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Prevalence and Levels of Depression, Anxiety, and Stress among Pregnant Women during the COVID-19 Pandemic in Bangladesh

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Abstract

Background: COVID-19 infection has had an extensive effect on people's lives around the world, and pregnancy causes significant immune suppression, making women more vulnerable, particularly in low- and middle-income countries. **Objective:** The purpose of the present study was to assess the prevalence and levels of depression, anxiety, and stress (DAS) among pregnant women during the COVID-19 pandemic. **Methodology:** This cross-sectional study was conducted to assess the prevalence and levels of depression, anxiety, and stress (DAS) among conveniently selected 150 pregnant women during the COVID-19 pandemic. The Depression, Anxiety, and Stress Scale-21 (DASS-21) scale was used to construct this semi-structured questionnaire for data collection during the study period. **Results:** Pregnant women stipulated a high rate of depression (86.7%), anxiety (78.0%), and stress (75.3%). The majority of them reported moderate stress (48.0%), extreme severe anxiety (29.3%), and moderate sadness (36.0%). Stress was higher among those who completed secondary education, worked in the private sector, had a nuclear family, had a lower household income, had a history of planned contraception, no history of normal or caesarean section or abortion, and had irregular ANC. Anxiety was higher in the 18 to 19 year old age group, private service holder, nuclear family, urban setting, low household income, primigravida, no history of planned contraception, no history of caesarean section or abortion, history of normal birth, and early gestation. Depression was higher in the age group 20 to 29 years, completed primary education, private service holder, nuclear family, and less household's income. **Conclusion:** This study reveals that higher prevalence of depression, anxiety and stress among pregnant women. To improve the quality of life, factors such as depression, anxiety, and stress should be addressed. [*Bangladesh Journal of Infectious Diseases, June 2025;12(1):99-107*]

Keywords: Prevalence, DASS-21 scale, levels of DAS, pregnant women, Bangladesh

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Introduction

Worldwide, the COVID-19 pandemic is taking a devastating clang, with more than 27.4 million confirmed cases and 0.9 million fatalities documented too far[1-2]. The current pandemic has increased uncertainty about the economy, jobs, money, interpersonal relationships, and the physical and emotional wellbeing of people affected[3-4]. When there is disruption, change, and instability, it is natural for us to be anxious, and this can result in problems not only because of our feelings of uneasiness and concern, but also because it can affect how well we work in our daily lives, our working environments, and our relationship[3,5]. Intellectual issues can present themselves in a variety of ways, including increasing peevishness, exuberant exhaustion, deterioration of pre-existing conditions, impoverished awareness, and destitute relaxation[6-7]. When both correct and false information is being used to influence the general public, it becomes more difficult[3,4,8].

Birth is a physiological procedure; nonetheless, it is viewed as a crisis in terms of psychological anticipates for women who are expecting a child[9]. Previous pregnancies and delivery experiences, as well as psychological and social concerns, all have a role in the link involving women's hormones and their psychological structures, as well as in the emotional changes that occur throughout pregnancy[10-11]. A rise in the hormone levels in utero, as well as an increase in the risk of obstetric difficulties, are all associated with birthing dread, which is defined as unfavorable beliefs that begin throughout pregnancy and continue during labor and delivery[12]. As a result of the high frequency of depression and anxiety during pregnancy, it is considered a huge public health crisis[11,13].

The most common mental disease during pregnancy, according to studies conducted in developed countries, is depression, which affects 10-20% of pregnant women[14]. It was also discovered that a higher prevalence of antepartum depression symptoms (33%) was detected in a rural sub-district of the southwest region of Bangladesh[15-16]. In the event of a pandemic, anxiety and depression may be exacerbated on several occasions. Studies have demonstrated that infectious disease pandemics raise feelings of sadness and anxiety in the general community, although in a small number of people[13,17]. During the pandemics, women are more likely than males to experience symptoms of worry and sadness[7,13,18]. As a result, women who are pregnant during the COVID-19 pandemic may suffer catastrophic consequences for their unborn children.

