

## Prevalence and Factors Influencing Psychological Disorders among Antenatal Women: A Tertiary Hospital based Study

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### Abstract

**Background:** According to the recent survey done by National Mental Health Survey (NMHS)-2016, it has found, in India every 10<sup>th</sup> person is suffering from some sort of depression or anxiety and in that 20% were either pregnant or lactating mothers. Research studies done earlier had clearly showed a significant association between maternal stress disorder and altered placental function and epigenetic changes.

**Aim:** To assess the prevalence of psychological disorders among antenatal mothers and the factors influencing it.

**Methodology:** A cross-sectional study was conducted for a period of 6 months in the department of obstetrics and gynaecology in a tertiary care hospital in Salem district. All antenatal mothers in the age group between 18 and 40 years reporting for regular antenatal check-up during the study period were included as our study subjects. A total of 240 study subjects had participated in the study. A semi-structured and pretested questionnaire was made to collect the demographic details and the clinical history from the study subjects and along with it depression, anxiety and stress scale assessment tool which consist of 21 questions (DASS-21) with 7 items for each disorder was administered on all the study subjects to assess the presence of psychological disorders in antenatal mothers.

**Results:** The prevalence of stress, anxiety and depression were 52.5%, 47.1% and 27.5% respectively. Most of them had mild stress disorder whereas mothers having anxiety type of psychological disorder majority of them were having moderate to severe type of anxiety disorder. All patients with depression

had either stress or anxiety as a psychological comorbid condition. Primigravida mothers, mothers with previous history of abortion/still birth, people with history of infertility, history of psychological disorders in the previous pregnancy, history of medical and psychological disorders in the present pregnancy, family history of psychological disorders, history of domestic violence, history related to lack of family and social support and previous history of LSCS were found to be influencing factors for psychological disorders among antenatal mothers.

**Conclusion:** Effective screening measures should be adopted to screen the antenatal mothers for all psychological disorders which would help to identify and manage it earlier and thereby preventing further complications both in mother and the new born.

**Keywords:** Antenatal mothers; psychological disorders; stress; anxiety; depression.

### Introduction

Mental health in women is being recognized as a core component and it needs to be integrated with physical and social dimensions of health so that it paves the way to achieve the third goal in the Millennium Development Goals, which is related to women and child health.<sup>1</sup> According to World Health Organization (WHO) the maternal mental health is defined as “a state of well-being in which a mother realizes her own abilities, and is capable of coping up with the normal stresses that she experiences in her life and can work productively and fruitfully to make a meaningful

contribution to her community."<sup>2-4</sup> Among the various psychological disorders depression is the most common disorder among the women in the reproductive years.<sup>5</sup> Maternal depression constitutes the 2<sup>nd</sup> leading cause of global morbidity in women.<sup>6</sup> According to the recent survey done by National Mental Health Survey (NMHS)-2016, it has found, in India every 10<sup>th</sup> person is suffering from some sort of depression or anxiety and in that 20% were either pregnant or lactating mothers.<sup>7</sup> Recent studies had revealed that the prevalence of depression was found to be 15.5% in early and mid-pregnancy, 11.1% in the third trimester, and 8.7% in the postpartum period and a meta-analysis review quoted as mean prevalence of antenatal depression in middle and low income countries as 15.5%.<sup>8-10</sup>

The other common psychological disorders in maternal mothers are anxiety and stress disorders. These psychological disorders in maternal mothers would impose an adverse event on pregnancy outcome and offspring development. Few of the research studies done earlier had clearly showed a significant association between maternal stress disorder and altered placental function and epigenetic changes.<sup>11-13</sup> Anxious and stressful mothers shows an increased level of stress hormones such as norepinephrine and cortisol which would invariably affects the uterine blood flow and goes to the extent of becoming neurotoxic to the development of fetal brain and thereby resulting in adverse development in their infancy and childhood period.<sup>14</sup>

Previous literature has clearly pointed out that that past personal or family history of psychiatric illness or substance abuse, past personal history of sexual, physical or emotional abuse, current exposure to intimate partner violence or coercion, current social adversity and coincidental adverse life events were some of the risk factors for psychosocial disorders among maternal mothers.<sup>15,16</sup> Further it was also shown that psychological disturbances during pregnancy are associated with poor antenatal care, low-birth weight and preterm delivery and during the immediate postpartum period a strong association was seen for postpartum psychosis which would lead to neglect and hostility towards the newborn.<sup>17</sup> So far many studies were done on assessing the prevalence of depression alone among antenatal mothers in western countries and very few studies were conducted in India and so the present study was undertaken to assess the prevalence of psychological disorders among antenatal mothers and the factors influencing it.

