

Original Article

Demographic and Clinical Profile of COVID-19 Positive Pregnant Women — Study in a Tertiary Care Hospital in Bangladesh

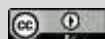
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**ABSTRACT**

Introduction: Since the declaration of COVID-19 as a global pandemic, several studies have been conducted to examine associated factors. Limited studies have focused on pregnant women infected with COVID-19 in Bangladesh. Pregnant women may be susceptible to coronavirus infection because of physiological changes in the circulatory and immunological parameters. **Aim of the study:** This study aimed to evaluate the demographic and clinical profile of Covid-19 positive pregnant women.

Methods and materials: This was a cross-sectional study that was conducted in the department of Obstetrics & Gynaecology, Mugda Medical College, Dhaka, Bangladesh from 26 March 2021 to 21 July 2022. A total of 94 pregnant women diagnosed as COVID-19 patients by RT-PCR tests were enrolled in this study as the study subjects. A convenient purposive sampling technic was used in sample selection. All data were processed, analyzed and disseminated by using MS Excel and SPSS

version 23.0 program as the necessity. **Results:** In the study, 23% had comorbidities like HTN, DM, CKD, asthma, or CVD. One-third were in their 2nd pregnancy, 30% in their 3rd pregnancy, and 45% were nulliparous. COVID-19 symptoms included fever (96%) and cough (91%). Abnormal levels of hemoglobin (13%), FBS (40%), WBC (45%), neutrophil count (94%), lymphocyte count (89%), and platelet count (9%) were observed. **Conclusion:** COVID-19 infection rates appear higher among pregnant women in their 2nd and 3rd pregnancies. The most common symptoms for pregnant COVID-19 cases are fever and cough, while lower abdominal pain is a prevalent pregnancy symptom in these patients.

Keywords: Demographic, Clinical, Covid-19, Pregnant, Obstetrics, Fever, Pain

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INTRODUCTION

The novel coronavirus was identified in China, in December 2019, causing numerous pneumonia cases. Worldwide, there was rapid spread and the number of patients has increased. The World Health Organization (WHO) designated the disease as coronavirus disease 2019 (COVID-19) in February 2020^[1]. Among the susceptible group of the population, the pregnant mother is vulnerable to coronavirus infection because of physiological alterations in the circulatory as well as the immunological parameters^[2]. During the pregnancy period, physiological changes occur like a decrease in the residual functional capacity of the lung, the height of the diaphragm as well as the changes in cellular immunity that may lead to increased vulnerability to viral infections and more severe phenomena in pregnant women^[3]. Ellington et al. found that approximately one-third of pregnant females were hospitalized compared (5.8%) to non-pregnant women^[4]. Similarly, Badr et al. found a higher risk of complications as well as decompensation in the later trimesters of pregnancy^[5]. Yu et al. reported that women receiving obstetrical care were asymptomatic; however, they developed symptoms within 2 to 3 days of their postpartum. The majority of the infections in their study were mild^[6]. Apart from postpartum transmission, multiple routes of transmission, including trans-placental and immediate peripartum period through amniotic fluid, fetoplacental bleeding and breast milk have been postulated. On the other hand, there is a lack of documentation for vertical transmission during pregnancy^[7]. Referring to the CDC (Centers for Disease Control and Prevention), there is a paucity of data about the effects of the COVID-19 virus on pregnancy as well as neonatal outcomes^[8]. Therefore, for the period of the COVID-19 pandemic, it's very essential to acquire proper knowledge of potential complications during

pregnancy, pregnancy outcomes, the severity of symptoms and the neonate's health conditions born to an infected mother and the possibilities of vertical transmission. The objective of this current study was to evaluate the demographic and clinical profile of COVID-19-positive pregnant women.