Methodology

Study settings: This was a cross-sectional study to assess the prevalence and levels of depression, anxiety, and stress among pregnant women during the COVID-19 pandemic. he study was instigated from May 2021 to October 2021 in Dhaka city, Bangladesh.

Sample selection criteria: Participants were conveniently selected 150 women of childbearing age (15-49 years) from the purposively selected two areas (Mirpur and Mohammadpur) of Dhaka, who was become pregnant during the COVID-19 pandemic.

Sample size estimation: The sample size was calculated by using the formula $n = \frac{z^2\,pq}{d^2}$. Where, n= the desired sample size, z= the standard normal deviate, set at 1.96 at 5% level which corresponded to 95% confidence level, p= Prevalence of stress among pregnant women during COVID 19[7] (89.1%), q= 1-p, d= Degree of error accuracy considered as 0.05, So, d= (10.0% of P)

So, here-

$$n = \frac{(1.96)^2 X\ 0.891 X\ 0.109}{(0.05)^2} = 149.2$$

Here, the estimated study sample was about 150 pregnant women. Diagnosed cases of DAS disorders; and severe chronic conditions (such as hypertension, diabetes mellitus, hyperlipidemia etc.) were excluded from this study.

Data collection procedures: A self-administered pretested semi-structured questionnaire was used to collect data from pregnant women. Each participant was interviewed depending on their convenience with informed consent and the points of interest were clarified. The questionnaire was construed by using 'The Depression, Anxiety, and Stress Scale-21' (DASS-21). DASS-21 items were a set of three self-report scales; and each category consists of 7 designed questions to measure the DAS associated symptoms experienced over the past week. Socio-demographic and obstetric information about the women were also collected.

Statistical analysis: The collected data were sorted, cleaned, kept up with precision and protected for

factual examination by using IBM SPSS v25 software. The quantitative data were analyzed descriptively such as mean, standard deviation and percent were computed. Chi-square and Fisher's exact test were used to assess the significance of associations between two nominal variables and a P-value of <0.05 was taken as significant; and the results were presented in tables and figure.

Ethical consideration: Participation was voluntary and confidentiality was maintained by using an individual code number for each participant. The research proposal was reviewed and approved by the Institutional Review Board (IRB) of North South University, Dhaka 1229, Bangladesh. (Reference: 2020/OR-NSU/IRB-No.0801).

Results

Socio-demographic profile of pregnant women: Table 1 depicts the mean age of the pregnant woman was 25.2±4.5 years, where three-fourths (74.0%) were from the high fertile group. More than half of women (53.3%) had completed higher secondary and above levels of education. Two-thirds of participants (64.0%) were homemakers and less than one-third (29.0%) were the different tire of services. Most of the women were from nuclear families (57.0%) and resided in urban areas (68.0%). Half of the families (50.7%) belonged to the average monthly income group of 40,000-60,000 taka with the mean 55,532.5±11,124.5 taka, which represents the middle-income state.

Table 1: Socio-demographic profile of pregnant women (n=150)

Variables	Frequency	Percent
Age groups		
18 to 19 years	10	6.7
20 to 29 years	111	74.0
≥30 years	29	19.3
Mean±SD	25.2±4.5	
Highest educational level		
No formal education	12	8.0
Primary	36	24.0
Secondary	22	14.7
Higher secondary	50	33.3
Graduate	30	20.0
Current occupational state		
Homemaker	95	64.0
Government service holder	18	12.0
Private service holder	26	17.0
Businesswoman	11	7.0
Family type		
Nuclear	86	57.0
Joint	64	43.0
Residence		
Rural	48	32.0
Urban	102	68.0
Monthly household income		
<40,000 taka	22	14.7
40,000 to 60,000 taka	76	50.7
>60,000 taka	52	34.7
Mean±SD	55,532.5±11,124.5	

Obstetric profile of pregnant women: Table 2 describes that more than half of pregnant women (54.7%) were primigravida and the mean gestational age was 32.6±6.1 weeks, whereas two-fifths (41.2%) were delivered their child at term (≥37 weeks). Along sides, 28.0% had a history of previous cesarean section, 10.7% had a previous normal delivery, 26.7% had a history of previous abortion, 67.3% were planned pregnancies and 48.0% received regular antenatal checkups.

