# Depression and Anxiety among High-Risk Pregnant Women of Tribal and Non-Tribal Origin Attending a Tertiary Centre in North-Eastern Region of India - An Observational Study

Sanjoy Tripura[1], Bhubaneswar Roy[2], Ashis Kumar Rakshit[3]

[1] Department of Psychiatry, Santirbazar District Hospital, Santirbazar, Tripura, India.
[2] Department of Psychiatry, Agartala Government Medical College & Govind Ballabh Pant Hospital, Agartala, Tripura, India. [3] Department of Obstetrics and Gynaecology, Agartala Government Medical College & Govind Ballabh Pant Hospital, Agartala, Tripura, India.

## ABSTRACT

### BACKGROUND

Majority of pregnancies have uncomplicated and healthy outcomes. Pregnancy involves biological, psychological and social changes that have been linked to an increase in anxiety and depression symptoms. Depression and anxiety have been found to be exacerbated by uncertainty during high risk pregnancies in women suffering from a medical disorder. In this study we wanted to find out the incidence of depression and anxiety among high-risk pregnancies in tribal and non-tribal patients.

### METHODS

This is cross sectional observational study conducted in the Department of Psychiatry and Obstetrics (OBS) and Gynaecology of Agartala Govt Medical College and GBP Hospital from January 2015 to December 2015. All the cases who have been diagnosed as a high-risk pregnancy attending the out-patient department (OPD) of OBS & Gynaecology or admitted at in-patient department (IPD) of OBS & Gynaecology department were selected for the study. After care full history, thorough physical examination and relevant laboratory investigations, diagnosis of high-risk pregnancy was made. After initial workup, Edinburg Postnatal Depression scale (EPDS) proforma and generalised anxiety disorder 7-item (GAD - 7) proforma were administered to know the depression and anxiety symptoms. Research on mental health of pregnant tribal women are not much in number, especially in north eastern region of India. Hence the present study was under taken.

### RESULTS

Majority of the high-risk pregnant women (70 %) were from rural background and lower middle socioeconomic status (39 %). Depressive symptoms in the high-risk pregnant women were 42 % and anxiety symptoms were 70 %. Significant correlation was observed between anxiety symptoms and locality of resident and between depressive symptoms and socioeconomic status.

### CONCLUSIONS

One should be conscious and vigilant about possibility of anxiety and depression symptoms while dealing with high risk pregnant women, so that early treatment may be initiated.

### KEYWORDS

Anxiety, Depression, High Risk, Pregnancy

## BACKGROUND

Pregnancy is perceived by many pregnant mothers as a period of happiness in anticipation of motherhood. Not all mothers experience happiness as some may experience stress, anxiety and depression for many reasons. Both mother and father are required to face problems in pregnancy. Marital conflict, domestic violence, unplanned pregnancy, fear of pregnancy complications, economic problems may be associated with antenatal depression symptoms and anxiety symptoms. Pre-existing and untreated depression symptoms and anxiety symptoms may persist throughout antenatal and postnatal period. Depression and anxiety are the most common psychiatric disorder during pregnancy and postpartum period. Symptoms varies from mild to severe. It is still not known why some mothers are at risk of developing anxiety and depression symptoms while others are resistant to it even in adverse condition. Mental health problems in antenatal period receive less attention. Women themselves can be reluctant to share distress and irritability. There is discrepancy between women's expectation of happiness during pregnancy and their own experience. Healthcare providers focus on physical health during pregnancy, rather than mental health and to misattribute emotional complaints to the physical and hormonal changes that occur during pregnancy.

Some pregnant women may present with atypical symptoms of depression and unspecified somatic complaints such as appetite and sleep changes, loss of energy and fatigue than depressed mood. It may be difficult to distinguish between normal pregnancy symptoms which are common during pregnancy and atypical somatic complaints, which may be due to depression symptoms and anxiety symptoms.

Most women attend antenatal out-patient department during pregnancy and this is a great opportunity to identify mother at risk of developing depression symptoms and anxiety symptoms and early treatment can be started.

