

Depression, Anxiety and Stress among Antenatal Mothers in a Tertiary Level Hospital of Kathmandu

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ABSTRACT

Background: Depression, anxiety, and stress are common during pregnancy. The emotional aspect of pregnant women during antenatal care remains most of the time neglected, undetected, and untreated. This study aimed to assess the depression, anxiety, and stress among the antenatal mothers.

Methods: A Cross-Sectional Descriptive Research Design was used. Depression, Anxiety and Stress Scale 21(DASS-21) and a structured interview questionnaire in observational study. Interview technique was taken from 244 antenatal mothers selected through non-probability convenient sampling. The data collection was done within four weeks. Data entered into EPI DATA 3.1 and exported to the statistical package for social science 22 version for further analysis. Strength of association was determined through bivariate and multivariate logistic regression.

Results: The prevalence of depression, anxiety, and stress were 7.8%, 13.9% and 11.1%, respectively. The factors strongly associated with depression and stress were exposure to domestic violence (AOR=23.338, 95% CI: 5.034-108.199) and (AOR=67.106, 95% CI: 14.439-311.883) respectively. The factors strongly associated with anxiety were exposure to domestic violence (AOR=21.975, 95% CI: 5.826-82.882) and not having balance diet on a daily basis were (AOR=3.420 95% CI: 1.362-8.588).

Conclusions: Overall, the findings suggest that maternal mental health may be affected throughout pregnancy among antenatal mothers. High prevalence of depression and anxiety were seen among antenatal mothers than stress. Routine mental and psychological screening during antenatal period and arrangement of awareness program and health interventions seems to be needed for antenatal mothers who had exposed to domestic violence to promote maternal and child health in Nepal.

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KEYWORDS: antenatal mothers; anxiety; depression; stress.

INTRODUCTION

Pregnancy is a crucial period in which women undergo physiological, psychological, hormonal, and social changes. The pregnant stage is related to the extremely precious stage, which brings joy, happiness, satisfaction, and self-fulfillment in women's lives, but in some may bring distress.^(1,2)

The antenatal period considered as more vulnerable period in exposing mental illness as changes in hormonal physiological, emotional and social changes. It may increase the risk of emotional suffering and psychiatric morbidity and mortality

during pregnancy.⁽¹⁻³⁾ One of the important aspects of the one's life is physical, mental and social health, and it is more important during pregnancy. During pregnancy, the prevalence of mental illness ranges from 10% to 41.2% globally, primarily depression. Many studies had been shown that developed countries have prevalence of 10 to 15% of maternal mental health problem, higher prevalence ranges from 10 to 40% in developing countries.⁽⁴⁾ Depression and anxiety are more prominent nowadays with increasing

in suicidal rate as a leading cause of death for reproductive age group women in Nepal. ⁽⁴⁻⁷⁾

The most common mental health condition to affect antenatal mothers worldwide is depression. Maternal Depression is a hidden burden in both developed and developing countries, i.e. one in ten antenatal mothers and one in three antenatal mothers suffer from depression respectively. Depression can lead to suicide and is responsible for maternal mortality and disability every year. ^(6, 8)

Anxiety and stress commonly resolved after delivery or continued throughout the postnatal period. Prenatal depression, anxiety and stress is related with various factors that may continue to postpartum period of life were lack of partner or of social support; history of abuse or of domestic violence; personal history of mental illness; unplanned or unwanted pregnancy; ^(9, 10) adverse events in life and high perceived stress; present/past pregnancy complications; and pregnancy loss. ⁽¹⁰⁾ It directly or indirectly cause adverse consequences in maternal and child health. ⁽¹¹⁾ Most mothers develop good adaptation to their anxiety, providing the child with realistic care, integrating them into family. ⁽¹²⁾

Sometimes psychological maladaptation, being responsible for developing anxiety during pregnancy ⁽¹³⁾, continue after delivery causing postnatal depression. ⁽¹⁴⁾ Besides this depression, anxiety, and stress during pregnancy remains most of the time neglected, undetected, and untreated in obstetric medicine due to stigma, low income, patriarchal society. Many prospective studies have shown that, maternal mental illness directly and indirectly increases the risk of adverse consequences on maternal/fetal health outcomes. These adverse outcomes are transferring mental illness to offspring 10-15% (symptoms of attention deficit hyperactivity disorder, or impaired cognitive development) ⁽¹⁵⁾, preterm term birth (PTB) and Low Birth Weight (LBW). ⁽¹¹⁾ Therefore, it is crucial to assess the level of depression, anxiety and stress at early stage of pregnancy along with physical assessment for enhancement of maternal and child health. ^(8, 10)