Table 2: Obstetric profile of pregnant women (n=150)

Variables	Frequency	Percent
Gestational age		
≤28 weeks	42	28.0
29 to 36 weeks	46	30.7
≥37 weeks	62	41.2
Mean±SD	32.6±6.1	
Parity		
Primigravida	82	54.7
Multigravida	68	45.3
History of previous cesarean section		
Yes	42	28.0
No	108	72.0
History of previous normal delivery		
Yes	16	10.7
No	134	89.3
History of previous abortion		
Yes	40	26.7
No	110	73.3
Contraception history		
Planned	101	67.3
Unplanned	49	32.7
Antenatal checkup		
Regular	72	48.0
Irregular	66	44.0
None	12	8.0

Prevalence and Levels of DAS of Pregnant Women: Figure I portrays the prevalence of depression; anxiety and stress were 86.7%, 78.0% and 75.3%, respectively. Table 3 interprets that most of pregnant women had moderate depression (36.0%), extreme severe anxiety (29.3%) and moderate stress (48.0%). The mean DAS levels were respectively 16.7±6.7, 17.9±7.7 and 19.1±6.3.

Table 3: Levels of DAS among the pregnant women (n=150)

	Frequency	Percent
Levels of Depression		
Normal (0-9)	20	13.3
Mild (10-13)	33	22.0
Moderate (14-20)	54	36.0
Severe (21-27)	28	18.7
Extremely severe (>28)	15	10.0
Mean±SD	16.7±6.7	
Levels of anxiety		
Normal (0-7)	33	22.0
Mild (8-9)	4	2.7
Moderate (10-14)	29	19.3
Severe (15-19)	40	26.7
Extremely severe (>20)	44	29.3
Mean±SD	17.9±7.7	
Levels of stress		
Normal (0-14)	37	24.7
Mild (15-18)	20	13.3
Moderate (19-25)	72	48.0
Severe (26-33)	19	12.7
Extremely severe (>34)	2	1.3
Mean±SD	19.1±6.3	

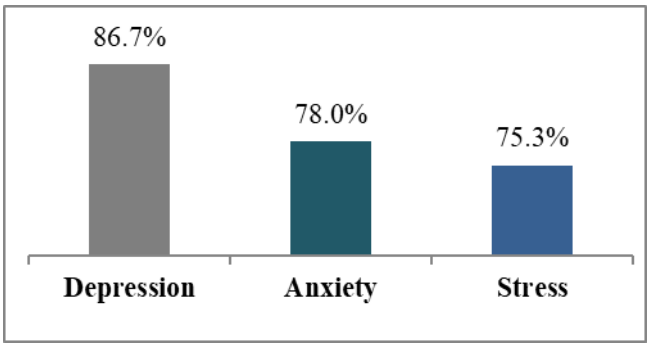

Figure I: Prevalence of DAS among the pregnant women (n=150)

Table 4 interprets significant changes were found in the prevalence of depression with age group, education, occupation, family type, monthly household income, parity, contraception history, history of previous normal delivery, cesarean section and abortion, antenatal checkup and gestational age ($p<0.05$). Depression was found higher in the age group 20-29 years, had completed primary level of education, private service holder, in the nuclear family, household income <40,000 taka, primigravida, had no planned contraception history, no history of cesarean section and abortion, history of normal delivery, not received antenatal checkup and normal gestational age.

