

## A STUDY OF PREVALENCE AND RISK FACTORS OF PSYCHIATRIC DISORDERS AMONG PREGNANT AND POSTPARTUM WOMEN ATTENDING A TERTIARY CARE HOSPITAL IN JAMMU

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Received: 25-04-2024

Revised: 23-05-2024

Accepted: 26-06-2024

### ABSTRACT

**Aim:** The aim of the present study was to assess the prevalence of psychiatric disorders among the women between 32-week gestation & two week postpartum.

**Methods:** The study was conducted in the Post Graduate Department of Obstetrics and Gynaecology over a period of one year i.e. November 2016 to October 2017, after approval from the Ethical Committee. Subjects included 150 antenatal women from 32-week period of gestation till delivery and 150 postpartum women from delivery till 2 weeks postpartum. Psychiatric disorder was calculated using Mini Neuropsychiatric Inventory. Other socio-demographic, obstetric, and psychiatric variables were recorded.

**Results:** Overall, 150 antenatal and 150 postnatal women were studied, 28 women (18.7%) in antenatal and 21(14%) women in postnatal group had psychiatric disorder. The overall prevalence of psychiatric disorders in the present study was found to be 16.4%. This prevalence in pregnancy ranges from 15- 29% worldwide. Among 28 antenatal patients diagnosed as having Psychiatric Disorder 13 (8.7%) had Depression. One patient (0.7%) had Dysthymia, 2 (1.3%) had panic disorder. 2 (1.3%) had obsessive compulsive disorder. 10 (6.7%) had Generalized Anxiety Disorder. None of the patients had Depression with Melancholic features, Suicidality, Hypomania, Agoraphobia, Social Phobia, Bipolar Disorder, Alcohol Dependence and abuse, Post-Traumatic Stress Disorder, Psychotic Disorder, Anorexia Nervosa, and Bulimia Nervosa. 21 Postnatal patients were diagnosed as having Psychiatric Disorder, out of which 12 (8.0%) had Depression. None had Dysthymia, 3(2%) had panic disorder. 1 (0.7%) had obsessive compulsive disorder. 1 (0.7%) had Post Traumatic Stress Disorder. 1 (0.7) had Psychotic Disorder and Mood disorder with Psychotic features. 3 (2%) had Generalized Anxiety Disorder. None of the patients had Depression with Melancholic features, Suicidality, Hypomania, Agoraphobia, Social Phobia, Bipolar Disorder, Alcohol Dependence and abuse, Anorexia Nervosa, and Bulimia Nervosa. 21.3% antenatal females had antenatal risk questionnaire score  $\geq 23$  with mean score  $17.5 \pm 8.57$  and 26.7% postnatal females had postnatal risk questionnaire score  $\geq 24$ .

**Conclusion:** Pregnancy-related psychiatric disorders are frequent. The outcomes for pregnant women, infants, and women's health are all improved by proper diagnosis and treatment of psychiatric problems.

**Keywords:** prevalence, psychiatric disorders, 32-week gestation, two weeks postpartum

## 1. INTRODUCTION

With declining rates of maternal mortality worldwide, researchers are recognizing the importance of addressing morbidity as well. The contribution of maternal mental health to maternal morbidity however has not been well ascertained.<sup>1</sup> In recent decades, psychological morbidity in childbearing women in particular has received increasing research attention because of its ramifications on the mother as well as her child. Once considered a time of emotional wellbeing, and “protecting” women against psychiatric disorders, it is now well established that several psychiatric disorders are common during pregnancy, with depression being the most common.<sup>2</sup> Violence during pregnancy or intimate partner violence has also received research attention due to its lasting consequences on the mental health and wellbeing of the mother and her child. Further, motherhood is often glorified, which makes the pregnant woman or mother feel guilty about experiencing negative emotions.

The prevalence rates of antenatal psychological problems are estimated to be high world over. Studies have indicated that the prevalence of antenatal depression (AD) and/or anxiety ranging from 8% to 30%.<sup>3,4</sup> The prevalence rates are likely to vary across studies and cultures due to choice of measures and sociocultural determinants. Studies have used either screening measures such as the Edinburgh Post Natal Depression Scale (EPDS) or structured interview schedules that yield a clinical diagnosis. A systematic review showed that of the 18% of women reporting depressed mood during pregnancy, 13% met the DSM-IV diagnostic criteria for a major depressive episode.<sup>5</sup> In a Japanese study, women (n=290) were assessed both antenatally and postnatally for the presence of DSM-III-R psychiatric disorders. About 12% of the women at pregnancy and postpartum, respectively, met the criteria for one of the following psychiatric disorders: major depressive disorder, manic episode, generalized anxiety disorder, social phobia, specific phobia and obsessive-compulsive disorder.<sup>6</sup>

A United States population study (n=1662) investigated AD using EPDS during mid pregnancy and found that the prevalence of depressive symptoms during the antenatal period was 9%. Minority groups in the US, such as Black and Hispanic mothers, had a higher prevalence of depressive symptoms compared with non-Hispanic white mothers.<sup>7</sup>

The aim of the present study was to assess the prevalence of psychiatric disorders among the women between 32-week gestation & two week postpartum.

## 2. MATERIALS AND METHODS

The study was conducted in the Post Graduate Department of Obstetrics and Gynaecology over a period of one year, after approval from the Ethical Committee. Subjects included 150 antenatal women from 32-week period of gestation till delivery and 150 postpartum women from delivery till 2 weeks postpartum. Psychiatric disorder was calculated using Mini Neuropsychiatric Inventory. Other socio-demographic, obstetric, and psychiatric variables were recorded.

