

Prevalence and Determinants of Antenatal Depression in a Tertiary Care Hospital: A Cross-Sectional Study

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Abstract:

Background: Antenatal depression is common mood disorder and is important public mental health problem. It is mostly ignored, underdiagnosed and undertreated. Various socio-demographic determinants, poor social support and marital dissatisfaction were associated with antenatal depression.

Aims and Objectives: To estimate the prevalence of antenatal depression among women attending ANC OPD in tertiary care hospital. To determine association of antenatal depression with various demographic factors, perceived social support and marital satisfaction among women attending ANC OPD in tertiary care hospital.

Material and Methods: This cross-sectional study included study population of women attending ANC OPD in tertiary care hospital, during the period of January 2023 to August 2024. All women attending routine ANC OPD and aged more than 18 years were included in the study. Women having medical illness or medical complication due to pregnancy, any obstetric complication during current pregnancy, with substance abuse and on psychiatric medications were excluded from the study. Sample size comprised of 323 women. Marital satisfaction in pregnant woman was measured with Couples Satisfaction Index (CSI-4). Perceived social support was measured with Multi-dimensional Scale of Perceived Social Support (Zimet et al.1988). Women were screened for antenatal depression using the Edinburgh Postnatal Depression Scale (EPDS). The data was analyzed using SPSS software. Mean age, frequencies, proportions, and correlation were calculated. $p < 0.05$ was considered significant.

Results: The mean age of women was 25.20 ± 4.031 years. The mean of duration of marriage of women was 3.51 ± 2.596 years. The mean gestational age was 29.76 ± 6.335 . The prevalence of antenatal depression in women attending ANC OPD was 18.6%. The prevalence of antenatal depression in second and third trimester was 29.72% and 14.71% respectively. Antenatal depression had significant correlation with the age of a pregnant women, gestation age, trimester of pregnancy, education of husband, family type of husband and couple satisfaction index i.e. marital satisfaction.

Conclusions: In the routine ANC OPD all pregnant women and especially at high risk, aged, multiparous, with poor family support and poor relationship with husband need to be screened for antenatal depression using Edinburgh Postnatal Depression Scale (EPDS). High index of suspicion and early referral of pregnant women to mental health services can prevent antenatal depression.

Keywords: Antenatal Depression, Pregnant Women, Perceived Support, Marital Satisfaction.

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Introduction

Pregnancy is a time of physical and psychological preparation for birth and parenthood (Bennett HA, 2004;103). In India pregnancy is considered as a period of happiness, satisfaction and fulfillment (Ajinkya S., 2013;22). [1] Antenatal depression is very important public health problem as it can adversely affect mother, child, family and society. Pregnant women are at high risk of antenatal depression due to socio-cultural expectations and stress of bio-psycho-social changes of pregnancy (Dahiya N., 2020;32). [2] In spite of a common mis-

belief that pregnancy protects against mental illness; pregnant women are at high risk of depression.

The incidence of depression and unfavorable pregnancy outcomes may be reduced by early diagnosis of depression in pregnant women (Clatworthy J., 2012;137). [3] Antenatal depression should be screened and diagnosed as part of routine antenatal care. It needs to be treated promptly for the health and safety of expectant mother and baby. If not recognized promptly and treated on time, it

could develop into postpartum depression (Gavin NI, 2005;106). [4]

The risk factors for antenatal depression include genetics, psychological, biological and socio-demographic factors (Raghavan V., 2021;56). [5] The factors such as unplanned pregnancy, multi-gravidity, history of abortion, advancing age of mother, lower socio-economic status, poor education status of women, unemployment, bad relations with in-laws and demand for dowry were having significant correlation with depression (Bavle A.D., 2016;38). [6] Expectations and demands for male baby from husband, in-laws and parents were also significant source of stress to pregnant women (Fernandes MC, 2011;14). [7]