Table 4: Factors Associated with the Levels of Depression Among Pregnant Women (n=150)

Variables	N	Levels of depression					p-value
		Normal	Mild	Moderate	Severe	Extremely Severe	
Age groups							
18 to 19 years	10	1(10.0%)	1(10.0%)	2(20.0%)	3(30.0%)	3(30.0%)	**0.009**
20 to 29 years	111	12(10.8%)	21(18.9%)	47(42.7%)	19(17.1%)	12(10.8%)	
≥30 years	29	7(24.1%)	11(37.9%)	5(17.2%)	6(20.7%)	0(0.0%)	
Highest educational level							
No formal education	12	0(0.0%)	6(50.0%)	5(41.7%)	1(8.3%)	0(0.0%)	**0.001**
Primary	36	3(8.3%)	7(19.4%)	18(50.0%)	8(22.2%)	0(0.0%)	
Secondary	22	0(0.0%)	5(22.7%)	7(31.8%)	8(36.4%)	2(9.1%)	
Higher secondary	50	11(22.0%)	10(20.0%)	20(40.0%)	4(8.0%)	5(10.0%)	
Graduate	30	6(20.0%)	5(16.7%)	4(13.3%)	7(23.3%)	8(26.7%)	
Current occupational state							
Homemaker	95	8(8.4%)	28(29.5%)	37(38.9%)	20(21.1%)	2(2.1%)	**0.001**
Government service holder	18	5(27.8%)	4(22.2%)	3(16.7%)	3(16.7%)	3(16.7%)	
Private service holder	26	2(7.7%)	0(0.0%)	13(50.0%)	3(11.5%)	8(30.8%)	
Businesswoman	11	5(45.5%)	1(9.1%)	1(9.1%)	2(18.2%)	2(18.2%)	
Family type							
Nuclear	86	8(9.3%)	13(15.1%)	41(47.7%)	15(17.4%)	9(10.5%)	**0.006**

Variables	N	Levels of depression					p-value
		Normal	Mild	Moderate	Severe	Extremely Severe	
Joint	64	12(18.8%)	20(31.3%)	13(20.3%)	13(20.3%)	6(9.4%)	
Residence							
Rural	48	8(16.7%)	8(16.7%)	13(27.1%)	12(25.0%)	7(14.6%)	0.195
Urban	102	12(11.8%)	25(24.5%)	41(40.2%)	16(15.7%)	8(7.8%)	
Monthly household income							
<40,000 taka	22	4(18.2%)	0(0.0%)	10(45.5%)	2(9.1%)	6(27.3%)	**0.001**
40,000 to 60,000 taka	76	4(5.3%)	25(32.9%)	27(35.5%)	15(19.7%)	5(6.6%)	
>60,000 taka	52	12(23.1%)	8(15.4%)	17(32.7%)	11(21.2%)	4(7.7%)	
Parity							
Primigravida	82	8(9.8%)	13(15.9%)	39(47.6%)	14(17.1%)	8(9.8%)	**0.020**
Multigravida	68	12(17.6%)	20(29.4%)	15(22.1%)	14(20.6%)	7(10.3%)	
Contraception history							
Planned	101	16(15.8%)	28(27.7%)	29(28.7%)	19(18.8%)	9(8.9%)	**0.025**
Unplanned	49	4(8.2%)	5(10.2%)	25(51.0%)	9(18.4%)	6(12.2%)	
History of previous cesarean section							
Yes	42	8(19.0%)	12(28.6%)	7(16.7%)	9(21.4%)	6(14.3%)	†**0.040**
No	108	12(11.1%)	21(19.4%)	47(43.5%)	19(17.6%)	9(8.3%)	
History of previous normal delivery							
Yes	16	0(0.0%)	0(0.0%)	6(37.5%)	3(18.8%)	7(43.8%)	**0.000**
No	134	20(14.9%)	33(24.6%)	48(35.8%)	25(18.7%)	8(6.0%)	
History of previous abortion							
Yes	40	4(10.0%)	20(50.0%)	10(25.0%)	6(15.0%)	0(0.0%)	**0.000**
No	110	16(14.5%)	13(11.8%)	44(40.0%)	22(20.0%)	15(13.6%)	
Antenatal checkup							
Regular	72	16(22.2%)	12(16.7%)	22(30.6%)	9(12.5%)	13(18.1%)	†**0.002**
Irregular	66	4(6.1%)	17(25.8%)	26(39.4%)	17(25.8%)	2(3.0%)	
None	12	0(0.0%)	4(33.3%)	6(50.0%)	2(16.7%)	0(0.0%)	
Gestational age							
≤28 weeks	42	1(2.4%)	9(21.4%)	14(33.3%)	10(23.8%)	8(19.0%)	**0.001**
29 to 36 weeks	46	8(17.4%)	16(34.8%)	6(13.0%)	10(21.7%)	6(13.0%)	
≥37 weeks	62	11(17.7%)	8(12.9%)	34(54.8%)	8(12.9%)	1(1.6%)	

