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# CORONA PANDEMIC IMPACT OF NUTRITIONAL STATUS AND BIRTH OUTCOME OF PREGNANT WOMEN OF BANGLADESH

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## ABSTRACT

**Objective:** In this study our main goal is to evaluate the impact of covid-19 and pandemic situation on nutritional status and birth outcome of pregnant women life in Bangladesh. **Method:** This cross sectional study was conducted at tertiary medical college and hospital from June 2020 to august 2021 where 150 postpartum women after delivery of baby were included as a sample population. A detailed clinical history and examination finding was collected from 8 to 40 weeks gestational period by studying medical documents and history using a standardized proforma, where all patients provided with a telemedicine system. In addition, after giving birth, delivery outcome was also noted. **Results:** According to the study, majority of the patients belong to 27-31 years age group and 60% belong to multigravida. Majority of pregnant women visit ANC less than 4 times, 75%. Besides that, 35% cases belong to acceptable level where as 37% were belong to Underweight and 28% cases had overweight BMI status. In addition, 55% cases were suffered from moderate iron deficiency, 11% had folate deficiency, 25% had vit-D deficiency, 11% Vit-B12 had deficiency and 60% suffered from anemia in early pregnancy. 35% pregnant women took folic acids and 20% took calcium supplements. Also,45% had low dietary diversity. However, there is no complication has been noted besides that, however 65% cases delivered normally and preterm birth seen in 11% cases. **Conclusion:** From our study we can say that due to pandemic situation and low number ANC visit also review responsible malnutrition (micronutrient deficiencies) of pregnant women which ultimately causes preterm birth cases. Establishing local hospital guidelines can help regulate safe services provided to pregnant women and their new-born during this COVID-19 era.

**KEYWORDS:** Covid-19 pandemic, pregnant women, malnutrition.

## INTRODUCTION

Since the appearance of the virus causing corona virus disease 2019 (COVID 19), in Wuhan, China in December 2019, it has quickly spread globally and has been declared a pandemic by the World Health Organization (WHO) in March 2020.[1-2] The number of infected individuals is continuing to rise and as of 13th November 2020, approximately 53 million individuals have been infected, with a mortality rate of about2.44%.[3]

Pregnant women have a disproportionately higher risk of complications from other types of viral pneumonia; however, little is known about the full impact of COVID19 in pregnancy. However, due to pandemic situation ANC visit cases less likely drop in hospitals specially developing countries like Bangladesh. And due to lack of care other pregnancy complication and malnutritional status were reported.

Even though there is no significant change in the maternal mortality ratio and neonatal mortality rate, an analysis of data in the Directorate General of Health Services (DGHS) dashboard shows that since the beginning of the COVID-19 crisis, there is a significant reduction in the uptake of maternal and new born health services at the health facilities.[4-6]

In this study our main goal is to evaluate the impact of covid-19 on nutritional status and birth outcome of pregnant women life.

## OBJECTIVE

To assess the impact of covid-19 on nutritional status and birth outcome of pregnant women life.

## METHODOLOGY

This cross-sectional study was conducted at tertiary medical college and hospital from June 2020 to august 2021 where 150 postpartum women were included as a sample population. A detailed clinical history and examination findings was collected by studying all medical documents, prescription and investigation reports using a standardized proforma, where all patients provided with a telemedicine system. In addition, after giving birth, delivery outcome was also noted.

All collected data were coding and input in SPSS-25 for further analysis. Both descriptive and inferential statistics done. Descriptive statistics included frequency distribution, percent, mean, standard deviation; graph, tables, figures and inferential statistics.

## RESULTS

In table-1 shows age distribution of the study group where majority of the patients belong to 27-31 years age group, 49% whereas 21-26 group lower cases were observed. The following table is given below in detail.

**Table 1: Age distribution of the patients**

| Age group | % |
|---|---|
| 21-26 years | 16% |
| 27-31 years | 49% |
| 32-36 years | 35% |

In table-2 shows demographic status of the patients where 28.3% just completed their graduation where as 55% were housewife. The following table is given below in detail.

**Table 2: Demographic status of the patients.**

| Educational status | % |
|---|---|
| Primary | 12.5% |
| Secondary | 21.7% |
| SSC | 25% |
| HSC | 12.5% |
| Graduate | 28.3% |
| **Occupation** | |
| Housewife | 55% |
| Teacher | 25% |
| Service holder | 20% |

In figure-1 shows parity distribution of study group where majority were belonging to multigravida, 60%. The following figure is given below in detail.