METHODS

The descriptive cross-sectional design was used at Gynaecology and Obstetrics Outpatient Department

of Teaching Hospital (TUTH), Maharajgunj, Kathmandu. Ethical approval was taken from Institutional Review Committee of Tribhuvan University, Institute of Medicines. Sample size was 244 Singleton normal pregnant women of reproductive age group 15-49 years were selected through convenient sampling and face to face interview was taken. Data was entered into the software EPI-DATA 3.1 and export to SPSS- 22 version for data analysis. The variables which were significant in bivariate analysis at 90% confidence interval and p-value <0.1 were taken to logistic regression for adjusting confounders.

RESULTS

The average age of pregnant women between the ages of 15 and 45 was 25. One-third were from underprivileged Indigenous peoples, and nearly half were from higher caste groups. About half (52.5%) of the respondents lived in nuclear households, and the majority (83.2%) were Hindu. 64.3% of women were homemakers, and 46.3% had finished higher secondary school. The upper-middle (38.9%) and lower-middle (38.5%) income groups were nearly evenly distributed.

There was no significant association between antenatal depression, anxiety, stress, and socio-demographic factors such as age, ethnicity, religion, family type, education, occupation, gravida, trimester, and income. However, uneducated mothers had a higher risk 6 times for depression, 3 times for anxiety, and 4.2 times for stress compared to educated ones. Unemployed and low-income mothers had nearly twice the odds of depression, while employed low-income mothers had 1.2 times higher odds of anxiety. Stress was slightly higher among employed and low-income mothers. Depression, anxiety, and stress were similar between primigravida (8%, 14.4%, 12%) and multigravida (7.6%, 13.4%, 10.1%). Similarly, the prevalence of depression was 9.5% in the first trimester, 7.1% in the second, and 7.8% in the third trimester. Anxiety was reported at 21.4% in the first trimester, 10.1% in the second, and 14.6% in the third, while stress was 21.4% in the first trimester, 6.1% in the second, and 11.7% in the third trimester. Overall, the findings suggest that maternal mental health may be affected throughout pregnancy.

**TABLE 1. PREVALENCE OF DEPRESSION, ANXIETY AND STRESS AMONG RESPONDENTS
N=244**

Variables	Number (%)	95% CI
Depression	19(7.8)	0.04 - 0.11
Anxiety	34(13.9)	0.10 - 0.18
Stress	27(11.1)	0.07 - 0.15

Table 1 reveals that 7.8% respondents had depression; nearly 14 % had anxiety and 11.1 % had stress.

TABLE 2. FACTORS ASSOCIATED WITH DEPRESSION AMONG RESPONDENTS

N=244

Characteristics	Depression		Unadjusted OR (95% CI)	Adjusted OR (95% CI)	P-value
	No	Yes			
	n (%)	n (%)			
Desirable of pregnancy					
Wanted	175 (96.2)	7 (3.8)	5.988	1.307	1
Unwanted	50 (80.6)	12 (19.4)	(0.554-0.938)	(0.291-5.863)	.748
Daily Intake of Balance Diet					
No	45 (84.9)	8 (15.1)	2.936	2.076	.196
Yes	180 (94.2)	11 (5.8)	(0.095-0.869)	(0.686-6.282)	1
Exposure to Domestic Violence					
No	199 (97.5)	5 (2.5)	21.431	23.338	1
Yes	26 (65)	14 (35)	(7.135-64.374)	(5.034-108.199)	.000*

*Note: Reference group AOR: Adjusted Odds Ratio CI: Confidence Interval *p-value significant at < 0.05.*
Only 3 variables had p < 0.1 in bivariate analysis, which were taken to the model. Hosmer – Lemeshow test was done to test goodness of fit (p-value=0.719 for depression). Model overall percentage is 92.2 for depression.

