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Psychiatry

PREVALENCE AND RISK FACTORS OF ANXIETY AND DEPRESSION DURING PREGNANCY

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ABSTRACT **Background:** Pregnancy brings about physiological, hormonal, and psychological changes that may raise the risk of mental and emotional alterations in the expectant mother, including depression, anxiety, and psychological distress. Depression during pregnancy is linked to a variety of foetal and obstetric problems, as well as a poor developmental outcome for the infant. Antenatal anxiety and depression were considered as a neglected part in maternal health programs, this study was an attempt to determine the prevalence and risk factors of anxiety and depression. **Material & Methods:** A hospital-based cross-sectional study was done in Obstetrics outpatient department among 125 antenatal women using a purposive sampling method. Data was collected using EPDS scale and PASS scale to evaluate depression and anxiety respectively by interview technique. Descriptive & Inferential statistics were used for analysing data using SPSS software. **Results:** 13.6% of antenatal women had anxiety disorder and 16.8% of them were depressive. History of stillborn and abortion, physical/verbal violence, preference for male child and alcohol intake by spouse were the probable risk factors. **Conclusion:** Antenatal women were found to be anxious and depressive. As a result, healthcare programmes can incorporate screening and diagnosis of prenatal depression as part of antenatal care, as well as other healthcare services.

KEYWORDS : Antenatal women, Anxiety, Depression, Pregnancy, Cross sectional study.

INTRODUCTION

Pregnancy and the postpartum period can be exciting and full of hope, but they can also be stressful and challenging.(1) A pregnant woman's relationship with her developing foetus is perhaps the most sincere, overwhelming, and puzzling of all human interactions. Pregnancy brings about physiological, hormonal, and psychological changes that may raise the risk of mental and emotional alterations in the expectant mother, including depression, anxiety, and psychological distress.(2) Depression and anxiety are key causes of disability worldwide, and it contributes significantly to the global disease burden. (3)

Maternal wellness has been defined as a state in which a mother recognizes her own skills, is able to cope with typical life challenges, and is able to contribute meaningfully to her community. According to numerous research, Asian women experience higher rates of depression during pregnancy than North American women.(3)A systematic review by Biaggi A et al reported that in high-income nations, the prevalence of prenatal depression is believed to be between 7% and 20%, but rates of 20% or higher have been observed in low- and middle-income countries. (1)In a meta-analysis, Mahendran R et al found that the overall pooled prevalence of prenatal depression in South Asia was 24.3 %, and 17.74 % in India. (4)

According to estimates, up to one in five pregnant women will suffer anxiety, and there is a higher chance that they will develop an anxiety disorder or illness.(5)According to a systematic review and meta-analysis by Bayrampour et al(6), antenatal anxiety was 2-3 times more common than depression, with a prevalence of anxiety symptoms and disorders among pregnant women being 23% and 15%, respectively. One of the best indicators of postpartum depression is antenatal anxiety. Previous pregnancy loss, health issues, childhood abuse, intimate partner violence, denial/acceptance coping mechanisms, personality features, a lack of social support, a history of mental health issues, high perceived stress, and negative life experiences were all linked to a higher likelihood of anxiety.

Financial security, previous girl child, inner desire for male child, family pressure for male child, infertility treatment, previous complications in pregnancy, stressful events, relationship problems, previous abortions, mother's education status, not receiving support from in-laws, and marital violence are all factors that influence the risk of depression during pregnancy. Depressive symptoms during pregnancy, such as loss of interest in pleasurable activities, recurring thoughts of death or suicide, hopelessness, difficulty concentrating, sadness, feeling of worthlessness, guilt, and changes in sleep and eating habits, may overestimate other medical conditions in women. Preterm birth, low birth weight, birth abnormalities, postnatal depression, and other complications have all been linked to antenatal depression.(3) Preterm labour, spontaneous abortion, low birth weight, and intrauterine growth restriction have all been related to antenatal depression, which is generally under diagnosed. Depression among pregnant women was prevalent in many parts of the world. The proportion of maternal depression was significantly higher among low- and middle-income nations than in high income countries, according to research.(7) Insan N et al found that antenatal depression/anxiety was substantially linked with intimate partner violence, unwanted pregnancy, male gender preference, and a poor interaction with in-laws in a meta-analysis conducted in South Asia. (8)

Maternity depression and antenatal anxiety is a major hindrance in achieving maternal and foetal wellbeing, yet it is largely ignored in most maternal and child health programmes around the world. Hence this study was planned to estimate the prevalence and to determine the risk factors of anxiety and depression during pregnancy.