Pregnancy and transition to parenthood have been linked to an increase in anxiety symptoms, depression symptoms and stress.[1] Majority of pregnancy have uncomplicated and healthy outcomes. Pregnancy involves biological, psychological and social changes that have been linked to an increase in anxiety and depression symptoms. Depression and anxiety have been found to be exacerbated by uncertainty during high risk pregnancy in a woman suffering from a medical disorder. A pregnancy is labelled as high risk when it is complicated by factors that adversely affect the pregnancy outcomes where the mother, the fetus or the neonate is in a state of increase jeopardy.[2] All pregnancies and deliveries are potentially at risk. Sometimes a high-risk pregnancy is the result of a medical condition present before pregnancy, in other cases, a medical disorder may develop during pregnancy. Specific factors that might contribute to high risk pregnancy includes.

Advanced maternal age (> 35 years), lifestyle choices – cigarettes smoking, drinking alcohol and using illegal drugs can put a pregnancy at risk. History of prior caesarean section, low birth weight baby or preterm pregnancy loss will affect next pregnancy. Underlying medical conditions such as diabetes, high blood pressure and epilepsy increases pregnancy at risk. Multiple pregnancy, post-dated pregnancy, Rh negative mother might face additional risk in pregnancy outcome.

Depression and anxiety during pregnancy have been associated with poor mental health behaviours, poor maternal weight gain and adverse birth outcomes.[3] Anxiety and depression during pregnancy may also adversely affect infant and child development.[4] High risk pregnancy can exacerbate depression and anxiety and hospitalization can further increase the stress of a high-risk pregnancy. Although women may have access to psychiatric professionals in hospital, psychiatric consultation can be as low as 0.3 %.[5]

Depression is a common mental disorder, characterised by sadness, loss of interest, feeling of guilt, low self-esteem, disturbed sleep, appetite, feeling of tiredness and poor concentration. Depression can be recurrent and long lasting and impair a person's ability to function at work and cope with daily life. Mild depression can be treated without medicine, moderate and severe form need medications and specialist consultation. Non specialists can easily diagnose and treat mild depression as a part of primary health care.

Anxiety is a general term for several disorders that causes nervousness, fear, apprehension and worrying. These disorders affect how we feel and behave. Mild anxiety is vague and unsettling, while severe anxiety can be extremely debilitating, having a serious impact on daily life.

The word 'tribe' is generally used for a socially cohesive unit, associated with a territory, the members of which regard them as a political autonomous. Generally speaking, by the term 'tribe', we mean a group of people living at a particular place from time of immemorial. Anthropologically, the tribe is a system of social organisation which includes several local groups - villages, districts on lineage and normally includes a common territory, a common language and a common culture, a common name, political system, simple economy, religion and belief, primitive law and own education system.[6]

Research on mental health of tribals are not much in numbers. Few studies made on them produced inconsistent results.[7,8,9]

Although numerous studies have examined the prevalence and risk factors of anxiety and depression in pregnancy, there are limited studies that have explored the prevalence of anxiety and depression in high risk pregnancy. Research on mental health of pregnant tribal women are not much in numbers, especially in north-eastern region of India. Hence the present research was undertaken to study the depression symptoms and anxiety symptoms of high-risk pregnancy among ethnicity of tribal and nontribal origin attending Agartala Government Medical College and GBP hospital.

### Objectives

To determine the incidence of depression and anxiety among high-risk pregnancy in tribal and non-tribal origin patients attending Agartala Government Medical College &

GBP Hospital, Agartala and to compare the incidence between the two groups.

## METHODS

This is a cross sectional observational study conducted from January 2015 to December 2015 in the Department of Psychiatry and Obstetrics and Gynaecology of AGMC and GBP hospital, Agartala. Ethical approval was taken from ethical committee, AGMC and GBP Hospital, Agartala, Tripura.

### Sample Size Calculation
The average number of high-risk pregnancy attending Obstetrics and Gynaecology OPD and IPD during last three years was about 10 %.

$$N = (1.96)^2 pq / d^2$$

Taking P = current prevalence at 10 % and allowable error = d = 6

$$N = (1.96)^2 10 \times 90 / 6^2 = 96$$

After rounding up, 100 cases were included in the present study.

