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EVALUATION OF MENTAL HEALTH ILLNESS IN ANTENATAL WOMEN AND ITS CORRELATES

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Abstract

Background: Pregnancy involves substantial physical and emotional changes, often leading to heightened stress levels for expecting mothers. The mental health of pregnant women is crucial for both their well-being and that of their unborn child, but unfortunately, has not received due attention by the antenatal caregivers. This requires the necessary awareness of and sensitivity to mental health issues by the obstetricians.

Aim: The aim was to evaluate the prevalence of anxiety and depression in antenatal mothers and analyse their correlates.

Material and Methods: This prospective study was carried out on 250 antenatal patients selected by purposive sampling, at a tertiary care center affiliated to a teaching institution. The focus was on finding the prevalence and various correlating factors of anxiety and depression during the antenatal period. The various scales used for assessing were the Edinburgh Postnatal Depression Scale (EDPS), Pregnancy Related Anxiety Questionnaire- Revised 2 (PRAQ-R2) for anxiety and Multidimensional Scale of Perceived Social Support (MPSS).

Results: The age range of participants was 18-42 years, with majority being in the 21-29 year age group. Majority (97.2%) of the participants had some kind of formal education, were homemakers (76.40%), in the low-income group (74.00%) and were multigravida (59.60%). The prevalence of depression and anxiety in the study group was found to be 39.60% and 69.60% respectively. 58.40% of the participants reported having a high social support. A statistically significant association was found between anxiety and/or depression with social support from immediate family like husband, in-laws and other extended family members and friends. Subjects with high social support had less anxiety and depression. A statistically significant association was also found between anxiety and level of education level, history of abortion and BMI of the patient. No significant association was found with age, occupation, parity, family income or unplanned pregnancy.

Conclusion

Antenatal patients with no prior history of psychiatric illness had a high prevalence of depression and anxiety. There was a statistically significant relationship between both anxiety and depression and the level of social support from close family members and friends. Additionally, there was a significant association between the development of anxiety and factors such as education level, BMI, and history of previous abortions.

Keywords: Mental-health, Anxiety, Depression, antenatal, social support

Introduction:

Pregnancy represents a period of significant stress, making the mental health of expecting mothers a critical concern. It is a time marked by intense physical and emotional changes. Studies indicate that 4% to 30% of women experience mental health issues like depression, anxiety, eating disorders, and psychosis during pregnancy. These conditions often go undiagnosed because they are sometimes attributed to normal pregnancy-related changes in mood and physiology. [(1)]

In regions with lingering stigmas, such as ours, psychiatric illnesses often do not receive adequate attention. Mental disorders during pregnancy pose a significant public health challenge due to their profound effects on both mother and child. To fully understand psychological adaptation during pregnancy and its implications, many factors influencing prenatal adaptation need consideration. Previous episodes of anxiety or depression are the strongest predictors for developing new-onset disorders during pregnancy. Risk factors such as social circumstances (e.g., inadequate nutrition, stressful life events), and previous negative obstetric experiences can predispose women to depression during pregnancy. [(2)]

Postpartum depression impacts 13% of women worldwide. Its occurrence is remarkably greater in low- and middle-income countries, affecting 20% of women. [(3)] Majority of studies which have mainly focussed on postpartum mental health, has made us familiar with terms like postpartum blues. More than half of women experience postpartum blues within the first few weeks after delivery.[(4)] However, mental health issues in the antenatal mothers is being explored by the researchers in the recent times. A study reported that antenatal depression affects 24.8% of expectant mothers, with prevalence rates varying between 3.8% and 65% in some cases. Antenatal anxiety rates range from 13% to 55%. [(5,6)] In view of contradictory findings of earlier studies and comparatively few Indian studies, we decided to conduct a study on mental health issues in antenatal women. The aim was to evaluate the prevalence of anxiety and depression in antenatal mothers and analyse their correlates.

Materials and Methods

This prospective study was carried out at a tertiary care hospital affiliated to a teaching institution- Dr D Y Patil Medical college, Hospital and Research Center, Pune over a period

of 2 years on 250 antenatal women who reported to the hospital for regular prenatal care. Ethical approval was obtained from the Institutional Ethics and Scientific Committee before starting the study (IESC/PGS/2022/133). The sample size was calculated using WinPepi v11.65 software.

