was found positive correlation.

d) Correlation between neonatal outcome among COVID-19 positive and negative mothers.

Table no. 8: Correlation between neonatal outcome among COVID-19 positive and negative mothers.

N=100

Sr. No.	Particular	Mean	SD	Karl Pearson's correlation coefficient value r	P value
1	Neonatal outcome among Covid-19 positive mother	5.52	3.77	r= 0.19	p=0.18
	Neonatal outcome among Covid-19 negative mother	11.04	3.76		

Table no. 8 shows that neonatal outcome in COVID-19 positive mothers mean score was 5.52 with SD 3.77 were as in neonatal outcome in negative mothers mean score was 11.04 with SD 3.76, the calculated r value was 0.19. The correlation between these two variables was found positive correlation.

e) Correlation between COVID-19 form and maternal outcome among COVID-19 positive mothers.

Table no. 9: Correlation between COVID-19 form and maternal outcome among COVID-19 positive mothers.

N=100

Sr No	Particular	Mean	SD	Karl Pearson's correlation coefficient value r	P value
1	Covid-19form among positive mother	2.24	2.01	r= 0.221	p=0.123
2	Maternal outcome among Covid-19 positive mother	17.8	3.36		

Table no 9 show that in COVID-19 form mean score was 2.24 with SD 2.01 and maternal outcome among COVID-19 positive mothers mean score was 17.8 with SD 3.36, the calculated r value was 0.123. The correlation between these two variables was found negative correlation.

f) Correlation between COVID-19 form and neonatal outcome among COVID-19 positive mothers.

N=100

Sr No	Particular	Mean	SD	Karl Pearson's correlation coefficient value r	P value
1.	COVID-19 form among positive mother	2.280	1.99	r= 0.516	p=0.000*
	Neonatal outcome among Covid-19 positive mother	5.52	3.77		

Table no 10 show that in COVID-19 form mean score was 2.280 with SD 1.99 and neonatal outcome among COVID-19 positive mothers mean score was 5.52with SD 3.37, the calculated r value was 0.516. The correlation between these two variables was found positive correlation.

SECTION IV:

a) To find association between maternal outcome in COVID-19 positive mothers with selected demographic variable.

Table no 11: Association between level of maternal outcome of covid-19 positive mothers with selected demographic variables.

N=100

Sr. NO	Demographic Variables	Level of Maternal outcome		DF	Chi square Value	P Value	Significance
		Poor	Good				
1	**Age in years**						
	<20 years	0	4	3	1.445	0.695	Not significant
	21-30 years	4	19				
	31-40 years	1	12				
	>40 years	1	9				
2	**Religion**						
	Hindu	2	18	2	1.963	0.375	Not significant
	Muslim	4	18				
	Christian	0	8				
	Any other	0	0				
3	**Occupation**						
	Housewife	2	25	3	2.237	0.525	Not significant
	Farmer	2	9				
	Govt. sector	2	7				
	Private sector	0	3				
4	**Mode of delivery**						
	Normal vaginal delivery	3	10	3	2.32	0.509	Not significant
	Cesarean section(LSCS)	3	30				
	Vaccume delivery	0	3				
	Forceps delivery	0	1				
5	**Covid-19 status**						
	RTPCR positive	6	44	1	6.383	0.01	Significant
	RTPCR negative	0	50				
6	**Parity**						
	Primigravida	3	19	1	0.1	0.752	Not
	Multigravida	3	25				Significant
7	**Gestational age**						
	<20 weeks	0	0	2	1.068	0.586	Not significant
	21-30 weeks	4	27				
	30-40 weeks	1	14				
	>40 weeks	1	3				
8	**Previous bad history**						
	Abortion	2	6	5	4.624	0.463	Not significant
	IUD's	0	5				
	Still birth	0	3				
	Death of newborn	0	7				
	Ectopic pregnancy	1	2				
	None	3	21				

9	**How many days back she had covid-19 infection**						
	<3 months	0	0	2	0.216	0.897	Not significant
	3-4 months	2	12				
	6-12 months	2	13				
	>1 year	2	19				
	None	0	0				
10	**Source of health care**						
	Govt. hospital	2	9	2	4.6	0.100	Not significant
	Covid-19 care center (CCC)	0	0				
	Private hospital	4	15				
	Dedicated care hospital (DCH)	0	20				

b) To find association between neonatal outcome in COVID-19 positive mothers with selected demographic variable.

Table no 12: Association between level of neonatal outcome of covid-19 positive mothers with selected demographic variables.

N=100

Sr. NO	Demographic Variables	Level of Neonatal outcome		df	Chi square Value	P Value	Significance
		Poor	Good				
1	**Age in years**						
	<20 years	2	2	3	3.794	0.285	Not significant
	21-30 years	18	5				
	31-40 years	8	5				
	>40 years	9	1				
2	**Religion**						
	Hindu	15	5	2	0.033	0.984	Not significant
	Muslim	16	6				
	Christian	6	2				
	Any other	0	0				
3	**Occupation**						
	Housewife	20	7	3	1.315	0.726	Not significant
	Farmer	8	3				
	Govt. sector	6	3				
	Private sector	3	0				
4	**Mode of delivery**						
	Normal vaginal delivery	11	2	3	6.239	0.101	Not significant
	Cesarean section(LSCS)	25	8				
	Vaccume delivery	1	2				
	Forceps delivery	0	1				
5	**Covid-19 status**						
	RTPCR positive	37	13	1	23.04	0.000	Significance
	RTPCR negative	13	37				
6	**Parity**						

	Primigravida	14	8	1	2.193	0.139	Not
	Multigravida	23	5				significant
7	**Gestational age**						
	<20 weeks	0	0	2	5.447	0.060	Not significant
	21-30 weeks	25	6				
	30-40 weeks	8	7				
	>40 weeks	4	0				
8	**Previous bad history**						
	Abortion	8	0	5	7.102	0.213	Not significant
	IUD's	3	2				
	Still birth	3	0				
	Death of newborn	5	2				
	Ectopic pregnancy	3	0				
	None	15	9				
9	**How many days back she had covid-19 infection**						
	<3 months	0	0	2	5.351	0.069	Not significant
	3-4 months	12	2				
	6-12 months	13	2				
	>1 year	12	9				
	None	0	0				
10	**Source of health care**						
	Govt. hospital	8	3	2	0.021	0.990	Not significant
	Covid-19 care center (CCC)	0	0				
	Private hospital	14	5				
	Dedicated care hospital (DCH)	15	5				

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