Table 2 shows that Domestic violence as major factor that significantly associated with depression, anxiety, and stress. The respondents who had facing domestic violence (AOR=23.338 95% CI: 5.034-108.199) were 23 times more likely to have depression than those never faced domestic violence

TABLE 3. FACTORS ASSOCIATED WITH ANXIETY AMONG RESPONDENTS

N=244

Characteristics	Anxiety		Unadjusted OR (95% CI)	Adjusted OR (95% CI)	P-value
	No	Yes			
	n (%)	n (%)			
Desirable of pregnancy					
Wanted	166(91.2)	16 (8.8)	4.237	1.788	1
Unwanted	44(71)	18 (29)	(0.501-0.889)	(0.468-6.833)	.396
Rest					
< 1hr	2 (33.3)	4 (66.7)	13.888	3.346	.246
> 1hr	208(87.4)	30 (12.6)	(0.589-0.87)	(0.434-25.779)	1
Daily Intake of Balance Diet					
No	37 (69.8)	16 (30.2)	4.149	3.420	.009*
Yes	173(90.6)	18 (9.4)	(0.485-0.888)	(1.362-8.588)	1
Exposure to Domestic Violence					
No	191(93.6)	13 (6.4)	16.239	21.975	1
Yes	19 (47.5)	21 (52.5)	(7.031-37.506)	(5.826-82.882)	.000*

*Note: Reference group AOR: Adjusted Odds Ratio CI: Confidence Interval * p-value significant at < 0.05.*
Only 4 variables had p < 0.1 in bivariate analysis, which were taken to the model. Hosmer – Lemeshow test was done to test goodness of fit (p-value= 0.251 for anxiety). Model overall percentage is 87.3% for anxiety.

Table 3, indicates that the respondents who had facing domestic violence (AOR=21.975 95% CI: 5.826-82.882) were nearly 22 times more likely to have anxiety. Whereas respondents who didn't take balance diet on daily basis were also significantly associated with anxiety. The respondents who didn't take balance diet on daily basis (AOR=3.420 95% CI: 1.362-8.588) were 3.4 times more likely to have anxiety than those who intake balance diet on daily basis.

TABLE 4. FACTORS ASSOCIATED WITH STRESS AMONG RESPONDENTS

N=244

Characteristics	Stress		Unadjusted OR (95% CI)	Adjusted OR (95% CI)	P- value
	No	Yes			
	n (%)	n (%)			
Desirable of pregnancy					
Wanted	173 (95.1)	9 (4.9)	7.874	1.572	1
Unwanted	44 (71)	18 (29)	(0.698-0.947)	(0.361- 6.844)	.494
Exposure to Domestic Violence					
No	199 (97.5)	5 (2.5)	48.644	67.106	1
Yes	18 (45)	22 (55)	(16.449- 143.854)	(14.439-311.883)	.000*

*Note: Reference group AOR: Adjusted Odds Ratio CI: Confidence Interval *p-value significant at < 0.05. Only 2 variables had p < 0.1 in bivariate analysis, which were taken to the model. Hosmer – Lemeshow test was done to test goodness of fit (p-value=.427 for stress). Model overall percentage is 90.6% for stress.*

Table 4 depicts domestic violence as major factor that significantly associated with stress of pregnancy. The respondents who had facing domestic violence (AOR=67.106 95% CI: 14.439-311.883) were 67 times more likely to have Stress.

DISCUSSION

This study exhibited that around one in twelve respondents had increased level of depression, nearly one in seven had increased level of anxiety and about one in nine had increased level of stress. The prevalence of depression lies within ranged between (0.9% and 28.3%) when compared with Global prevalence 27% of depression among antenatal mothers.^(4, 16) Similar study found from Netherland among 2897 pregnant mothers revealed that the prevalence of depression was 5.4% in early pregnancy and 10% in late pregnancy.⁽⁸⁾

Different results from Sindhupalchowk, Nepal had 23.8% depression in antenatal mothers.⁽⁵⁾

This study reveals around 14% anxiety of pregnancy which is supported by a meta-analysis and metaregression study conducted in 88 studies from 48 countries, shows 37% of anxiety⁽¹⁷⁾ and study from Pakistan reveals 18% anxiety among antenatal mother.⁽¹⁸⁾ Similar study conducted in Sindhupalchowk, Nepal shows anxiety among antenatal mothers were 21.3%.⁽⁵⁾ The different result were showed by the Study from Central America Nicaragua shows 41%⁽¹⁹⁾ and study done in Dhulikhel hospital had 32.33%⁽¹²⁾ which is pretty much higher in proportion.

