

The Effect of COVID-19 on Maternal and Neonatal Outcomes in a Large Tertiary Health System in Saudi Arabia

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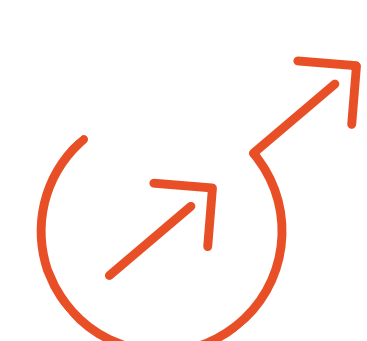
Background

There is a scarcity of data comparing the rates of maternal and neonatal outcomes in pregnant women with and without COVID-19 infection.



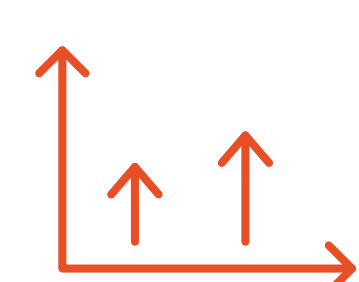
Objectives

To assess the effect of COVID-19 on maternal outcomes (stillbirths and miscarriage) and neonatal outcomes (low birth weight <2500 gm Apgar-1 minute score < 7, and Apgar-5 minute score < 7).



Methods

This is a multicenter retrospective cohort study that included pregnant women who were followed and delivered at three National Guard health System hospitals between March 2020 and October 2021. A laboratory test confirmed the diagnosis of COVID-19 during pregnancy. Multivariable Logistic regression was conducted to assess the risks of maternal and neonatal outcomes.



Results

The study included 644 pregnant women with a confirmed COVID-19 infection and 654 pregnant women with no COVID-19 infection. There was no statistically significant difference in the risk of stillbirth (adjusted odds ratio, aOR1.93, 95% CI 0.55, 8.12) or miscarriage (aOR 0.52, 95% CI 0.23, 1.10) between COVID-19 infected pregnant women and non-infected pregnant women. COVID-19 infection, on the other hand, was associated with increased odds of low birth weight (aOR 1.5, 95%CI 1.06, 2.14), Apgar score-1 minute <7 (aOR 2.14, 95%CI 1.53, 3.03), and Apgar score-5 Minutes <7 (aOR 2.8, 95%CI 1.91, 4.17).

	Pregnant with COVID (644)	Pregnant without COVID (654)	P-Values
Age (N,%)			0.077
12-24	75 (11.6)	84 (12.8)	
25-39	379 (58.9)	403 (61.6)	
40-55	117 (18.2)	120 (18.3)	
Missing	73 (11.3)	47 (7.2)	
BMI (Mean,SD)	30.90 (5.79)	30.82 (6.27)	0.809
Gravity (N, %)			0.075
0	13 (2.0)	3 (0.5)	
1-3	294 (45.7)	313 (47.9)	
4-6	227 (35.2)	223 (34.1)	
≥7	110 (17.1)	115 (17.6)	
Parity (N, %)			0.086
0	87 (13.5)	119 (18.2)	
1-3	368 (57.1)	337 (51.5)	
4-6	157 (24.4)	167 (25.5)	
≥7	32 (5.0)	31 (4.7)	
Smoking History (N, %)	0 (0.0)	6 (0.9)	0.043
Respiratory Diseases (N, %)	23 (3.6)	20 (3.1)	0.718
Cardiovascular Disease (N, %)	12 (1.9)	14 (2.1)	0.874
Mental Disorders (N, %)	7 (1.1)	7 (1.1)	1.000
Rheumatoid Arthritis (N, %)	2 (0.3)	1 (0.2)	0.989
Cancer History (N, %)	3 (0.5)	1 (0.2)	0.606
Obesity (N, %)	340 (52.8)	317 (48.5)	0.133
Diabetes (N, %)	50 (7.8)	24 (3.7)	0.002
Pregnancy hypertension (N, %)	3 (0.3)	13 (2%)	0.026
Previous Fetal Growth Restriction (Yes) (N,%)	9 (1.4)	10 (1.5)	1.000
Previous Abortion (N, %)	163 (25.5)	199 (30.4)	0.059
Previous Malformation (N, %)	2 (0.3)	8 (1.2)	0.125
Previous Stillbirth (N, %)	9 (1.4)	7 (1.1)	0.751



Conclusion

Infants born to pregnant women with COVID-19 infection were more likely to have low birth weight and low Apgar scores than those born to uninfected mothers.