The prevalence of antenatal depression was found to be ranging from 9.8% to 65% in Northern, Western and Southern parts of India (Mina S., 2013;15). [8] The prevalence of 8.8% to 18.5% perinatal depression was reported in community and medical facilities in India (Bavle A.D., 2016;38). Prevalence of depression in pregnancy ranges from 6% to 25% (Gavin NI, 2005;106). [9] Two Indian studies reported the prevalence of antenatal depression that of 9.8% and 17% (Mina S., 2013;15). [10] A systematic review of antenatal depression showed the prevalence rate of 7.4% in the first trimester, 12.8% in the second trimester and 12% in the third trimester (Bennett HA, 2004;103). [11]

Perceived social support and marital satisfaction are very important during emotional and physical changes that occur during pregnancy (Clatworthy J., 2012;137). [12] It has been shown they are very important protective factors against antenatal depression. However there was a lack of research on antenatal depression in rural parts of India. In this context, current study was done to determine the prevalence and determinants of antenatal depression in rural parts of Maharashtra, India.

Materials and Methods:

This was a prospective, cross-sectional study done in an ANC OPD of Obstetrics and Gynecology in a Tertiary care Hospital of Rural Maharashtra. This study was conducted from January 2023 to August 2024, after obtaining Institutional Ethics Committee approval. All pregnant women aged more than 18 and attending antenatal OPD were selected for this study. Women having medical illness, obstetric complications, psychiatric illness, substance abuse or taking any psychiatric medications were excluded from the study. 323 pregnant women who gave informed consent were interviewed and the data was collected about demographic details, details of past and present pregnancy, marital satisfaction, perceived social support and antenatal depression.

Marital satisfaction in pregnant women was measured with Couples Satisfaction Index (CSI-4).

This scale is developed by Funk, J.L. and Rogge, R.D. in 2007. To score the CSI-4 responses of all the items were added. CSI-4 scores range from 0 to 21. Higher score indicates higher level of marital satisfaction. CSI-4 scores less than 13.5 considered as marital dissatisfaction (Funk J.L., 2007;21).

Perceived social support was measured with Multidimensional scale of perceived social support (Zimet GD, 1988;52). This is 12 item measure with three subscales family, friends and significant others. This scale uses 5 point Likert scale i.e. 0= strongly disagree to 5= strongly agree.

To calculate mean score of significant other subscale scores of items 1, 2, 5 and 10 were added and then divided by 4. For family subscale score items 3, 4, 8 and 11 were added and then divided by 4. For friends support subscale score of items 6, 7, 9 and 12 were added and then divided by 4. For total social support score, scores all 12 items were added and then divided by 12. Any mean score ranging from 1 to 2.9 would be considered as a low social support, a score of 3 to 5 would be considered as a moderate support and a score from 5.1 to 7 would be considered as a high social support (Zimet GD, 1988;52).

The Edinburg Postnatal Depression Scale (EPDS) is a set of 10 screening questions. The scale consists of 10 short statements. The pregnant women were explained to select the closest answer as to how she had felt during the past week. Women not allowed discuss the options with relatives and others. She was encouraged to complete all questions herself (Cox JL, 1987;).

The answers to items 1, 2 and 4 were scored from 0 to 3, so first answer was 0 point and last answer was 3 points. The answers to items 3 and 5 to 10 were reverse scored from 3 to 0; so first answer was 3 points while the last answer was 0 points. Total score ranged from 0 to 30. Pregnant women who obtained score greater than 13 considered to have depression (Cox JL, 1987;).

The data was analyzed using SPSS version 29 software. The mean of pregnant women age, marriage duration, and gestational age with standard deviation were calculated. Descriptive statistics were used to describe socio-demographic characteristics, Perceived social support, marital satisfaction and antenatal depression. Pearson's correlations, cross tabulations and bivariate correlation analysis were used to determine correlation between antenatal depression and perceived social support, marital satisfaction and obstetric characteristics. A $p < 0.05$ was considered as statistically significant.