MATERIAL AND METHODS

A hospital based cross-sectional study among pregnant women using purposive sampling was conducted in a tertiary care medical college hospital. All antenatal women irrespective of the gestational age, consenting to participate in our study were recruited from the Obstetrics and Gynaecology outpatient department from March 2022 to May 2022. Antenatal mother who had difficulty comprehending the questionnaire were excluded from our study. According to a study by Dahiya N. et al.(3) conducted in North India, the prevalence of possible depression was 21%, and the sample size was calculated to be 125 utilising absolute precision of 8%, power of 80%, and non-response

rate of 10%. The formula 4pq/d2 was used to arrive at the sample size. Participants answered semi structured questionnaire to assess the socio-demographic, obstetric and social factors. The 10-item Edinburgh Postnatal Depression Scale (EPDS) is a useful and effective tool for identifying patients who are at risk of developing perinatal depression. The EPDS is a simple to use screening tool assessing depressive symptoms for the past seven days. Mothers with a score of more than 13 are more likely to have a depressive illness of different severity.(9) The EPDS had a combined sensitivity and specificity of 0.81 and 0.87, respectively.(10) A score of ten or more implies possible depression with a maximum score of 30.

The Perinatal Anxiety Screening Scale, or PASS, 31-item questionnaire developed to specifically screen for a wide range of anxiety symptoms throughout pregnancy and the postpartum period. This scale measures four different types of anxiety: acute anxiety and adjustment, general worry and particular anxieties, perfectionism, control and trauma and social anxiety. The severity of anxiety were categorised as follows: 0 – 20 (asymptomatic), 21 – 41 (mild - moderate) and 42 – 93 (severe anxiety).

Data collection from antenatal women was carried out by face-to-face interview technique using semi structure questionnaire. Antenatal mothers were assessed for anxiety and depression using EPDS and PASS scales after getting written informed consent. The outcome variables were prevalence of anxiety (mild, - moderate and severe) and depression (EPDS score ≥ 10). The predictor variables were socio-demographic characters like age group, education, occupation, employment status, residence, religion and type of family. Obstetrics and gender related issues like gestational age, history of abortion/stillborn, alcohol intake by spouse, preference for male child, perceived social support from partner/mother/in laws, physical and verbal violence.

The data collected were entered in Microsoft Excel, while SPSS version 16 was used to analyse it. For the analysis of continuous and categorical data, respectively, frequencies and proportions were utilised. To examine the relationship between categorical variables, the chi square test was applied. A p value less than 0.05 is regarded as significant.

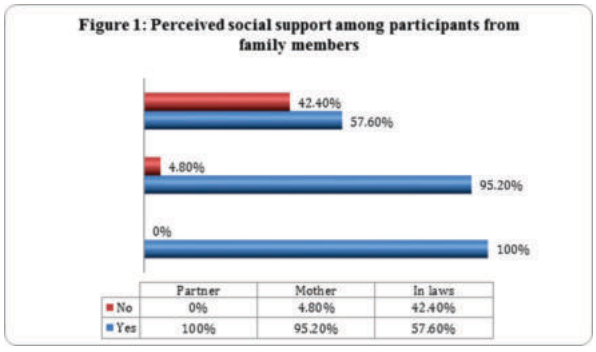
RESULTS

This study was conducted among 125 consenting antenatal women. The mean age of antenatal women was 25.78 ± 4.45 years ranging from 18 – 38 years. The mean age of spouse was 31.18 ± 4.96 years ranging from 22 – 42 years. Majority were educated up to Higher secondary education and were not employed currently. About 95% of them were Hindus and there was almost equal distribution among type of family. A higher proportion of attendees were from rural area and 48% of them had less than 5kms distance from their home to hospital. One fourth of the antenatal women had partner who consumes alcohol. 28% and 12% of them had previous history of abortion and stillbirth respectively. 21.6% were pressurized for male child by their family members. Table 1 describes baseline characteristics of our participants.