METHODS & MATERIALS

This was a cross-sectional study that was conducted in the department of Obstetrics & Gynaecology, Mugda Medical College, Dhaka, Bangladesh from 26 March 2021 to 21 July 2022. A total of 94 pregnant women diagnosed as COVID-19 patients by RT-PCR tests were enrolled in this study as the study subjects. Properly written consent was taken from all the participants before data collection. In sample selection, a convenient purposive sampling technic was used. The whole intervention was conducted following the principles of human research specified in the Helsinki Declaration and executed in compliance with currently applicable regulations and the provisions of the General Data Protection Regulation (GDPR)^[9, 10]. As per the inclusion criteria of this study, only RT-PCR-confirmed pregnant women with COVID-19 infection were enrolled in this study as the study subjects. On the other hand, according to the exclusion criteria of this study, patients without pregnancy were excluded. All the demographic and clinical information of the participants was recorded. All data were processed, analyzed and disseminated by using MS Excel program.

RESULTS

In this study, the highest number of participants (47%) were from the 21–30 years age group and in the majority of cases (51%), BMI was 18.5–24.9 Kg/m². As per the distribution of comorbidities of the participants, we found that 11% of participants were with hypertension (HTN), 6% were with diabetes mellitus (DM), 3% were with CKD, 2% were with

asthma and 1% were with cardiovascular diseases (CVD). In analyzing the mode of delivery of the participants we observed that in about half of the participants (45%) vaginal delivery, in 15% of cases assisted vaginal delivery and in 40% of cases LUCS was performed. In this current study, we observed that one-third of the patients (34%) were with 2nd gravida, 30% were with 3rd gravida 19% were with primigravida, 11% were with 4th gravida and 6% were with multi gravida. Among the total participants, about half of the patients (45%) were nulliparous, 32% were primiparous, and 23% were multiparous. In our study, we found that 96% of patients were with fever, 91% patients were with cough, 13% were with breathlessness, 9% were with sore throat, 4% were with fatigue and 4% were with diarrhea as the COVID symptoms. The abnormal levels of hemoglobin, FBS, WBC, neutrophil count, lymphocyte count and platelet count were present in 13% 40% 45% 94% 89% and 9% respectively. About one-fourth of our participants (23%) were with lower abdominal pain as a pregnancy symptom which was noticeable.

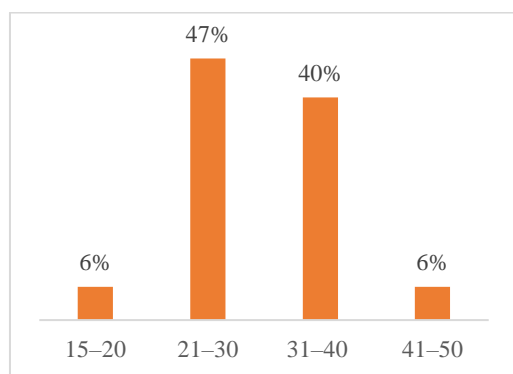


Figure 1: Age distribution of participants (N=94)

Table I: BMI distribution

BMI (Kg/m ²)	n	%
>18.5	2	2%
18.5-24.9	48	51%
25-29.9	32	34%
≥30	12	13%

Table II: Distribution of comorbidities

Comorbidities	n	%
HTN	10	11%
DM	7	6%
CKD	3	3%
Asthma	2	2%
CVD	1	1%

Table III: Distribution gravida type

Gravida	n	%
Primigravida	18	19%
2nd gravida	32	34%
3rd gravida	28	30%
4rth gravida	10	11%
Multi gravida	6	6%

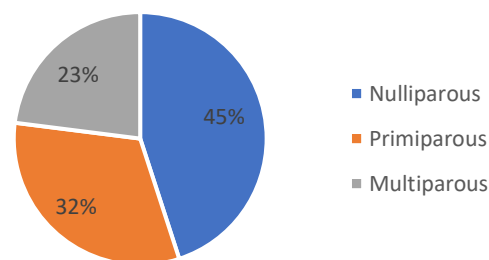


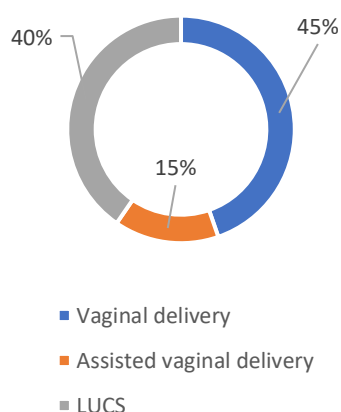
Figure 2: Distribution of parity

Table IV: Distribution of Covid-19 symptoms

Symptoms	n	%
Fever	90	96%
Cough	86	91%
Breathlessness	12	13%
Sore throat	8	9%
Fatigue	4	4%
Diarrhea	4	4%