### Inclusion Criteria
High risk antenatal mothers who attend the OPD and IPD and who had given informed consent for the study

### Exclusion Criteria
1.  Who had not given informed consent
2.  Medicolegal cases
3.  Mental retardation
4.  Known case of previous psychiatric illness

After careful history and thorough physical examination and relevant laboratory investigations, diagnosis was made. After workup, Edinburg Postnatal Depression scale proforma and generalized anxiety disorder 7 - item scale (GAD - 7) proforma were administered to know the depression and anxiety symptoms.

### Statistical Analysis
Analysis of categorical data was done by frequency, percentage and others were analysed by chi-square test.

## RESULTS

Total numbers of participant were one hundred. The observations made were noted and after the completion of the study, data was compiled in tabular form and was listed below. Most cases were in the age group of 25 − 31 years (46 %), second most common age group was 18 - 24 years (39 %). As the age increases, the number of cases were reduced. Only 15 cases were found in the age group above

32 years. Cases were basically from the Hindu religion (76 %), followed by Christian community (12 %), Muslim religion (6 %) and Buddhist 6 %. Most of the cases belonged to rural areas (70) and 30 % from urban areas. In the present study, education level of most of the cases was below 10th standard 40 %, below 5th standard 24 %, higher secondary 26 % and up to graduation only 10 %. The participants mainly comprised of nuclear family 74 % and from joint family only 26 %. Maximum cases belonged to lower middle socio-economic status (39 %), followed by lower socioeconomic status (38 %) and lowest upper middle socio-economic status (23 %). Fifty percent of cases were tribal and others were non-tribal.

| | | No. of Cases | % |
|---|---|---|---|
| Age group | 18 - 24 | 39 | 39 |
| | 25 - 31 | 46 | 46 |
| | ≥ 32 | 15 | 15 |
| Ethnicity | Schedule tribe | 50 | 50 |
| | Others | 50 | 50 |
| Religion | Hindu | 76 | 76 |
| | Muslim | 6 | 06 |
| | Christian | 12 | 12 |
| | Buddhist | 6 | 06 |
| Education | Primary | 24 | 24 |
| | Below madhyamik | 40 | 40 |
| | Higher secondary | 26 | 26 |
| | Graduate | 10 | 10 |
| Residence | Rural | 70 | 70 |
| | Urban | 30 | 30 |
| Family type | Nuclear | 74 | 74 |
| | Joint | 26 | 26 |
| Socio-economic status | Lower | 38 | 38 |
| | Lower middle | 39 | 39 |
| | Upper middle | 23 | 23 |

**Table 1. Distribution of Subjects According to Socio-Demographic Variables**

| | | Depressive Symptoms | | P Value |
|---|---|---|---|---|
| | | yes | no | |
| Age group | 18 to 24 | 15 | 24 | |
| | 25 to 31 | 20 | 26 | 0.829 |
| | ≥ 31 | 07 | 08 | |
| Ethnicity | S T | 20 | 30 | 0.685 |
| | Others | 22 | 28 | |
| Religion | Hindu | 29 | 47 | |
| | Muslim | 04 | 02 | 0.326 |
| | Christian | 05 | 07 | |
| | Buddhist | 04 | 02 | |
| Education | Primary | 10 | 14 | |
| | Below madhyamik | 15 | 25 | 0.8544 |
| | Higher secondary | 12 | 14 | |
| | Graduate | 05 | 05 | |
| Residence | Rural | 31 | 39 | 0.5 |
| | Urban | 11 | 19 | |
| Family type | Nuclear | 34 | 40 | > .05 |
| | Joint | 08 | 18 | |
| Socioeconomic status | Lower | 16 | 22 | |
| | Lower middle | 10 | 29 | .003 |
| | Upper middle | 16 | 07 | |

**Table 2. Relation of Depressive Symptoms with Different Parameters**

Forty two percent of cases show depressive symptoms. Thirty-eight percent in 18 to 24 years age group, 20 % in 25 to 31 years age group and only 7 % in more than 32 years age group. Depressive symptoms were present in 40 % of schedule tribe and 44 % in others, which is not statistically significant. Among ethnic group, Hindu religion had depressive symptoms in 34 % of cases, Muslim religion 66 %, Christian 41 % and Buddhist 66 % of cases. In the present study, depressive symptoms were present in 41 % of cases who had studied below 5th standard, 38 % of cases

below 10th standard, 46 % of cases below 12th standard and 50 % of cases in graduate level. Out of 70 cases from rural areas, 31 had depressive symptoms (44 %) and 30 from urban area had depressive symptoms (36 %). Out of 74 cases from nuclear family, 46 % had depressive symptoms and out of 26 from joint family, only 8 (31 %) had depressive symptoms. In the present study most of the cases belong to lower middle socio-economic status and out of which 26 % had depressive symptoms, followed by lower socio-economic status (42 %) had depressive symptoms.