Sample

The sample selection was done by purposive sampling of pregnant women following the inclusion and exclusion criteria as under-

Inclusion criteria: Pregnant women visiting the OPD or admitted to the ward for antenatal checkup/evaluation till 32 weeks of gestation.

Exclusion criteria: Those with any previous co-morbidities like diabetes, hypertension or any other chronic disease or patients with past diagnosis of any psychiatric illness and on medication or unregistered cases reporting directly for delivery.

Method

Patients after being explained details about the study and those consenting were finally recruited. A detailed history was obtained from the participants followed by a thorough antenatal examination and routine antenatal investigations were carried out. The participants were then made to undergo the screening tests for anxiety, depression and social support with the help of the following scales:

1. Edinburgh Postnatal Depression Scale which consists of 10 items (EPDS)
2. The Pregnancy-Related Anxiety Questionnaire which consists of 10 items (PRAQ-R2)
3. Multidimensional Scale of Perceived Social Support which consists of 12 items (MSPSS)

The participants' responses were collected individually. The responses were tabulated and analysed. The entire study was conducted in collaboration with the departmental head of Psychiatry in our institution.

Statistical analysis:

Statistical analysis was done using MS Excel (Microsoft 365), RStudio (Version: 2023.08.0-daily+170) and IBM SPSS Statistics 27. The data were presented using frequency (percentage) for qualitative variables. The test used was chi-square for comparing proportions of anxiety and depression levels across different groups. A p-value of less than 0.05 (two-tailed) was considered statistically significant for all the tests.

Results:

The demographic details of the study population were widely distributed. The age range was 18-42 years with majority (60.80%) being between 21-29 years. 40.40% participants were primigravida and 59.60% were multigravidas. 51.20% participants were educated till high school (8^{th} – 10^{th} standard) with 2.8% uneducated and 11.2% graduates. We divided the patients into three categories as per their family income into low, low-middle, high-middle- and high-income group. Majority (74.00%) were in low-income group and none in high income group. Most patients were homemakers (76.40%), not formally employed. 79.20% of participants had planned the current pregnancy.

Table 1 - **Distribution of Depression, Anxiety and social support scale scores**

		No. of patients	**Percentage**
Level of Depression	Not likely depression	151	60.40%
	Possible depression	66	26.40%
	Fairly high possibility	24	9.60%
	Probable depression	9	3.60%
Levels of Anxiety	Not anxious	76	30.40%
	Mildly Anxious	79	31.60%
	Moderately Anxious	44	17.60%
	Severely Anxious	51	20.40%
Social support	Low support	19	7.60%
	Moderate support	85	34.00%
	High support	146	58.40%

Table 1 represents distribution of participants as per depression levels, anxiety levels and the social support. Depression was evaluated using Edinburgh Postnatal Depression scale (EPDS). Similarly, Pregnancy Related Anxiety Questionnaire Revised-2 (PRAQ-R2) was used for assessing anxiety levels of the participants. The prevalence rates of depression and anxiety were 39.60% and 69.60%, respectively. Multidimensional scale Of Perceived Social Support (MSPSS) was used to assess social support among the participants. Among the participants included in the dataset, 58.40% reported receiving high levels of social support. This indicates that a significant portion of the participant population had access to strong social networks and resources.

Table2 - Correlation of social support level with anxiety

Social support level	**Not anxious (76)**	**Mildly Anxious (79)**	**Moderately Anxious (44)**	**Severely Anxious (51)**	**Total**	**P-Value**
Low support	3	2	8	6	19	0.006*
Moderate support	23	26	20	16	85	0.356
High support	50	51	16	29	146	0.008*

According to the data, the extent of social support significantly impacts the distribution of anxiety levels among individuals. Specifically, individuals who receive low social support are more prone to experiencing elevated anxiety levels compared to those who receive moderate or high support. Conversely, individuals with high social support may also experience varying levels of anxiety, but overall have lower levels compared to those with low support.