## Methodology

A cross-sectional study was conducted for a period of 6 months in the department of obstetrics and gynaecology in a tertiary care hospital in Salem district. The study was started after getting clearance from the institutional ethical committee and the informed consent was obtained from all the study participants involved in the study. All antenatal mothers in the age group between 18 and 40 years reporting for regular antenatal check-up during the study period were included as our study subjects. Antenatal women with pre-existing psychiatric disorders and subjects who were not willing to participate in the study were excluded. A total of 240 study subjects had participated in the study. A semi-structured and pretested questionnaire was made to collect the demographic details and the clinical history from the study subjects and along with it depression, anxiety and stress scale assessment tool which consist of 21 questions (DASS-21) with 7 items for each disorder was administered on all the study subjects to assess the presence of psychological disorders in antenatal mothers. Individual scoring is made for each item according to the response made by the study subjects. Finally the scores for all three psychological disorders are calculated by summing the scores of the relevant items. Based on the scores the grading of psychological disorder was made ranging from normal to extremely severe disorder. All the data were entered and analysed using SPSS version 24, mean and standard deviation was calculated for all the parametric variables and the percentage was derived for all three types of psychological disorders along with the grading. Chi-square test was used to derive the statistical inference between the factors influencing the various psychological disorders.

## Results

The socio-demographic details of the study subjects shows that majority of them were in the age group between 20 and 25 years with a mean age of 24.8 years and less than 10% were in age group of less than 20 years and 15% were more than 30 years. The socio-economic status was assessed using modified B G Prasad classification taking into account their per-capita income and it was found that majority (40%) of them were in the middle class and 13% belong to lower class with less than 7% belonging to upper class (Table 1). In our study majority of the subjects were in the 1<sup>st</sup> trimester (68%) and only

**Table 1:** Socio-demographic details of the study subjects.

Socio-demographic variables		Frequency	Percentage
Age	<20	22	9.1%
	20 – 25	108	45%
	26 – 30	72	30%
	>30	38	15.8%
Socio-economic status (according to B G Prasad 2019 scale)	Lower	32	13.3%
	Lower middle	54	22.5%
	Middle	96	40%
	Upper middle	42	17.5%
	Upper	16	6.6%

**Table 2:** Distribution of the study subjects based on the obstetric factors.

Obstetric factors		Frequency	Percentage
Period of gestation	1 <sup>st</sup> trimester	163	67.9%
	2 <sup>nd</sup> trimester	57	23.7%
	3 <sup>rd</sup> trimester	20	8.3%
Gravida	Primi	136	56.6%
	Multi	114	47.5%
Number of live children	0	137	57%
	1	96	40%
	2	7	3%
Number of abortions/stillbirth	0	229	95.4%
	1	9	3.7%
	2	2	0.8%
History of infertility	Present	39	16.2%
	Absent	201	83.7%
Treatment taken for conception	Spontaneous conception	206	85.8%
	Ovulation induction	14	5.8%
	IUI	9	3.7%
	IVF	11	4.5%

**Table 3:** Prevalence of other risk factors evaluated for psychological disorders among the study subjects.

Risk factor		Frequency	Percentage
Complication of previous pregnancy	Medical	38	15.8%
	Psychological	31	12.9%
Complication of present pregnancy	Medical	26	10.8%
	Psychological	23	9.5%
Family history of psychological disorders	Present	33	13.7%
	Absent	207	86.2%
Domestic violence	Present	43	17.9%
	Absent	197	82%
Previous mode of delivery (n=114)	NVD	78	68.4%
	LSCS	22	19.2%
	Both LSCS and NVD	14	12.2%
Lack of social and family support		13	5.4%

**Table 4:** Prevalence of various psychological disorders and its grading among the study subjects.

Grading	Stress	Anxiety	Depression
Normal	138 (57.5%)	127 (52.9%)	174 (72.5%)
Mild	62 (25.8%)	20 (8.3%)	20 (8.3%)
Moderate	21 (8.75%)	34 (14.1%)	24 (10%)
Severe	12 (5%)	46 (19.1%)	13 (5.4%)
Extremely severe	7 (2.9%)	13 (5.4%)	9 (3.7%)
Total	240 (100%)	240 (100%)	240 (100%)