| Anxiety Symptoms | | | | | |
|---|---|---|---|---|---|
| Age group | 18 to 24 | 27 | 12 | 0.925 | Not significant |
| | 25 to 31 | 33 | 13 | | |
| | ≥32 | 10 | 05 | | |
| Ethnicity | ST | 34 | 16 | 0.663 | Not significant |
| | Others | 36 | 14 | | |
| Religion | Hindu | 51 | 25 | 0.691 | Not significant |
| | Muslim | 05 | 01 | | |
| | Christian | 09 | 03 | | |
| | Buddhist | 05 | 01 | | |
| Education | Primary | 16 | 08 | 0.833 | Not significant |
| | Below madhyamik | 30 | 10 | | |
| | Higher secondary | 17 | 09 | | |
| | Graduate | 07 | 03 | | |
| Residence | Rural | 54 | 16 | 0.017 | Significant |
| | Urban | 16 | 14 | | |
| Family type | Nuclear | 51 | 23 | 0.691 | Not significant |
| | Joint | 19 | 07 | | |
| Socioeconomic status | Lower | 27 | 11 | 0.493 | Not significant |
| | Lower middle | 25 | 14 | | |
| | Upper middle | 18 | 05 | | |

**Table 3. Relation of Anxiety Symptoms with Different Parameters**

Table 3 shows, most of the cases were from the age group of 25 to 31 years (N = 46), out of which 33 (71 %) had anxiety symptoms in 18 to 24 years group (N = 39) had anxiety symptoms 27 (67 %) and ≥ 32 years age group (N = 15) had 10 (67 %) anxiety symptoms. In this study, anxiety symptoms were found in 34 (68 %) cases of tribal and 36 (72 %) cases in others. Most of the cases belong to Hindu religion (76) and anxiety symptoms in 67 % of cases, followed by Muslim religion and Buddhist 83 % each. Christian religion had 75 % of anxiety symptoms. In education level below 5th standard, anxiety symptoms were present in 66 % of cases, below madhyamik level, 75 % of cases. At the level of higher secondary, 65 % of cases and in graduate level, 70 % of cases had anxiety symptoms. Cases belonging to rural area had 77 % anxiety symptoms and those from urban area had 53 % anxiety symptoms. In cases belonging to nuclear family, anxiety symptoms were found in 69 % of cases and from joint family 73 % of cases. Cases belong to lower socioeconomic status 71 % having anxiety symptoms, followed by lower middle 64 % and upper middle 60 % of cases had anxiety symptoms.

## DISCUSSION

Majority of the cases in our study group belong to the age group of 25 to 31 years (46 %), followed by 18 to 24 years (39 %) and ≥ 32 years 15 %. The mean age of the cases was 26.5 years. In our study, high risk pregnant women ≥ 32 years of age had more depressive symptoms 46 %, and

25 to 31 years of age group had more anxiety symptoms (71 %). Previous study by Bowen A et al. (2009) also found similar findings.[10]

The current literature suggests that the rate of antenatal depression ranges from 4.8 to 40 % and rate of anxiety during pregnancy has been reported to range between 6.8 to 59.5 %.[11,12,13] One study by Ajinkya S et al. (2013), the prevalence of depression during pregnancy and its associated risk factors among pregnant women attending routing antenatal check-up at the out-patient department of obstetrics of a tertiary care hospital in Navi Mumbai, found that 9.18 % prevalence and is significantly associated with several obstetrics risk factors like unplanned pregnancy, history of abortion and history of obstetrics complications both present and past.[14]

Hindu religion comprised bulk of the study group (76 %), whereas 12 % were Christian, Muslim and Buddhist religion comprised of 6 % each. This may be explained by the fact that Hindu's are in majority as expected. In our study, 70 % of the cases of high-risk pregnancy came from rural area and 30 % from urban area. This is due to the fact that majority of population stays in rural areas. Seventy seven percent of high-risk pregnancy coming from rural areas and 53 % of high-risk pregnancy from urban area had anxiety symptoms. Pearson's chi-square test was applied and it was found that there was a significant correlation between anxiety symptoms and residence. Rural areas had more depression symptoms (44 %) and urban areas had 36 % of depressive symptoms. This may be due to people in rural areas having exposed to more economic stress, nutritional deficiencies and other stressful life condition.