Table 1: Baseline characteristics of participants (n = 125)

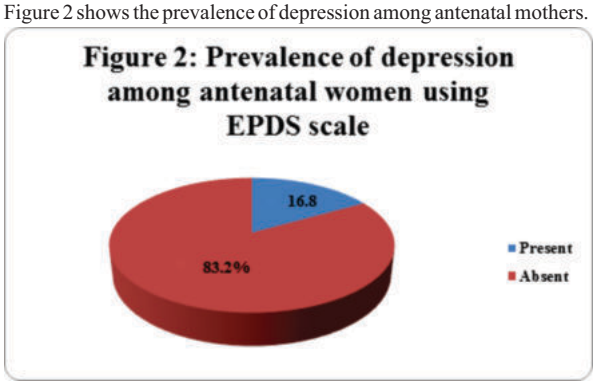
S No	Variables		Frequency	Percentage
1	Education	Just literate	3	2.4%
		Primary	3	2.4%
		High school	30	24%
		Higher Secondary	49	39.2%
		Graduate	40	32%
2	Employment status	Unemployed	113	90.4%
		Part time	3	2.4%
		Full time	9	7.2%
3	Religion	Hindu	119	95.2%
		Muslim	6	4.8%
4	Type of family	Joint	70	56%
		Nuclear	55	44%
5	Residence	Rural	59	47.2%
		Semi-urban	48	38.4%
		Urban	18	14.4%
6	Proximity	Less than 5	60	48%
		5 – 10	21	16.8%
		More than 5	44	35.2%
7	Alcohol intake in spouse	Yes	36	28.8%
8	Trimester	First	48	38.4%
		Second	25	20%
		Third	52	41.6%
9	Pressure for male child	Yes	27	21.6%
10	History of Abortion	Yes	35	28%
11	History of previous stillbirth	Yes	15	12%
12	Physical/verbal violence	Yes	12	9.6%

Figure 1 shows the perceived social support from family members. Amazingly everyone received their life partner support, but unfortunately 4.8% of them do not receive their mother's support. Gracefully 57.6% of them received their in-laws support during their pregnancy.



The mean score on EPDS scale was 5.50 ± 4.59 ranging from 0 -17. The mean global score on PASS scale was 13.32 ± 9.92 ranging from 1 – 42. The subscales of PASS were as follows: excessive worry subscale 5.14 ± 3.82 ranging from 0 -17, perfectionism, control, trauma 4.64 ± 4.28 ranging from 0 – 14, social anxiety 2.14 ± 2.08 ranging from 0 – 7 and acute anxiety and adjustment 1.77 ± 2.85 ranging from 0 – 14.

The prevalence of depression among antenatal women was 16.8%. Figure 2 shows the prevalence of depression among antenatal mothers.



The prevalence of antenatal anxiety was 13.6%, of them 2.4% had severe anxiety disorder, 11.2% of them had mild – moderate anxiety disorders. Figure 3 shows the prevalence of anxiety among antenatal women.

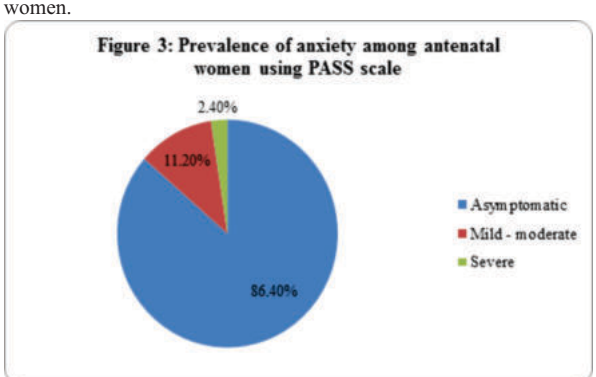


Table 2 shows the association between depression and socio-demographic characteristics. Significant difference in depression

prevalence was observed in age group, literacy and proximity to hospital factors. Age group less than thirty years were depressed more than antenatal women aged thirty years and above. Participants five kilometres away from hospital and graduates were depressed more than others. Table 2 also shows the association between anxiety and socio-demographic characteristics. Age group, type of family and proximity to hospital were associated with antenatal anxiety. Age group more than thirty years were anxious than antenatal women aged less than thirty years. Participants five kilometres away from hospital and nuclear family dwellers were more anxious than others.