**Table 5:** Risk factors influencing stress among the study subjects.

Risk factor		Grading of stress				P value
		Mild (n=62)	Moderate (n=21)	Severe (n=12)	Extremely severe (n=7)	
Period of gestation	1 <sup>st</sup> trimester (n=163)	31 (50%)	1 (4.7%)	2 (16.6%)	1 (14.2%)	<.001
	2 <sup>nd</sup> trimester (n=57)	25 (40.3%)	14 (66.6%)	7 (58.3%)	4 (57.1%)	
	3 <sup>rd</sup> trimester (n=20)	6 (9.6%)	6 (28.5%)	3 (25%)	2 (28.5%)	
Gravida	Primi (n=136)	38 (61.2%)	13 (61.9%)	8 (66.6%)	5 (71.4%)	<.001
	Multi (n=114)	24 (38.7%)	8 (38%)	4 (33.3%)	2 (28.5%)	
Number of live children	<1 (n=137)	36 (58%)	12 (57.1%)	9 (75%)	5 (71.4%)	<.001
	>1 (n=103)	26 (41.9)	9 (42.8%)	3 (25%)	2 (28.5%)	
History of abortion/still birth	Present (n=11)	1 (1.6%)	2 (9.5%)	3 (25%)	5 (71.4%)	<.001
	Absent (n=229)	61 (98.3%)	17 (80.9%)	9 (75%)	2 (28.5%)	
History of infertility	Present (n=39)	7 (11.2%)	12 (57.1%)	11 (91.6%)	7 (100%)	<.001
	Absent (n=201)	55 (88.7%)	9 (42.8%)	1 (8.3%)	0	
History of psychological complication in previous pregnancy	Present (n=31)	6 (9.6%)	5 (23.8%)	7 (58.3%)	6 (85.7%)	<.001
	Absent (n=209)	56 (90.3%)	16 (76.1%)	5 (41.6%)	1 (14.2%)	
History of medical complication in present pregnancy	Present (n=26)	1 (1.6%)	10 (47.6%)	8 (66.6%)	6 (85.7%)	<.001
	Absent (n=214)	61 (98.3%)	11 (52.3%)	4 (33.3%)	1 (14.2%)	
History of psychological complication in present pregnancy	Present (n=23)	2 (3.2%)	5 (23.8%)	9 (75%)	7 (100%)	<.001
	Absent (n=217)	60 (96.7%)	16 (76.1%)	3 (25%)	0	
Family history of psychological disorders	Present (n=33)	4 (6.4%)	13 (61.9%)	9 (75%)	7 (100%)	<.001
	Absent (n=207)	58 (93.5%)	8 (38%)	3 (25%)	0	
Domestic violence	Present (n=43)	7 (11.2%)	16 (76.1%)	10 (83.3%)	7 (100%)	<.001
	Absent (n=197)	55 (88.7%)	5 (23.8%)	2 (16.6%)	0	
Lack of social and family support	Present (n=13)	0	2 (9.5%)	5 (41.6%)	6 (85.7%)	<.001
	Absent (n=227)	62 (100%)	19 (90.4%)	7 (58.3%)	1 (14.2%)	
Previous delivery	NVD (n=78)	55 (88.7%)	13 (61.9%)	6 (50%)	0	<.001
	LSCS (n=22)	4 (6.4%)	5 (23.8%)	4 (33.3%)	6 (85.7%)	
	Both NVD and LSCS (n=14)	3 (4.8%)	3 (14.2%)	2 (16.6%)	1 (14.2%)	

8% were in the 3<sup>rd</sup> trimester and majority were primigravida. Among the antenatal mothers 4% had a previous history of abortion/stillbirth, with a history of infertility present in 16% of the study subjects and all subjects with history of infertility also had a history of treatment taken for infertility either in the form of ovulation induction, IUI or IVF (Table 2).

The prevalence of various risk factors related to psychological disorders were shown in Table 3 such as presence of medical or psychological complication during previous or present pregnancy, family history related to psychological disorders, domestic violence, lack of social or family support and history of LSCS. Stress found to be the most common psychological disorder prevailing among the antenatal mothers followed by anxiety and depression. The prevalence of stress, anxiety and depression were 52.5%, 47.1% and 27.5% respectively. Most of them had mild stress

disorder whereas mothers having anxiety type of psychological disorder majority of them were having moderate to severe type of anxiety disorder. All patients with depression had either stress or anxiety as a psychological comorbid condition (Table 4). Factors influencing stress among the antenatal mothers is shown in table no. 5. It is inferred from the table that antenatal mothers in 2<sup>nd</sup> and 3<sup>rd</sup> gravida were prone to develop severe and very severe stress when compared to mothers in the 1<sup>st</sup> trimester, similarly primigravida mothers, mothers with previous history of abortion/still birth, people with history of infertility, history of psychological disorders in the previous pregnancy, history of medical and psychological disorders in the present pregnancy, family history of psychological disorders, history of domestic violence, history related to lack of family and social support and previous history of LSCS were found to be influencing factors for development of severe

or very severe stress disorders among the antenatal mothers. The similar factors were also found to be the influencing/risk factors for anxiety and depression among the antenatal mothers and so a separate table was not made to highlight it.