Results:

The data in Table 1 shows descriptive statistics of pregnant women in our study. The mean age of women was 25.20 years with standard deviation of

±4.031. The mean of duration of marriage of women was 3.51 years with standard deviation of ±2.596. The mean gestational age was 29.76 weeks with standard deviation of ±6.335. The mean of viable

pregnancies i.e. more than 28 weeks in women is 1.20 with standard deviation of ±0.839. The mean gestational age was found to be 29.76 weeks with standard deviation of ±6.335.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	323	18	40	25.20	4.031
Marriage duration	323	1	15	3.51	2.596
Pregnancies more than 28 weeks	323	0	3	1.20	0.839
Number of girls	323	0	3	0.43	0.667
Number of boys	323	0	2	0.17	0.403
Geatational age	323	8	40	29.76	6.335
Valid N (listwise)	323				

36.8% women were educated up to 12th standard and only 3.4% were uneducated. Husbands of 2.5% women were uneducated and that of 34.1% were graduated. Arranged marriage was observed in 79.9% women and 96.6% women married willingly. 67.2% of women were from the joint type of family

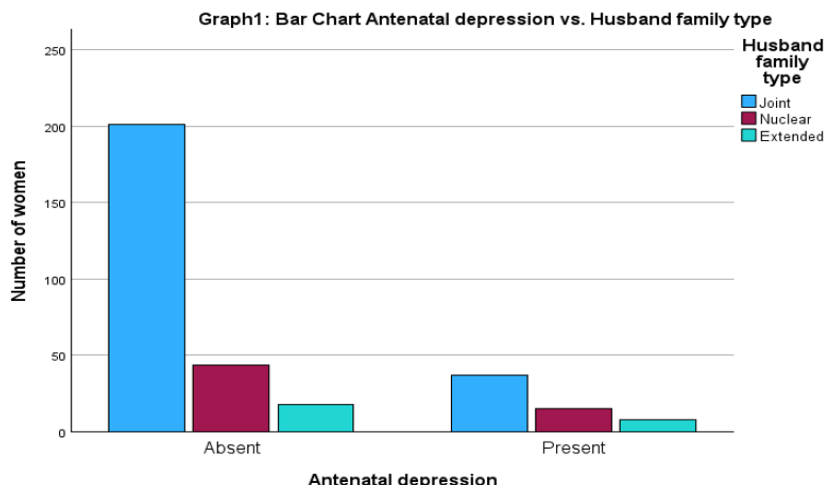
while 25.1% were from nuclear family. Joint type of husband's family was observed in 73.7% of the respondents. 16.8% of the pregnant women faced addiction problem in their husbands. 98.5% of the pregnant women wanted pregnancy but only 69.7% planned their current pregnancy.

Table 2: Antenatal depression

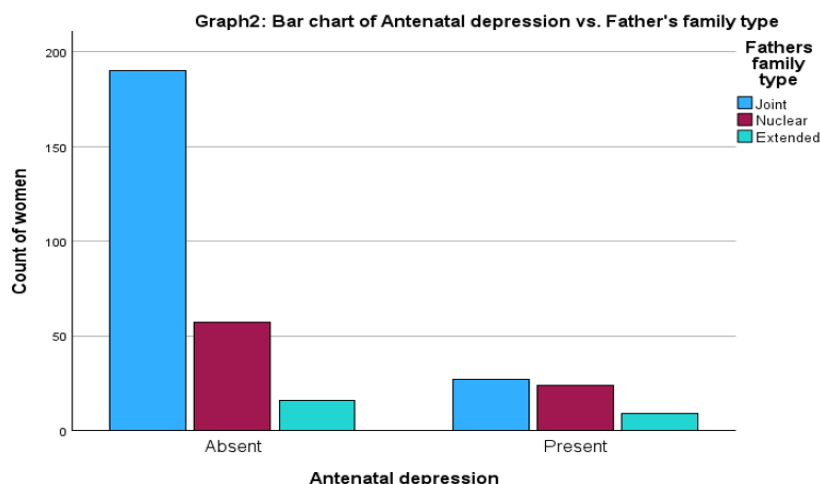
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	263	81.4	81.4	81.4
	Yes	60	18.6	18.6	100.0
	Total	323	100.0	100.0	

As shown in Table 2, out of total 323 participant women, antenatal depression was present in 18.6% (n= 60) and the remaining 81.4% (n= 263) did not had antenatal depression during a week before the interview. So the prevalence of antenatal depression was 18.6%.