Table 2: Association between antenatal depression, anxiety and socio-demographic characteristics

S no	Variables	Depression N=21	χ2 p value	Anxiety N=17	χ2 p value
1	**Age group (in years)**				
	<30 years	21 (22.1%)	7.971	14 (14.8%)	0.435
	≥30 years	0 (0)	0.005	3 (10%)	0.509
2	**Education**				
	Just literate	0 (0%)	39.911	0 (0%)	6.932
	Primary	0 (0%)	0.0001	0 (0%)	0.140
	High	0 (0%)		3 (10%)	
	Higher secondary	2 (4.1%)		4 (8.2%)	
	Graduates	19 (47.5%)		10 (25%)	
3	**Employment status**				
	Full time	0 (0%)	2.680	0 (0%)	2.089
	Part time	0 (0%)	0.262	0 (0%)	0.352
	Unemployed	21 (18.6%)		17 (13.6%)	
4	**Type of family**				
	Joint	9 (12.9%)	1.769	3 (4.3%)	11.746
	Nuclear	12 (21.8%)	0.183	14 (25.5%)	0.001
5	**Religion**				
	Hindu	21 (17.6%)	1.273	17 (14.3%)	0.992
	Muslim	0 (0)	0.259	0 (0)	0.319
6	**Residential**				
	Rural	7 (11.9%)	4.549	8 (13.6%)	0.194
	Semi urban	8 (16.7%)	0.103	6 (12.5%)	0.908
	Urban	6 (33.3%)		3 (16.7%)	
7	**Proximity to hospital in km**				
	Less than five	9 (15%)	7.832	3 (5%)	19.510
	5 - 10	0	0.020	0	0.001
	More than five	12 (27.3%)		14 (31.8%)	

Table 3 presents the association between depression and obstetric &social factors. History of abortion, gestational age (first trimester), and absence of social support from in laws, alcohol consumption by partner, male child preference and participants who had physical/verbal violence were significantly associated with antenatal depression. Similarly, absence of social support from in laws, male child preference and participants who had physical/verbal violence were significantly associated with antenatal anxiety.

Table 3: Association between antenatal depression, anxiety and obstetric & social factors

S no	Variables	Depression N=21	χ2 p value	Anxiety N=17	χ2 p value
1	**History of stillborn**				
	Yes	4 (26.7%)	1.187	3 (20%)	0.594
	No	17 (15.5%)	0.276	14 (12.7%)	0.441
2	**History of abortion**				
	Yes	10 (28.6%)	4.819	8 (22.9%)	3.545
	No	11 (12.2%)	0.028	9 (10%)	0.060
3	**Gestational age**				
	First trimester	13 (27.1%)	6.729	10 (20.8%)	3.607
	Second trimester	4 (16%)	0.035	2 (8%)	0.173
	Third trimester	4 (7.7%)		5 (9.6%)	
4	**Perceived social support from mother**				
	Present	19 (16%)	1.233	17 (14.3%)	0.992
	Absent	2 (33.3%)	0.267	0 (0%)	0.319
5	**Perceived social support from in laws**				
	Present	6 (8.3%)	8.709	6 (8.3%)	4.009
	Absent	15 (28.3%)	0.003	11 (20.8%)	0.045
6	**Alcohol consumption by partner**				
	Yes	12 (33.3%)	9.888	4 (11.1%)	0.267
	No	9 (10.1%)	0.002	13 (14.6%)	0.606
7	**Male child pressure**				
	Yes	9 (33.3%)	6.735	7 (25.9%)	10.015
	No	12 (12.2%)	0.009	10 (10.2%)	0.035
8	**Physical /verbal violence**				
	Present	8 (66.7%)	23.616	6 (50%)	14.968
	Absent	13 (11.5%)	0.0001	11 (9.7%)	0.0001

Past history of stillborn and abortion had 1.99 and 2.87 times risk of depression but this was not significant statistically. History of alcohol consumption by spouse, expectation of a male child also had increased risk for depression but the findings were not statistically significant. Participants who had physical violence were 15.39 times increased risk of depression (95% CI 4.060 – 58.291) and this was significant statistically. Past history of stillborn, abortion, preference for a male child, alcohol use in spouse and physical violence though increased the risk for antenatal anxiety; these findings were not statistically significant.