Chi-square and †Fisher exact test done, $p<0.05$ considered as statistically significant value

Table 5 interprets significant changes were found in the prevalence of anxiety with age group, occupation, family type, residence, monthly household income, parity, contraception history, history of previous normal delivery, cesarean section and abortion and gestational age ($p<0.05$). Anxiety was found to be higher in the age group 18-19 years, private service holder, nuclear family, urban area, household income <40,000 taka, primigravida, had no planned contraception history, no history of cesarean section or abortion, history of normal delivery and early gestational age (<28 weeks).

Table 5: Factors Associated with the Levels of Anxiety Among Pregnant Women (n=150)

Variables	N	Levels of anxiety					P value
		Normal	Mild	Moderate	Severe	Extremely Severe	
Age groups							
18 to 19 years	10	3(30.0%)	0(0.0%)	0(0.0%)	1(10.0%)	6(60.0%)	**0.001**
20 to 29 years	111	16(14.4%)	4(3.6%)	22(19.8%)	31(27.9%)	38(34.2%)	
≥30 years	29	14(48.3%)	0(0.0%)	7(24.1%)	8(27.6%)	0(0.0%)	
Highest educational level							
No formal education	12	3(25.0%)	0(0.0%)	3(25.0%)	4(33.3%)	2(16.7%)	0.212
Primary	36	7(19.4%)	2(5.6%)	7(19.4%)	11(30.6%)	9(25.0%)	
Secondary	22	0(0.0%)	2(9.1%)	6(27.3%)	7(31.8%)	7(31.8%)	
Higher secondary	50	16(32.0%)	0(0.0%)	9(18.0%)	12(24.0%)	13(26.0%)	
Graduate	30	7(23.3%)	0(0.0%)	4(13.3%)	6(20.0%)	13(43.3%)	
Current occupational state							