Table 3 - Association of social support level with Depression

Social support level	**No depression (151)**	**Possible depression (66)**	**Fairly high possibility (24)**	**Probable depression (9)**	**Total**	**P-Value**
Low support	5	7	6	1	19	0.002*
Moderate support	43	28	10	4	85	0.157
High support	103	31	8	4	146	<0.001*

The data indicates that the level of social support significantly influences the distribution of depression levels among individuals. Specifically, individuals with low social support showed higher levels of depression. Conversely, those with high social support had lower levels of depression.

Table 4-Association of education with anxiety

Education	**Not anxious (76)**	**Mildly Anxious (79)**	**Moderately Anxious (44)**	**Severely Anxious (51)**	**Total**	**P-Value**
Illiterate	4	1	2	0	7	0.227
Primary level	9	9	4	2	24	0.45
High school	40	36	27	25	128	0.395
Higher Secondary	19	24	9	11	63	0.571
Graduate	4	9	2	13	28	0.002*

The data indicates that level of education has an inverse relation with anxiety levels. Graduates were found to have severe anxiety compared to other educational groups and this was found to be statistically significant (p value 0.002).

Table 5-: Association of education with depression

Education	**No depression (151)**	**Possible depression (66)**	**Fairly high possibility (24)**	**Probable depression (9)**	**Total**	**P-Value**
Illiterate	5	1	1	0	7	0.809
Primary level	16	6	1	1	24	0.793
High school	75	35	14	4	128	0.829
Higher Secondary	42	14	5	2	63	0.708
Graduate	13	10	3	2	28	0.363

The data indicates that educational level did not significantly influence the distribution of depression levels among the different educational groups.

Table 6: Association of BMI with anxiety

BMI	**Not anxious (76)**	**Mildly Anxious (79)**	**Moderately Anxious (44)**	**Severely Anxious (51)**	**Total**	**P-Value**
Normal	31	40	21	36	128	0.012*
Overweight	42	39	23	13	117	0.007*
Underweight	3	0	0	2	5	0.176

The table surprisingly shows statistically significant association of anxiety with both normal and overweight.

Table 7: Association of BMI with depression

BMI	**No depression (151)**	**Possible depression (66)**	**Fairly high possibility (24)**	**Probable depression (9)**	**Total**	**P-Value**
Normal	72	37	14	5	128	0.587
Overweight	76	28	9	4	117	0.548
Underweight	3	1	1	0	5	0.84

The data indicates that there is no significant association of depression level with BMI.

Table 8- Association of history of abortion with anxiety

Abortion history	**Not anxious (76)**	**Mildly Anxious (79)**	**Moderately Anxious (44)**	**Severely Anxious (51)**	**Total**	**P-value**
History of 1 or 2 Abortions	17	34	10	14	75	0.021*
History of more than 2 abortions	1	2	3	2	8	0.403

The data shows patients with history of 1 or 2 abortions and also those with no history of abortion show statistically significant associations with different levels of anxiety.

Table 9 -Association of history of abortion with depression

Abortion history	**No depression (151)**	**Possible depression (66)**	**Fairly high possibility (24)**	**Probable depression (9)**	**Total**	**P-value**
History of 1 or 2 Abortions	48	20	4	3	75	0.564
History of more than 2 abortions	4	2	1	1	8	0.312

History of abortions and depression showed no statistically significant association between the two.

Discussion:

Pregnancy is typically seen as a period of extreme emotional satisfaction, but this is not always universal. Depression and anxiety many a times may become the disrupter of mental well-being in pregnancy. Unfortunately mental health does not receive the kind of attention it deserves during pregnancy and immediate postpartum period in our day to day obstetric practice. Research indicates that children born to mothers with depression, often have low birth weights. Social issues like poverty, overcrowding, and unhygienic surroundings can also negatively impact a mother's mental health.