## Discussion

In females the most vulnerable period in their life time is the antenatal period as in this period profound physiological and emotional change occurs. As most of the changes being considered as physiological, few of them were mistook to be physiological such as disturbed sleep and loss of appetite, as these could be early symptoms of psychological disturbances. Historically very little efforts were made by most of the countries on prevention of psychological disorders among antenatal mothers though the associated risk of pregnancy outcome is high. The reason might be due to limited data is available related to these disorders and most of the data which were available were all related to prevalence of antenatal depression not much studies have been done on psychological disorders such as stress and anxiety, as these disorders were found to be more common than depression but it was mostly neglected.

In our study most of the antenatal mothers were in the age group between 20 and 25 and only 15% of them were more than 30 years of age and most of the studies had quoted that the prevalence of depression is more than 60% in mothers aged 30 years and above and it was 25–30% in women aged less than 30 years.<sup>18,19</sup> Socio-economic and behavioural determinants such as financial difficulties, lower educational status and health compromising behaviors were also found to increase the odds of depression during pregnancy and in our study majority of them (40%) belong to middle class and 13% of the antenatal mothers were from lower socio-economic class. In the present study the prevalence of depression was 27.5% and for stress and anxiety it was 52.5% and 47.1%. A pooled antenatal depression prevalence of 17% was found in a review conducted in developed countries while a prevalence range of 15–65% was reported in a review conducted by including studies from low-and middle-income countries.<sup>20,21</sup> Studies conducted in India showed that the prevalence of depression among pregnant women was found to be significantly high ranging from 9.18% to 65.0% in northern, western, and southern part of India.<sup>22,23</sup> All the data mentioned above were related to the prevalence of depression alone and we were not

able to find any data related to the prevalence of stress and anxiety among antenatal mothers. Our finding supports that along with depression, stress and anxiety is also considered as a significant cause of disease burden globally, whereas in the Global Burden of Disease studies only depression is highlighted.<sup>24,25</sup> In our study we found the risk factors were common for all the three psychological disorders such as stress, anxiety and depression, further it revealed that mild grade of psychological disorders were common in 1<sup>st</sup> trimester of pregnancy whereas moderate to severe forms were seen in 2<sup>nd</sup> and 3<sup>rd</sup> trimester of pregnancy and a similar type of results was observed in a meta-analysis study on antenatal depression where it mentioned the prevalence of depression among the pregnant women ranging from 10.25% to 55% (1<sup>st</sup> trimester), 8.4% to 48.4% (2<sup>nd</sup> trimester), and 11.11% to 30.11% (3<sup>rd</sup> trimester).<sup>20</sup> Most of the studies conducted earlier used self-rating questionnaires such as EPDS, Beck Depression Inventory (BDI) scores, few studies had used structured clinical interviews by using SCID, M.I.N.I. International Neuropsychiatric Interview, whereas in our study we used DASS-21 to assess the prevalence of psychological disorders. In our study we found medical or psychological complications of previous pregnancy to be one of the risk factor for psychological disorders in the current pregnancy and it was almost in par with the previous studies, which might be due to psychological fear of having another complication in the current pregnancy.<sup>26-29</sup> Similarly domestic violence and lack of social and family support were also identified as a risk factor for psychological disorders in our study and it was proven in the studies done earlier.<sup>30,31</sup> Our study further showed that history of infertility, history of abortion/still birth and previous history of LSCS were found to be influencing factors for the occurrence of psychological disorders among antenatal mothers and previous studies done on depression had also showed that the similar factors have influenced the occurrence of depression among the antenatal mothers.<sup>15,22,23</sup>

## Conclusion

It is concluded from the study that among the psychological disorders in antenatal mothers more than depression, stress and anxiety were found to be more common but less addressed. Since this study is a hospital based study and the prevalence what we see here is only a tip of iceberg and a large submerged portion would be present in

the community. So effective screening measures should be adopted to screen the antenatal mothers for all psychological disorders which would help to identify and manage it earlier and thereby preventing further complications both in mother and the new born. It is also necessary to provide an effective health education to the antenatal mothers about the various risk factors influencing psychological disorders which would help them to get the timely intervention and reduce the burden of psychological disorders.

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