Variables	N	Levels of anxiety					P value
		Normal	Mild	Moderate	Severe	Extremely Severe	
Homemaker	95	20(21.1%)	4(4.2%)	25(26.3%)	25(26.3%)	21(22.1%)	**0.006**
Government service holder	18	6(33.3%)	0(0.0%)	3(16.7%)	5(27.8%)	4(22.2%)	
Private service holder	26	2(7.7%)	0(0.0%)	0(0.0%)	9(34.7%)	15(57.7%)	
Businesswoman	11	5(45.5%)	0(0.0%)	1(9.1%)	1(9.1%)	4(36.4%)	
Family type							
Nuclear	86	12(14.0%)	0(0.0%)	10(11.6%)	34(39.5%)	30(34.9%)	**0.001**
Joint	64	21(32.8%)	4(6.3%)	19(29.7%)	6(9.4%)	14(21.9%)	
Residence							
Rural	48	9(18.8%)	4(8.3%)	4(8.3%)	18(37.5%)	13(27.1%)	**0.020**
Urban	102	24(23.5%)	0(0.0%)	25(24.5%)	22(21.6%)	31(30.4%)	
Monthly household income (taka)							
<40,000 taka	22	4(18.2%)	0(0.0%)	0(0.0%)	8(36.4%)	10(45.5%)	†**0.000**
40,000 to 60,000 taka	76	13(17.1%)	4(5.3%)	14(18.4%)	28(36.8%)	17(22.4%)	
>60,000 taka	52	16(30.8%)	0(0.0%)	15(28.8%)	4(7.7%)	17(32.7%)	
Parity							
Primigravida	82	13(15.9%)	0(0.0%)	20(24.4%)	20(24.4%)	29(35.4%)	**0.020**
Multigravida	68	20(29.4%)	4(5.9%)	9(13.2%)	20(29.4%)	15(22.1%)	
Contraception history							
Planned	101	28(27.7%)	4(4.0%)	17(16.8%)	28(27.7%)	24(23.8%)	**0.025**
Unplanned	49	5(10.2%)	0(0.0%)	12(24.5%)	12(24.5%)	20(40.8%)	
History of previous cesarean section							
Yes	42	12(28.6%)	4(9.5%)	5(11.9%)	11(26.2%)	10(23.8%)	**0.008**
No	108	21(19.4%)	0(0.0%)	24(22.2%)	29(26.9%)	34(31.5%)	
History of previous normal delivery							
Yes	16	0(0.0%)	0(0.0%)	0(0.0%)	7(43.8%)	9(56.3%)	†**0.003**
No	134	33(24.6%)	4(3.0%)	29(21.6%)	33(24.6%)	35(26.1%)	
History of previous abortion							
Yes	40	8(20.0%)	4(10.0%)	12(30.0%)	10(25.0%)	6(15.0%)	**0.001**
No	110	25(22.7%)	0(0.0%)	17(15.5%)	30(27.3%)	38(34.5%)	
Antenatal checkup							
Regular	72	20(27.8%)	0(0.0%)	10(13.9%)	18(25.0%)	24(33.3%)	†0.093
Irregular	66	13(19.7%)	4(6.1%)	15(22.7%)	18(27.3%)	16(24.2%)	
None	12	0(0.0%)	0(0.0%)	4(33.3%)	4(33.3%)	4(33.3%)	
Gestational age							
≤28 weeks	42	2(4.8%)	0(0.0%)	14(33.3%)	8(19.0%)	18(42.9%)	**0.001**
29 to 36 weeks	46	16(34.8%)	0(0.0%)	8(17.4%)	7(15.2%)	15(32.6%)	
≥37 weeks	62	15(24.2%)	4(6.5%)	7(11.3%)	25(40.3%)	11(17.7%)	

Chi-square and †Fisher exact test done, $p<0.05$ considered as statistically significant value

Table 6 interprets significant changes were found in the prevalence of stress with education, occupation, family type, monthly household income, contraception history, history of previous normal delivery, cesarean section and antenatal checkup ($p<0.05$). Stress was found higher among those who completed secondary level of education, were private service holders, had nuclear family, had a household income <40,000 taka, had planned contraception history, had no history of normal or cesarean section and received irregular antenatal checkups.

Table 6: Factors Associated with the Levels of Stress Among Pregnant Women (n=150)

Variables	N	Levels of stress					P value
		Normal	Mild	Moderate	Severe	Extremely Severe	
Age groups							
18 to 19 years	10	2(20.0%)	1(10.0%)	5(50.0%)	2(20.0%)	0(0.0%)	†0.118
20 to 29 years	111	27(24.3%)	11(9.9%)	54(48.6%)	17(15.3%)	2(1.8%)	