Table 4: Risk ratio of factors associated with antenatal depression and anxiety

S No	Variables	Antenatal Depression		Antenatal Anxiety	
		Odd's Ratio [OR]	(95% CI)	Odd's Ratio [OR]	(95% CI)
1	History of still born	1.989	0.567 – 6.983	1.714	0.430 – 6.840
2	History of abortion	2.873	1.092 – 7.558	2.667	0.936 – 7.599
3	Perceived social support from mother	0.380	0.065 – 2.224	0.857	0.797 – 0.922
4	Perceived social support from in laws	0.230	0.082 – 0643	0.347	0.119 – 1.009
5	Alcohol consumption by partner	4.444	1.673 – 11.810	0.731	0.221 – 2.413
6	Pressure of male child	3.583	1.315 – 9.765	3.080	1.045 – 9.079
7	Physical/verbal violence	15.385	4.060 – 58.291	9.273	2.549 – 33.729

DISCUSSION

Our study was conducted among antenatal mothers attending OPD in a tertiary care centre to assess anxiety and depression among them.

Our study estimated that the prevalence of depression was 16.8% among antenatal mothers. The factors like age less than thirty years, higher education and less distance from hospital to their home, history of abortion, absence of in laws support, alcohol consumption by life partner and male child preference were associated with depression. History of still born and abortion, alcohol consumption by partner, male child preference and physical violence were risk of antenatal depression.

A population based Brazilian study by Cury AF et al(11), depicted that 11.4% of antenatal women were depressive. This study also emphasized that lower education and living alone was significantly associated with antenatal depression. These results were contrast to our study results might be due to difference in the socio demographic determinants.

The prevalence of prenatal depression was reported to be 24.94 percent in an Ethiopian study by Biratu A et al(12). Past history of depression, a lack of support from the baby's father, and an unanticipated pregnancy were all factors that increased the chance of prenatal depression. This study shows higher prevalence than our study and there were women without partner's support. But in our study, everyone received partner's support might be the protective factor during their pregnancy days.

The proportion of depression using EPDS scale among pregnant participants was 15.9% in a study conducted by Govender et al(7) in South Africa. Physical violence and verbal abuse were linked to antenatal depression which shows similar results.

A study from Pakistan reported the prevalence of depression among women seeking prenatal treatment during their last trimester was 40.89% (n=184) (13) which shows contrast results compared with our study. Sabir M et al included only last trimester antenatal women and

assessed depression by Goldberg Depression Scale could be one of the reasons for higher prevalence.

According to Tasnim S et al(14), 36.2 % of Bangladeshi pregnant mothers with gestational diabetes were depressed which shows higher prevalence could be due to population characteristics as well as comorbid diabetes in the participants. None of the socio-demographic characteristics were linked to depression, but a history of reproductive health concerns such as abortion and neonatal death were linked to an extremely high risk of depressive disorders as similar to our study results.

Dahiya N et al(3) study from North India using EPDS, discovered that 21% of women could be depressed which shows higher prevalence compared with our study results. Depression was shown to be substantially more likely in literate participants than among illiterate mothers. Age and family type had little bearing on the likelihood of depression which was similar to our study results. There was no link between the likelihood of depression and a history of abortion, personal history of psychiatric disease, family history of psychiatric illness, parental, spouse, and in-law support, and a history of violence/abuse in their family, regardless of whether the participants were pressured to have a male child or not, as contradictory to our study might be due to socio demographic characters. Depression was observed to be substantially more likely in participants whose spouses were alcoholics ($p< 0.001$) than in other participants which was similar to our study results.

In a research conducted by Shidhaye et al(15) in rural Maharashtra, 16 % of women had antenatal depression. Feeling obligated to deliver a male child, in-laws' unsatisfactory response to dowry, and a tense relationship with in-laws were all related to prenatal depression. These results were similar to our study results.