Previous studies from various parts of the world have reported a prevalence rate of anxiety in pregnancy to be 14-54%. However, most of the studies focused on general anxiety rather than pregnancy-specific anxiety.[(7)] Having a history of stillbirth, unwanted pregnancy, current illness, or mental illness increases the likelihood of experiencing generalized anxiety. Pregnancy-specific anxiety involves concerns, worries, and fears about aspects such as pregnancy, childbirth, infant health, and future parenthood. [(8)] Moreover, women who have not given birth previously often experience fears related to labor pain, complications during childbirth, and medical procedures. [(9)] A study by Vijaya Bagade et al. [(10)] stated that the

prevalence of pregnancy-related anxiety among pregnant women in Pune using the PRAQ-R2 scale. Their findings indicated that 78.57% of the pregnant women experienced pregnancy-related anxiety, with 33% having mild anxiety, 32% moderate anxiety, and 5% severe anxiety. In the present study, the prevalence of pregnancy related anxiety was 69.60%. (Table-1)

Antenatal depression (AD) is an increasing public health concern that unfavourably impacts the health and well-being of women and their families. Symptoms may include sadness, lack of energy, insomnia, weight loss, decreased physical and cognitive functioning, loss of appetite, irritability, and hopelessness. [(11)] JiaruiChen et al.[(12)] found 29.6% of women possibly experiencing antenatal depression. Systematic reviews in low and middle-income countries have found antenatal depression prevalence rates ranging from 19.2% to 34%. [(13)] Previous studies in India have shown a varied prevalence of antenatal depression, ranging from 8.7% to 65%. [(14)] Additionally, the prevalence rates of perinatal depression in India were reported to be 8.8% in community settings and 18.5% in medical facilities. [(15)] Our study revealed the prevalence of depression as 39.60%. (Table-1)

Social support is pivotal in shaping the mental health outcomes of individuals, particularly pregnant women, and it plays a crucial role in influencing maternal and fetal well-being, personal competence, and self-esteem. It is a multifaceted concept encompassing emotional and physical assistance from one's social network. Social support is instrumental in promoting mental well-being by not only providing direct benefits like enhanced self-esteem and reduced stress but also by buffering against the adverse effects of stressors. Gun-Mette B Røsand et al. [(16)] found that dissatisfaction with partner relationship significantly predicts maternal emotional distress during pregnancy. Pracheth Raghuveer et al. [(17)] observed in their study that working women tend to report higher levels of social support compared to housewives. This difference could be attributed to the former group having additional social networks through their workplace, which can provide them with more social support and contribute to their social empowerment. In our study, we asked the participants about how will they categorize their relationship with the husband and the in laws and their subjective responses were recorded. 86.40% participants reported having satisfactory relationship with husband, only 0.40% claimed an unsatisfactory relationship. Similarly, 68.40% women reported a satisfactory relationship with in-laws and only 0.40% reported having unsatisfactory relationship. Majority (58.40%) of our study population reported high levels of social support. (Table-3) In the low social support group, we observed that only 5 out of 19 participants (26.3%) were either not

anxious or mildly anxious whereas 14 out of 19 (73.68%) were moderately/severely anxious. On the other hand, in the high social support group, 101 out of 146 (69.17%) were either not anxious or mildly anxious and we saw that only 45 out of 146 (30.8%) participants were either moderately/severely anxious. Hence, we inferred that high support group showed relatively less anxiety when compared to the low support group. The difference was statistically significant. (Table-2)

While examining depression in relation to social support, we observed that, 103 out of 146 (70.54%) were having no depression in the high social support group. and only the remaining 43 showed some form of depression. In the low social support, only 5 out of 19 (26.31%) were not depressed whereas 14 out 19 showed some form of depression. (Table-3) Therefore, we can conclude that high support group showed statistically significant less depression levels as compared to the low support group.

In the research conducted by Jiarui Chen et al. [(12),] it was discovered that women with a college education or higher were more prone to experiencing antenatal depression compared to those with a high school education or less. Previous studies have also noted that individuals with higher levels of education are more likely to report symptoms such as self-harm, frequent crying, and irrational concerns, while also experiencing decreased enjoyment of previously amusing events. This trend may be attributed to educated individuals having greater access to health-related information and being more attentive to mental health issues. We had a significant proportion of participants in the high school category and beyond. Interestingly, our findings revealed a significant correlation between higher education levels and increased anxiety levels. Specifically, 46.42% of individuals in the graduate group exhibited severe anxiety, (Table-4) there were none in the uneducated group. However, no significant association between depression and education level was found. (Table-5)