Variables	N	Levels of stress					P value
		Normal	Mild	Moderate	Severe	Extremely Severe	
≥30 years	29	8(27.6%)	8(27.6%)	13(44.8%)	0(0.0%)	0(0.0%)	
Highest educational level							
No formal education	12	3(25.0%)	3(25.0%)	4(33.3%)	2(16.7%)	0(0.0%)	**0.019**
Primary	36	4(11.1%)	6(16.7%)	23(63.9%)	3(8.3%)	0(0.0%)	
Secondary	22	1(4.5%)	4(18.2%)	14(63.6%)	3(13.6%)	0(0.0%)	
Higher secondary	50	16(32.0%)	4(8.0%)	22(44.0%)	8(16.0%)	0(0.0%)	
Graduate	30	13(43.3%)	3(10.0%)	9(30.0%)	3(10.0%)	2(6.7%)	
Current occupational state							
Homemaker	95	21(22.1%)	15(15.8%)	51(53.7%)	8(8.4%)	0(0.0%)	**0.001**
Government service holder	18	11(61.1%)	1(5.6%)	3(16.7%)	1(5.6%)	2(11.1%)	
Private service holder	26	0(0.0%)	2(7.7%)	15(57.7%)	9(34.7%)	0(0.0%)	
Entrepreneur	11	5(45.5%)	2(18.2%)	3(27.3%)	1(9.1%)	0(0.0%)	
Family type							
Nuclear	86	14(16.3%)	14(16.3%)	43(50.0%)	15(17.4%)	0(0.0%)	**0.009**
Joint	64	23(35.9%)	6(9.4%)	29(45.3%)	4(6.3%)	2(3.1%)	
Residence							
Rural	48	11(22.9%)	6(12.5%)	24(50.0%)	5(10.4%)	2(4.2%)	0.328
Urban	102	26(25.5%)	14(13.7%)	48(47.1%)	14(13.7%)	0(0.0%)	
Monthly household income (taka)							
<40,000 taka	22	6(27.3%)	0(0.0%)	16(72.7%)	0(0.0%)	0(0.0%)	†**0.005**
40,000 to 60,000 taka	76	12(15.8%)	12(15.8%)	39(51.3%)	11(14.5%)	2(2.6%)	
>60,000 taka	52	19(36.5%)	8(15.4%)	17(32.7%)	8(15.4%)	0(0.0%)	
Parity							
Primigravida	82	20(24.4%)	8(9.8%)	44(53.7%)	8(9.8%)	2(2.4%)	0.213
Multigravida	68	17(25.0%)	12(17.6%)	28(41.2%)	11(16.2%)	0(0.0%)	
Contraception history							
Planned	101	21(20.8%)	16(15.8%)	53(52.5%)	11(10.9%)	0(0.0%)	**0.043**
Unplanned	49	16(32.7%)	4(8.2%)	19(38.8%)	8(16.3%)	2(4.1%)	
History of previous cesarean section							
Yes	42	4(9.5%)	12(28.6%)	20(47.6%)	6(14.3%)	0(0.0%)	**0.002**
No	108	33(30.6%)	8(7.4%)	52(48.1%)	13(12.0%)	2(1.9%)	
History of previous normal delivery							
Yes	16	1(6.3%)	2(12.5%)	6(37.5%)	7(43.8%)	0(0.0%)	†**0.006**
No	134	36(26.9%)	18(13.4%)	66(49.3%)	12(9.0%)	2(1.5%)	
History of previous abortion							
Yes	40	12(30.0%)	8(20.0%)	12(30.0%)	8(20.0%)	(0.0%)	0.053
No	110	25(22.7%)	12(10.9%)	60(54.5%)	11(10.0%)	2(1.8%)	
Antenatal checkup							
Regular	72	26(36.1%)	6(8.3%)	27(37.5%)	11(15.3%)	2(2.8%)	†**0.000**
Irregular	66	11(16.7%)	10(15.2%)	41(62.1%)	4(6.1%)	0(0.0%)	
None	12	0(0.0%)	4(33.3%)	4(33.3%)	4(33.3%)	0(0.0%)	
Gestational age							
≤28 weeks	42	8(19.0%)	10(23.8%)	18(42.9%)	6(14.3%)	0(0.0%)	0.159
29 to 36 weeks	46	11(23.9%)	6(13.0%)	22(47.8%)	5(10.9%)	2(4.3%)	
≥37 weeks	62	18(29.0%)	4(6.5%)	32(51.6%)	8(12.9%)	0(0.0%)	

Chi-square and †Fisher exact test done, $p<0.05$ considered as statistically significant value

Discussion

In this study, the majority of pregnant women (74.0%) were between 20 to 29 years old, with a mean age of 25.2±4.5 years. The study was done by Durankus and Aksu[1] also found most of the pregnant women belonging to the 20 to 28 years age group which similar to the current study findings. The majority of pregnant women (68.0%) lived in urban areas, and their monthly income ranged between 40,000 and 60,000 taka (50.7%). Furthermore, 57.0% of the pregnant women were from nuclear households, while 43.0% came from joint families. According to Nwafor et al[19] study, they found that the majority of the pregnant women belonged to middle socioeconomic instances, nuclear families, and lived in urban areas, which corresponds with the study.