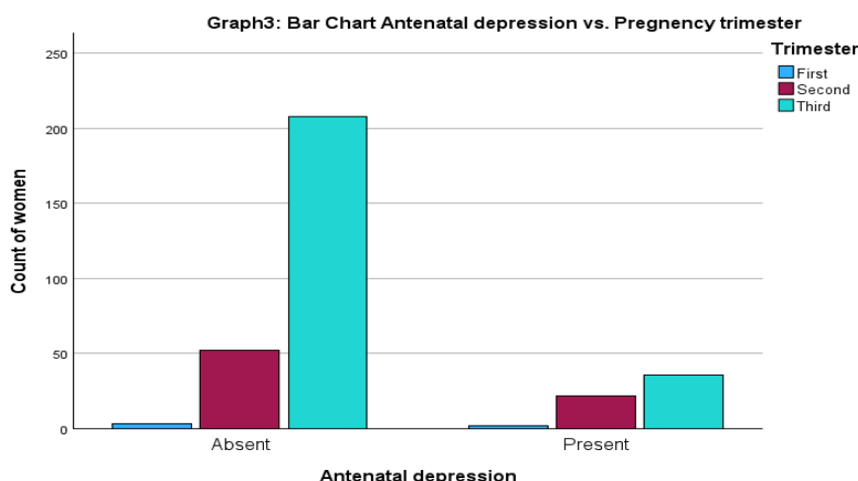
26.6%, 28.2%, 33.7% and 28.2% of pregnant women, their husband, in laws and parents respectively desired boy baby. Only 17% of antenatal women desired girl baby. 1.5%, 22.9% and 75.5% pregnant women were in their first, second and third trimester respectively.



As shown in Graph 1, out of 60 women with antenatal depression; 37, 15 and 8 were from joint, nuclear and extended husband's family respectively. While 27, 24 and 9 women respectively had joint, nuclear and extended family at their parents place (Graph 2).



The number of pregnant women in the first, second and third trimester was 5(1.54%), 74(22.9%) and 244(75.5%) respectively. Out of 244 women in the third trimester 36(14.71%) had antenatal depression. Out of 74 women in the second trimester 22(29.72%) had antenatal depression. In our study we observed that the risk of development of antenatal depression was highest during the second trimester (Graph 3).



The number of pregnant women in the first, second and third trimester was 5(1.54%), 74(22.9%) and 244(75.5%) respectively. Out of 244 women in the 3rd trimester 36 (14.71%) had antenatal depression. Out of 74 women in the second trimester

22(29.72%) women had antenatal depression. In our study we observed that the risk of antenatal depression was highest during the second trimester (Graph 3).

Table 3: Correlation of Antenatal depression with age and trimester

		Antenatal depression	Age	Trimester
Antenatal depression	Pearson Correlation	1	0.140*	-0.175**
	Sig. (2-tailed)		0.012	0.002
	N	323	323	323
Age	Pearson Correlation	0.140*	1	-0.026
	Sig. (2-tailed)	0.012		0.639
	N	323	323	323
Trimester	Pearson Correlation	-0.175**	-0.026	1
	Sig. (2-tailed)	0.002	0.639	
	N	323	323	323

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4: Correlation of antenatal depression with Husband's education and family type

		Antenatal de- pression	Husband edu- cation	Husband fam- ily type
Antenatal depression	Pearson Correlation	1	0.154**	0.133*
	Sig. (2-tailed)		0.006	0.017
	N	323	323	323
Husband education	Pearson Correlation	0.154**	1	0.193**
	Sig. (2-tailed)	0.006		<0.001
	N	323	323	323
Husband family type	Pearson Correlation	0.133*	0.193**	1
	Sig. (2-tailed)	0.017	<0.001	
	N	323	323	323
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Table 5: Correlation of antenatal depression with couple satisfaction index

		Antenatal de- pression	Couples Satis- faction index
Antenatal depression	Pearson Correlation	1	-0.286**
	Sig. (2-tailed)		<0.001
	N	323	323
Couples Satisfaction index	Pearson Correlation	-0.286**	1
	Sig. (2-tailed)	<0.001	
	N	323	323
**. Correlation is significant at the 0.01 level (2-tailed).			