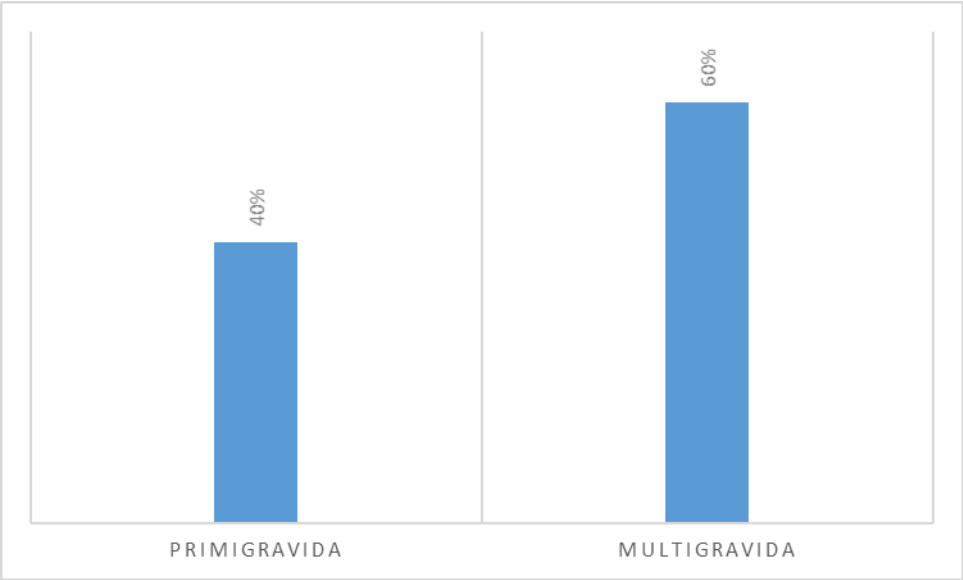


**Figure 1: Parity distribution.**

In table-3 shows ANC visits of the study group during pregnancy where majority of pregnant women visit ANC less than 4 times, 75%. The following table is given below in detail.

**Table-3: ANC visits of the study group during pregnancy.**

| Number of ANC visits | % |
|---|---|
| ANC visit >4 times | 25% |
| ANC visits <4 times | 75% |

In table-4 shows nutritional status of the study group during pregnancy where 35% cases belong to normal BMI level where as 37% were belong to underweight and 28% belong overweight level. In addition, 55% cases were suffered from moderate iron deficiency, 11% had folate deficiency, 25% had vit-D deficiency, 11% Vit-B12 had deficiency and 60% suffered from anemia in early pregnancy. 35% pregnant women took folic acids and 20% took calcium supplements. 45% had low dietary diversity. The following table is given below in detail:

**Table 4: Nutritional status of the study group during pregnancy.**

| BMI status | % |
|---|---|
| Normal | 35% |
| Underweight | 37% |
| Overweight | 28% |
| Obese | 0% |
| Dietary Diversity | |
| Low | 45% |
| Good | 55% |
| Food groups | |
| Cereals, white root and tubers, and plantains | 38% |
| Pulses/legumes | 21% |

| | |
|---|---|
| Nuts and seeds | 10% |
| Meat, fish and poultry (chicken) | 23% |
| Dairy and products | 16% |
| Eggs | 20% |
| Dark green leafy vegetables | 15% |
| Other Vitamin A fruits and vegetables | 9% |
| Iron status | % |
| Iron sufficiency | 25% |
| Moderate deficiency | 55% |
| Severe deficiency | 20% |
| Anemia in early pregnancy | % |
| Yes | 60% |
| No | 40% |
| Folate deficiency | 11% |
| Vit-D deficiency | 25% |
| Vit-B12 deficiency | 11% |
| Folic acid supplements in early pregnancy | 35% |
| Calcium supplements in early pregnancy | 20% |

In table-5 shows new born and pregnancy outcome status where there is no complication has been noted besides that, however 65% cases delivered normally and preterm birth seen in 11% cases. The following table is given below in detail.

**Table 5: New born and GMD patients' status after treatment.**

| Delivery status | % |
|---|---|
| Normal delivery | 65% |
| Cesarean delivery | 35% |
| Preterm birth | 11% |
| Mean birth weight of baby, g | 3033 ± 431 |

## DISCUSSION

In our study, we assessed the level of micronutrient status in early pregnancy (gestational age 10.1 ± 2.2 week), therefore the chances of confounding effect of hemodilution which is common in late pregnancy was unlikely. Our data showed a high prevalence of vitamin D deficiency, 25% and insufficiency in pregnant women in early pregnancy. Studies in Pakistan with identical definition for vitamin D deficiency with similar inclusion criteria had shown similar results.[7-8]

Similar findings were also observed in other studies conducted in other study.[9]

Regarding iron and folate deficiency, our findings are consistent with other previous study in Bangladesh, where in study 55% cases were suffered from moderate iron deficiency, 11% had folate deficiency whereas lower levels of folate deficiency (0.2%) was also observed in Pune, India study. Further, it was reported that higher maternal folate concentrations predict greater adiposity and higher insulin resistance in neonates. Furthermore, universal distribution of folate and iron to all pregnant mothers in Bangladesh may have reduced folate deficiency.[10] Besides that, 35% pregnant women took folic acids and 20% took calcium supplements also 45% had low dietary diversity. Which was supported by other studies.[10-12]

Increasing evidence suggest that vitamin B12 deficiency is highly prevalent in women of reproductive age, particularly amongst populations with limited intake of animal source foods.[11-12]

Evidence also suggests that vitamin B12 concentration gradually decline throughout gestation, therefore, it is challenging to assess the prevalence of deficiency in pregnant women. Studies have shown that based on gestational week, prevalence of vitamin B12 deficiency may vary from 5% (< 28 days gestation) to 72% (immediately prior to delivery) worldwide.[13]

Like many other developing countries, millions of Bangladeshi children suffer from nutritional deficiencies due to their mothers' poor nutritional status prior to and during pregnancy. Children are often born with LBW. According to National LBW Survey 2003–2004 reports, 36% babies were born with LBW. The mean birth weight of infants in Bangladesh is 2632 g and the mean birth length is 48.5 cm.[14] In our study, preterm birth seen in 11% cases which is consistent with other study.[15]

## CONCLUSION

From our study we can say that due pandemic situation and low number ANC visit also review responsible malnutritional case of pregnant women which ultimately cases preterm birth cases. Establishing local hospital guidelines can help regulate safe services provided to pregnant women and their new-born during this COVID-19 era.

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