In our study 74 % of the high-risk pregnancies were from nuclear family and 26 % of high-risk pregnancies came from joint family. It was found that 46 % of high-risk pregnancies were having depressive symptoms and 69 % of high-risk pregnancies having anxiety symptoms came from nuclear family. High prevalence of anxiety and depression in nuclear family may be due to lesser support system than those from joint family. In our study, depression symptoms (41 %) & 6 anxiety symptoms (66 %) were present up to primary education level, 38 % depressive symptoms and 75 % anxiety symptoms among education level up to madhyamik, 46 % depression symptoms and 65 % anxiety symptoms among education level up to higher secondary. Education level up to graduate were having 50 % depression and 70 % anxiety symptoms.

Similar result was found in a study by Karmaliani R et al. in Hyderabad, Pakistan in the year 2009[15] Women with more years of formal education were more often depressed and anxious than those without formal education. In this study 38 % of the high-risk cases belonged to a family of lower socio-economic status, 39 % from lower middle socio-economic status and 26 % from upper middle socio-economic status had depressive symptoms 26 %, 42 % and 69 % respectively and anxiety symptoms in 71 %, 64 % and 60 % respectively. Statistical analysis by Pearson chi-square test was applied and it reveals significant correlation between depressive symptoms and socio-economic status. More prevalence of depression among cases of high socio-economic status may be due to their awareness and higher

perception of the consequences of high-risk pregnancy. High risk obstetric inpatients commonly experience depression symptoms (26.9 %) and anxiety symptoms (12.6 %) and few were receiving mental health assessment and treatment (5 %).[16] Prior history of mental health diagnosis or treatment is a risk factor for antenatal depression.

Thorough assessment of past psychiatric history during obstetrical care helps in identifying women at higher risk for antenatal depression symptoms and anxiety symptoms. Although antenatal depression symptoms and anxiety symptoms are individual disorder, the effect of comorbid antenatal depression and anxiety might be more than simply adding up together. Comorbid depression and anxiety during pregnancy might lead to shorter gestational age as well as reduced birth weight than either depression or anxiety alone.[17] The overlap of depression symptoms and anxiety symptoms in pregnancy may be a risk factor for postpartum depression. Depression and anxiety were frequently regarded as interconnected mental illness and there is high comorbidity between these two syndromes. Pregnant women experience more anxiety during antepartum period as compared to postpartum period and most of them are not being monitored during this time. Physicians in all patient care specialities particularly obstetricians should take primary role to diagnose early. It is very essential to screen the women for mental ill health during and after pregnancy. From the very initial moment of planning for pregnancy, women should be regularly assessed for depression symptoms and anxiety symptoms with simple means. Common mental disorder, including anxiety symptoms and depression symptoms and somatic complaints, occur predominantly in women, affecting up to one in three people in the community. Perinatal common mental disorders are increasingly recognized to be an important public health issue in low- and middle-income countries. This is shown by a systemic review done by world health organization (WHO) on prevalence of common mental health disorders during pregnancy, the prevalence ranged from 5.2 to 32.9 %.[18]

In the present study, depression symptoms were found in 40 % of tribal cases and 44 % of cases in non-tribals high risk pregnant mothers. This is statistically not significant. In this study, anxiety symptoms were found in 68 % of cases in tribals and 72 % in others. From our study, it cannot be concluded that caste can be a factor in the genesis of depression and anxiety among high risk pregnant women. Residence, socio-economic status and educational level may be more determining factors than tribal and non-tribal origin. However, in the state of Tripura, tribal and nontribal have intermingled so much that a distinctive tribal and non-tribal life style is difficult to find.