The study found that pregnant women had a gestational age of ≥37 weeks, with an average of 32.5±6.1 weeks. Primigravida was more common among the women (54.7%), with 28.0% having a previous caesarean section and 26.7% having a previous abortion. 44.0% had irregular ANCs. Mcgonagle et al[20] study also reported that most of the pregnant women were 74.0% primigravida, 80.2% gestational age was >28 weeks, and the majority of them had intended pregnancy.

Prevalence of DAS was found at 86.7%, 78.0% and 75.3%, respectively. The depression level was 16.7±6.7, the anxiety level was 17.9±7.7, and the mean stress level was 19.1±6.3. Wu et al[14] study, which was done in China, also found that a clinically significant increase in the rate of depressive and anxiety symptoms among pregnant women occurred after the declaration of human-to-human transmission and an increased threat of the COVID-19 pandemic.

Depression and anxiety were found significantly higher in that who lived in a nuclear family, primigravida, late gestational age and were on irregular antenatal checkups. Only anxiety was found significantly higher in those who lived in the urban areas. Furthermore, stress was found to be significantly associated with the nuclear family and irregular antenatal checkups. The study done by Bakir et al.[21] found those among pregnant women during the COVID-19 pandemic 19.9% had extremely severe depression, 97.9% had extremely severe anxiety, and 52.3% had severe stress symptoms. They also found among the pregnant women who were of late gestational age, had irregular antenatal checkups and lived in the nuclear family they had more depression and anxiety than others correspond with the current study. Luong et al.[22] study also found that compared to members without sadness, those with misery had a better gestational age ($p<0.05$), the next rate of having a negative way of life changes ($p<0.05$). Unpleasant occasions may lead to obstetric complications and make pregnant ladies exceedingly helpless to mental disarranges such as uneasiness and discouragement.

Ceulemans et al[23] discovered that approximately half of their pregnant female members developed depression or anxious symptoms during the COVID-19 pandemic. The prevalence of self-reported serious depressive side effects in pregnancy (25.3%) was much greater than those obtained in Belgium prior to the introduction. Our results revealed greater levels of generalized anxiety while COVID-19 prevalent, with more than 75% of pregnant women.

Conclusion

The prevalence of depression, anxiety and stress were higher among the study women. Above two out of three pregnant women were suffering from depression, anxiety, and stress. Some sociodemographic and obstetric attributes checkup had a significant impact on their quality of life. A mother's mental health is critical to giving birth to a healthy baby, as well as her physical and psychological well-being. To improve a mother's quality of life, it is necessary to identify and optimize the causative variables. In this context, the COVID-19 pandemic may have serious repercussions for pregnant women's health. COVID-19 has resulted in the most deadly broad watch in over a century. Overall, the higher prevalence of DAS among pregnant women during the COVID-19 pandemic emphasizes the need for more assistance and resources for this demographic, both during and after the pandemic. This may include mental health treatments, social support networks, and medical treatments to address pandemic-related concerns.

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Conflict of Interest
The authors declared no competing interests.

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Authors' contributions
Conceptualization, methods and literature review: Khan S, Nurunnabi M and Hawlader MDH; Statistical analysis: Khan S and Nurunnabi M; Data collection: Khan S, Habib I, and Nizum NA; Preparation of draft manuscript: Khan S, Nurunnabi M, Habib I, Chowdhury SM, Rafat MNAQ, Akter F, Bibi S and Hawlader MDH; Finalization of manuscript: Khan S, Nurunnabi M, Habib I, Chowdhury SM, Rafat MNAQ, Akter F, Nizum NA, Bibi S and Hawlader MDH. All the authors approved the final manuscript.

Data Availability
Any questions regarding the availability of the study's supporti ng data should be addressed to the corresponding author, who can provide it upon justifiable request.

Ethics Approval and Consent to Participate
The Institutional Review Board granted the study ethical approval. Since this was a prospective study, every study participant provided formal informed consent. Each method followed the appropriate rules and regulations.

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