Using EPDS, Bhagwan D et al(16) in Mangalore discovered that 10.9% of women were developing antenatal depression which shows lower prevalence than our study might be due to cultural and demographic characteristics. Women who were subjected to in-law pressure had a statistically significant increased chance of experiencing prenatal depression which was same as our study results. So, it was concluded that the factors like history of abortion, absence of in laws support, alcohol consumption by life partner, physical violence and male child preference were the probable risk factors significantly relate with depression.

Our study found that the prevalence of anxiety was 13.6% among antenatal mothers. The factors like age more than thirty years, nuclear family dwellers and less distance from hospital to their home, history of stillborn, absence of in laws support, and male child preference were associated with anxiety. History of still born and abortion, alcohol consumption by partner, male child preference and physical violence were risk of antenatal anxiety.

In the first trimester of pregnancy, 17.7% of pregnant women in Chan C et al's(17) study of 1470 pregnant women in China displayed signs of anxiety which was similar to our study results. In the first trimester, anxiety symptoms were substantially more prevalent in moms who were single, younger, smokers before becoming pregnant, and mothers with less education. Significant psychosocial risk factors for anxiety symptoms in the first trimester included unintended pregnancy, low self-esteem, unhappiness in marriage, and a perception of little social support by Chan C et al research. Chan C et al depicted that the perceived social support was the key factor to prevent anxiety during pregnancy which was similar to our study results.

The incidence of anxiety related to pregnancy was reported to be 43.9% in research by Abegaz M et al(18) among 423 pregnant women in Ethiopia. The prevalence was higher compared to our study. This might be due socio demographic pattern and larger sample size. Lack of formal education, being a first-time mother, violent intimate partners, and a lack of social support were all strongly linked to pregnancy-related anxiety which shows the similar results of our study.

In a study conducted in Australia by Bedeso A. M. et al(19)., 493 pregnant women were found to have a prevalence of 20.9% for pregnancy-related anxiety which was slightly higher prevalence compared with our study.

Sapkota B et al(20) research in Nepal among participants showed that 40.9% of them had minimal anxiety level (PASS score of 0 - 20), 42.2% of them had mild – moderate (PASS score of 21 - 41) anxiety disorder and 16.9% of them had severe anxiety disorder (PASS score of 42 – 93). The prevalence of anxiety was higher compared with our study results might be due socio demographic characteristics.

In Tamil Nadu, Kantipudi S. et al(21) reported 23% of expectant mothers to have generalised anxiety condition (GAD). Antenatal GAD was linked to pressure to have a male child ($p=0.041$) and inadequate social support perceived by the in-laws ($p=0.039$). This result is almost consistent with our findings.

The antenatal mothers were found to be anxious during their pregnancy. History of previous complications, absence of social support and physical/verbal abuse were the probable risk factors found to be associated with antenatal anxiety.

Inherent to the study design and fewer sample size the results need to be interpreted with caution for generalizability. Causative association could not be made. Future prospective cohort studies with a larger sample size will aid in circumventing the above limitations.

CONCLUSION

Antenatal women who are anxious and depressed during their pregnancy period may cause developmental complications to growing foetus. The social factors like pressurization for male child, physical/ verbal violence by partner or by their family members, alcohol consumption by their partner and obstetric reasons like history of abortion and stillbirth were the common risk factors for antenatal depression. The participants receiving emotional support from their partners, mother and in laws were the protective factors.

India is a large country with significant cultural and regional diversity, resulting in disparities in risk factors and outcomes. Recognizing mother mental distress by health care providers during pregnancy has been identified as an important action for reducing maternal depression's burden and improving child outcomes. Every antenatal visit should be strengthened for assessing antenatal anxiety and depression for the early diagnosis and management.

Ethical Consideration:

The Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Madhuranthagam's institutional ethics committee gave its approval to the project. KIMS & RC, Madhuranthagam's department of OG and department of psychiatry both gave their approval for the study to be conducted. The informed written consent was sought from the participants. Anonymity was ensured and non-participation in the study had no impact on the usual care of the antenatal mothers.

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