Similar study on prevalence of stress of pregnancy was conducted in Guangxi, China, a tenth of participants (7.98%) had elevated stress among antenatal mothers.⁽²⁰⁾ The different result were shown by a recent study from Malaysia by Using DASS-21 revealed stress 4.2%.⁽²¹⁾ However the prevalence of stress seems to be lesser than other studies. The global prevalence shows 52% pregnant mothers expressed stress during pregnancy.⁽¹⁶⁾

This study indicated that the prevalence of depression was 9.5% in the first trimester, 7.1% in the second, and 7.8% in the third trimester. Anxiety was reported at 21.4% in the first trimester, 10.1% in the second, and 14.6% in the third, while stress was 21.4% in the first trimester, 6.1% in the second, and 11.7% in the third trimester. A similar result was shown from China screening study.⁽²²⁾ A contrast result from a systematic review and meta-analysis from 34 countries of 102 studies revealed 18.2%, 19.1% and 24.6% in first, second and third trimester.⁽²³⁾ Whereas, another study shows the prevalence of stress during pregnancy was 35% in the first trimester and 34.2% in the third trimester which was the highest prevalent in Nepal.⁽²⁴⁾ This could be due to methodological differences between this study and other studies.

This study displayed the prevalence reveals that respondents having pregnancies without planning or unwanted had nearly 6 times more likely to have depression, around 4 times more likely to have anxiety and nearly 8 times more likely to have stress than those who had wanted pregnancies. A study from Nepal supported this findings that unplanned or unwanted pregnant women were nearly three and half times higher odds of having depression and two and a half times higher odds of having anxiety than those who had planned pregnancies.⁽⁵⁾ One study from Southern India also had similar findings among antenatal mothers those had unwanted pregnancies were nearly eight and a half times more likely to be stressed than those had wanted pregnancies.^(21, 25)

This study found that respondents those who hadn't take daily basis of balance diet were around 3 times more likely to have depression and more than 4 times more likely to have anxiety than having daily basis of balance diet.

Moreover, the study found that antenatal mothers facing domestic violence were around 23.3 times more likely to have depression, around 22 times more likely to have anxiety and were 67.1 times more likely to have stress in comparison with free from domestic violence. This study was supported by the study from Ireland revealed that antenatal mothers reporting domestic violence had highly significant.⁽¹⁷⁾ Similar study from Southern India using DASS-21 Screening tool, regarding women with history of intimate partner violence had odds 21 times higher to have depression, anxiety and stress than women free from intimate partner violence.⁽²¹⁾

A leading factor was domestic violence that was strongly associated with depression, anxiety and stress of pregnancy. The antenatal mothers who had facing domestic violence were around 22 times more likely to have anxiety. Whereas, antenatal mothers not having balanced diet daily were also strongly associated and nearly 3.5 times more likely to have anxiety of pregnancy.

CONCLUSION

Maternal mental health may be affected throughout pregnancy among antenatal mothers. It affects at any age, gravida, and trimester. Depression among the pregnancy seems to be alarming. Whereas anxiety and stress among pregnancy also seems in higher range. A major leading factor were domestic violence and inadequate nutrition as findings. Thereafter, early identification of maternal mental problem through the means of routine mental and psychological screening during antenatal period and arrangement of awareness program and health interventions seems to be needed for antenatal mothers who had exposed to domestic violence to promote maternal and child health in Nepal.

IMPLICATIONS

The findings of the study highlighted the need for awareness programs on maternal mental health through media and regular screening on each antenatal visit at the ANC clinic to enhance maternal and child health.

RECOMMENDATIONS

Based on the findings, it is recommended to conduct large-scale studies on mixed method design. Routine mental and psychological screening during ANC visit should be implemented for early detection of mental health issues during pregnancy. Providing psychological counselling, especially for pregnant mothers experiencing domestic violence, is crucial to reduce maternal mental health problems. Additionally, studies can be conducted on the effectiveness of psychological counselling in

reducing stress, anxiety, and depression during pregnancy.

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