Table V: Laboratory findings

Variable	n	%
Hemoglobin		
Normal	82	87%
Abnormal	12	13%
FBS		
Normal	56	60%
Abnormal	38	40%
WBC		
Normal	52	55%
Abnormal	42	45%
Neutrophil count		
Normal	6	6%
Abnormal	88	94%
Lymphocyte count		
Normal	10	11%
Abnormal	84	89%
Platelet count		
Normal	85	89%
Abnormal	9	9%

**Figure 3: Mode of delivery****Table VI: Pregnancy symptoms**

Symptoms	n	%
Lower abdominal pain	22	23%
PROM	10	11%
Less foetal movement	4	4%
Antepartum hemorrhage	8	9%

DISCUSSION

This study aimed to evaluate the demographic and clinical profile of Covid-19 positive pregnant women. In our study, we observed that the highest number of participants (47%) were from 21–30 years, 40% were from 31–40 years, 6% were from 31–40 years and 41–50 years age group. In a study, the mean age was approximately 33.8 years in all groups [11]. In the majority (51%) of our participants, the BMI was 18.5–24.9 and in one-third (34%) of the participants it was 25–29.9. We found that 96% of patients were with fever, 91% patients were with cough, 13% were with breathlessness, 9% were with sore throat, 4% were with fatigue and 4% were with diarrhea as the COVID symptoms. The most common clinical symptoms of COVID-19 cases were fever at 91%, cough at 67%, fatigue at 51%, and dyspnea at 30% [12]. Fever in 68% and cough in 34% were also reported in another study [13]. As per the distribution of comorbidities of the participants, we found that 11% of participants were with HTN, 6% were with DM, 3% were with CKD, 2% were with asthma and 1% were with CVD. In analyzing the mode of delivery, we found that about half of the participants (45%) had a vaginal delivery, in 15% of cases, assisted vaginal delivery and in 40% of cases LUCS was performed. In a study, it was reported that the mode as well as the timing of delivery should be individualized based on the severity of the disease condition, existing comorbidities status and obstetric indications and the babies of most of the pregnant women with COVID-19 infection have been reported to be delivered by cesarean section [14]. In this current study, we observed that one-third of the patients (34%) were with 2nd gravida, 30% were with 3rd gravida 19% were with primigravida, and 11% 4th gravida and 6% were with multi gravida. Lam et al. suggested that pregnant mothers with SARS had a higher rate of maternal mortality, intubation and ICU services

than nonpregnant women with SARS, but that transmission of the virus to the infant did not occur [15]. A recent study reported no increases in the risks of spontaneous abortion as well as spontaneous preterm birth in pregnant women with COVID-19 infection [16]. Among the total of our participants, about half of the patients (45%) were nulliparous, 32% were primiparous, and 23% were multiparous. In analyzing the pregnancy symptoms among the study participants, we found that about one-fourth of our participants (23%) were with Lower abdominal pain. Besides, 11% 4% and 9% were with PROM less foetal movement and antepartum hemorrhage respectively. All the findings of this current study may be helpful in further similar studies.

Limitation of the study

This was a single-centered study with small-sized samples. Moreover, the study was conducted over a very short period. So, the findings of this study may not reflect the exact scenario of the whole country.

CONCLUSION & RECOMMENDATION

As per the findings of this current study, we can conclude that the frequencies of COVID-19 infection among pregnant with 2nd and 3rd gravida may be higher than that in other gravidity statuses. Fever and cough are the two most common COVID-19 symptoms for pregnant COVID-19 cases and lower abdominal pain is a very common pregnancy symptom for such patients. For getting more specific results, we would like to recommend conducting similar studies in several places with larger-sized samples.

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Conflict of interest: None declared.

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