In our study we found that antenatal depression had significant correlation with the age of a pregnant women, gestation age, trimester of pregnancy, education of husband, family type of husband and couple satisfaction index i.e. marital satisfaction. We found that the antenatal depression did not have significant correlation with other demographic determinants like education of women, marriage types, willingness to marry, duration of marriage, addiction problems in husband.

Pregnancy related characteristics like willingness and planning of pregnancy, number of boys or girls they had, expectations of women and her family members about sex of the baby did not have any significant correlation with antenatal depression. We did not found any significant correlation between antenatal depression and perceived social support, significant others support, family members support and friends support.

Discussion:

Prevalence of depression in pregnancy ranges from 6% to 25% (Ryan D., 2005;51). [13] Two Indian studies reported the prevalence of antenatal depression that of 9.8% and 17% (Ajinkya S., 2013;22). In our study the prevalence of antenatal depression was found to be 18.6% (n=60). This prevalence value was in line with the most of the Indian studies showing prevalence of 12.3% to 35.7% (Mina S., 2013;15). [14]

A systematic review of antenatal depression showed the prevalence rate of 7.4% in the first trimester,

12.8% in the second trimester and 12% in the third trimester (Bennett HA, 2004;103). In our study the prevalence of antenatal depression during the second trimester was found to be 29.72% (n=22) and in the third trimester it was 14.71% (n=36). We observed that the prevalence rate of antenatal depression was higher during the second trimester as compared to the first and third trimester. This might be due to biological, hormonal and psychological changes that were high during second trimester. Majority women learn to adjust to all these changes during the third trimester. Also the fear of detection of anomalies during ultrasonography procedures was high during second trimester. Expectations of baby boy and gathering information about various illegal ways of having baby boy were high during second trimester might contribute to high prevalence of antenatal depression.

Risk factors for antenatal depression included low income, low educational attainment, unplanned pregnancy, low social support and marital dissatisfaction (Lau Y., 2007;59). In our study we found significant correlation of antenatal depression with maternal age, husband's education and husband's family type. These results had been in line with similar results and correlation in previous research (Ajinkya S., 2013;22). [15] Younger pregnant women were at more risk of antenatal depression (Ajinkya S., 2013;22) (Duko B., 2019;16). [16,17] This might be due to the process of adjustment of women after marriage with new life at her husband's family and added burden of biological and psychological changes during

pregnancy. Educated husband and emotional bonding in joint family culture might act as a protective factor against antenatal depression. The protective action of an educated husband might be due to the rural culture of the husband working outside the house and earning livelihood and women working in the house as housewife and caretaker.

Significant correlation of antenatal depression was also found with couple satisfaction index and marital satisfaction. We also observed that antenatal depression was less common in women living in joint family as compared to nuclear and extended family. However no significant correlation of antenatal depression was found with perceived social support, significant other's support, family support and friends support. This observation might be due to rural culture of joint family and harmonious relationships among all family members and in between families in the small societies.

Expectations of pregnant women, her husband, in-laws and parents did not have any significant correlation with antenatal depression. This observation might be due to strong and multiple social bonds of women with relatives and neighbors in rural areas, which leads to helping each other during times of needs. Women also believe that her relatives were thinking and acting in her and her futures best interest. So she totally trusts them and dependent on them for decision making and important family and personal decisions.

Conclusion

According to our study antenatal depression had a significant prevalence in society. The results of our study highlight the importance of the mental health of pregnant women. Antenatal depression is an important public health problem. In the routine antenatal OPD all pregnant women and especially those at high risk, aged, multiparous, with poor family support and poor relationship with husband need to be screened for antenatal depression using Edinburg Postnatal Depression Scale (EPDS). High index of suspicion about the possibility of the antenatal depression and early referral to mental health services of pregnant women can prevent antenatal depression.

Limitations:

This cross-sectional study was conducted in only one tertiary care center in rural area and so lacks generalization of the findings and results. Personality factors of pregnant women which also influences development of antenatal depression were not included in this study. Participation of women in third trimester of pregnancy was high as compared to second and first trimester.

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Conflicts of interest: There are no conflicts of interest.

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