## CONCLUSIONS

In our study, we found depressive symptoms among high risk pregnancies accounting for 42 %, and anxiety symptoms 70 %. Pregnant women need to adjust to significant physical and psychological changes. They are commonly subjected to substantial stress and worries. Thorough assessment of past psychiatric history during obstetric care could help identify women at higher risk for antenatal depression symptoms and anxiety symptoms. Examination of depressive symptoms and anxiety symptoms and quality of life over the course of hospitalization among women admitted due to high risk pregnancy should be the routine. One should be conscious and vigilant about possibility of anxiety symptoms and depression symptoms while dealing with high risk pregnant women, so that early treatment may be initiated.

## REFERENCES

[1] Gourounti K, Lykeridou K, Taskou C, et al. A survey of worries of pregnant women: reliability and validity of the Greek version of the Cambridge Worry Scale. Midwifery 2012;28(6)746-753.

[2] Gun KM. High risk pregnancy. D C Datta's text book of Obstetrics. 7th edn. Jaypee Publishers 2007: p. 630-632.

[3] Grote NK, Bridge JA, Gavin AR, et al. A meta-analysis of depression during pregnancy and risk of preterm birth, low birth weight and intrauterine growth restriction. Archives of General Psychiatry 2010;67(10):1012-1024.

[4] Van den Bergh BRH, Mulder EJH, Mennes M, et al. Antenatal maternal anxiety and stress and the neurobehavioral development of the fetus and child: links and possible mechanism. A review. Neuroscience and Biobehavioral Reviews 2005;29(2):237-258.

[5] Tsai SJ, Lee YC, Yang CH, et al. Psychiatric consultations in obstetric in-patients. The Journal of Obstetrics and Gynaecology Research 1996;22(6)603-607.

[6] Wig NN. Incidence of severe mental illness in India: no less than west. Medical Times 1981;1:1.

[7] Bhaskaran K, Seth RC, Yadav SN. Migration and mental ill-health in industry. Indian of Psychiatry 1970;12(1):102-116.

[8] Dewan R. Impact of gender, stress and marital status on mental health of tribal teachers of Ranchi University in Jharkhand. Research Journal of Social Sciences and Humanities 2009;6(1)1-12.

[9] Dewan R. Effect of religion, age and marital status on mental health of tribal female factory workers in Jharkhand. Women's link 2010;16(1):26-29.

[10] Bowen A, Stewart N, Baetz M, et al. Antenatal depression in socially high risk women in Canada. Journal of Epidemiology and Community Health 2009;63(5):414.

[11] Faisal-Cury A, Savoia MG, Menezes PR. Coping style and depressive symptomatology during pregnancy in a private setting sample. Span J Psychol 2012;15(1):295-305.

[12] Gourounti K, Anagnostopoulos F, Lykeridou K, et al. Prevalence of women's worries, anxiety and depression during pregnancy in a public hospital setting in Greece.

Journal of Clinical and Experimental Obstetrics and Gynaecology 2013;40(4):581-583.

[13] Mohammad KI, Gamble J, Creedy DK. Prevalence and factors associated with the development of antenatal and postnatal depression among Jordanian women. Midwifery 2011;27(6):e238-245.

[14] Ajinkya S, Jadhav PR, Srivastava NN. Depression during pregnancy: Prevalence and obstetrics risk factors among pregnant women attending a tertiary care hospital in Navi Mumbai. Ind Psychiatry J 2013;22(1):37-40.

[15] Karmaliani R, Asad N, Bann CM, et al. Prevalence of anxiety, depression and associated factors among pregnant women of Hyderabad, Pakistan. Int J Soc Psychiatry 2009;55(5):414-424.

[16] Byatt N, Hicks-Courant K, Davidson A, et al. Depression and anxiety among high risk obstetric inpatients. General Hospital Psychiatry 2014;36(6):644-649.

[17] Field T, Diego M, Hernandez-Reif M, et al. Pregnancy anxiety and comorbid depression and anger: effect on fetus and neonates. Depression and Anxiety 2003;17(3):140-151.

[18] Fisher J, de Mello MC, Patel V, et al. Prevalence and determinants of common mental disorders in women in low and lower middle income countries: systematic review. Bulletin of the World Health Organization 2012;90(2):139G-149G.