Xuan Zhou et al. [(18)] conducted a study to investigate the impact of pre-pregnancy BMI and Gestational Weight Gain (GWG) on the psychological well-being of women. They discovered that GWG is significantly linked to higher levels of anxiety among pregnant women. However, it was found that gestational weight gain did not have any effects on symptoms of depression or stress were noted. Nevertheless, there is evidence indicating that obesity in pre pregnancy times or immoderate gestational weight gain may increase the probability of negative mental health outcomes in pregnant women. Obesity and excessive gestational weight gain may also have negative implications for a woman's self-worth and dignity during pregnancy. Analysing

BMI of the participants in the current study, 51.2% patients had normal BMI and 46.8% were overweight. We found a significant correlation between anxiety and BMI, but this significance was found in patients with normal BMI category and overweight category, but not in the underweight category. (Table- 6) People with normal BMI patients could be apprehensive of excess weight gain in pregnancy and distorted body image. Association of obesity and anxiety in pregnancy has already been well established. No significant association was found between depression and BMI. (Table-7)

The spectrum of abortion is high and fetal loss is traumatic and is a risk factor for mental illness. Kamrun Nahar Koly et al. [(19)] reported that among women who had spontaneous abortions, 58.75% experienced mild to severe anxiety, and 77.50% reported depressive symptoms. This suggests that while spontaneous abortions can have profound psychological impacts on women, the specific number of prior abortions may not directly correlate with the severity of anxiety or depression in all cases. Each woman's experience and circumstances surrounding the loss may vary widely. We should keep in mind that pregnancy itself leads to stressful conditions for many leading to anxiety and/or depression. Our study found a statistically significant relationship between anxiety and history of abortion. (Table-8) Surprisingly, no association was found in antenatal mothers with history of more than two abortions. When we further explored our master chart, we observed that all participants of the latter group were multigravidas who had one or more alive child. Hence it is possible that the prior abortions did not bother them as much to cause anxiety. Studies have shown that pregnant women who have experienced spontaneous abortion often exhibit more psychiatric symptoms and pregnancy-related distress compared to those who have not. Such experiences can undermine a woman's self-esteem and may lead to feelings of loss of control. Furthermore, women who conceive within a year after a pregnancy loss are at heightened likelihood of developing mental health disorders. [(20)] A study reported clinical depression was found in 26% of those who had an abortion. [(21)] Another study reported a higher evidence of depression and bipolar disorder in those who had a spontaneous abortion (43.2%) or had a medical termination of pregnancy (45.5%). [(22)] In our study, no association of depression with history of abortion was found. (Table-9).

Therefore, it was found that there was a statistically significant relationship of anxiety and/or depression with social support, education, history of abortion/s, BMI of the patient whereas,

no association was found with age, occupation, parity score, income of the family, unplanned/planned pregnancy of the participant.

Mental health is an important determinant of well-being of women during pregnancy. Pregnancy by itself is a stressful condition. If the care giver is alert and perceptive about the mental health,-it can help in early detection of mental health issues and thereby prevent any serious fallout from the disorder. Routine antenatal care generally remains focussed on physical problems of the woman rather than her psychological and emotional orientation, unless it reaches a breaking point. There is an urgent need to increase awareness level of obstetricians to the importance of mental health in pregnancy. They in turn should sensitize the expectant mothers themselves to the warning signals of mental ill-health and seek professional help without hesitation. A combined effort by the care giver and care taker may help in stemming the scourge of mental illness in pregnancy and thus enhance mother and child well-being. [(23)]

Limitations

In our study, we did a linear correlation of various factors with anxiety and depression. A multi-variate analysis may have given more reliable correlation by taking into consideration confounding factors.

Conclusion

We found a reasonably high prevalence of depression and anxiety in the antenatal patients who were not known cases of any psychiatric illness pre-pregnancy. Our analysis revealed a statistically significant relationship of both anxiety and depression with the level of social support from close family members and friends of the antenatal patient. Significant association was also found between development of anxiety and her level of education, BMI, history of previous abortion.

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