### Study Tool

The study tool used to collect information was M.I.N.I. Screen & M.I.N.I interview. The MINI International Neuropsychiatric Interview (MINI) is a short structured diagnostic interview developed jointly by psychiatrists and clinicians for DSM-IV & ICD-10 psychiatric disorders. MINI facilitates accurate data collection on 16 major mental disorders including depression,

alcoholism, anxiety, personality of eating disorders etc. M.I.N.I. has been used extensively & validated with sensitivity of 0.75 (0.65-0.92) & specificity of 0.85 (0.90-0.99) with an administration time of approximately 15 minutes. It is designed to meet the need for short but accurate structured psychiatric interview for multi-centre clinical trials & epidemiology study alike. It is used as a first step in outcome tracking in non-research clinical setting. The M.I.N.I screen is a one-page, patient rated, screening instrument that can be used in family practice waiting room & takes about five minutes to administer.

#### Selection of Participants

In order to draw the requisite sample size over a period of one year November 2016 October 2017, in the obstetric OPD of SMGS Hospital, a fixed day of the week was chosen. Using systemic random sampling 150 antenatal and 150 postnatal women were interviewed over a period of one year after taking consent and establishing rapport with them.

Information on relevant socio-demographic details like Age, socioeconomic status, literacy, previous history of abortions, relationship with husband, family H/O psychiatric illness, previous history of psychiatric illness. H/O infertility was collected as per semi-structured interview schedule.

All the women participating in the study were interviewed by the investigator using the Mini International Neuropsychiatric Screening schedule & M.I.N.I. interview after being trained by the consultant psychiatrist for a period of two weeks. The instrument was pilot tested on a small sample of population before being put to use. Those women who responded positively on screening were interviewed using Mini International Neuropsychiatric Interview. The final diagnosis was made by the psychiatrist in equivocal cases. The psycho-social risk factors were identified according to antenatal and postnatal risk questionnaire.

#### Antenatal Risk Questionnaire (ANRQ)

This questionnaire is designed to identify risk factors known to be associated with perinatal depression and is for use in pregnancy. It is developed by Professor Marie-Paule Austin.

#### Postnatal Risk Questionnaire (PNRQ)

This questionnaire is designed to identify risk factors known to be associated with perinatal depression and is for use after birth of the baby, It is developed by Professor Marie-Paule Austin and Dr Susan Priest.

#### EXCLUSION CRITERIA:

- Teenage pregnancies.
- Women < 32-week gestation.
- Women 2 week Postpartum.
- Any major complicated medical disorder.

#### STATISTICAL ANALYSIS

Appropriate statistical technique was applied to find out statistical significance of any apparent difference or association.

### 3. RESULTS

Table 1: Socio demographic characteristics of antenatal patients and postnatal patients

Characteristics		Antenatal patients		Postnatal patients	
		Frequency	Percentage	Frequency	Percentage
Residence	Rural	96	64	89	59.3
	Urban	54	36	61	40.7
Literacy status	Illiterate	32	21.3	31	20.7
	Matriculate	31	20.7	36	24
	HSE	42	28	30	26.7
	Graduate	38	25.3	37	24.7
	Post graduate	7	4.7	6	4
Socio economic status	APL	113	75.3	124	82.7
	BPL	37	24.3	26	17.3
Family members	1-3	42	28	51	34
	4-6	61	40.7	60	40
	≥7	47	31.3	39	26

Overall, 150 antenatal women were studied, out of which 64% belonged to rural area compared to 36% women who were from urban area. 21.3% of antenatal females were illiterate, 20.7% received education upto 10th class, 28% upto 12th, 25.3% were graduate and 4.7% postgraduate. 75.3% females were APL and 24.7% BPL. 28% women had 1-3 family members, 40.7% had 1-6 members and 31.3% had 7 or more than 7 family members. Of 150 postnatal women studied, 59.3% belonged to rural area compared to 40.7% women who were from urban area. 20.7% of postnatal females were illiterate, 24% received education upto 10th class, 26.7% upto 12th. 24.7% were graduate and 4.0% postgraduate. 82.7% females were APL and 17.3% BPL. 34% women had 1-3 family members, 40.0% had 1-6 members and 26% had 7 or more than 7 family members.

Table 2: Personal and family history of psychiatric disorders

	Antenatal patients	Post-natal patients
<b>Family history of psychiatric disorder</b>		
Present	6	9
Absent	144	141
<b>Previous history of psychiatric disorder</b>		
Present	12	12
Absent	138	138

4% of antenatal patients had family history of psychiatric disorder and 8% had previous history of psychiatric disorder. 6% of postnatal patients had family history of psychiatric disorder and 8% had previous history of psychiatric disorder.

Table 3: Obstetric history

<b>Obstetric history</b>	<b>Antenatal patients</b>	<b>Post-natal patients</b>
Previous history of CS	53	52
History of infertility	22	18
Threatened preterm labour with previous pregnancy	25	23
Preterm delivery with previous pregnancy	16	19
History of 2 or more abortions	23	20
Delivery within past 12 months	28	22
History of ART	4	4

35.3% Antenatal females had previous history of Cesarean Section. 14.7% had history of Infertility. 16.7% had history of Threatened Preterm Labour with previous pregnancy and 10.7% had Preterm Delivery with previous pregnancy, 15.3% women had history of 2 or more Abortions. 18.7% had delivery within past 12 months. 2.7% had history of ART. 34.7% Postnatal females had previous history of Cesarean Section. 12.0% had history of Infertility. 15.3% had history of Threatened Preterm Labour with previous pregnancy and 12.7% had Preterm Delivery with previous pregnancy. 13.3% women had history of 2 or more Abortions. 14.7% had delivery within past 12 months. 2.7% had history of ART.

Table 4: Obstetric complications in present pregnancy

<b>Obstetric complications</b>	<b>Antenatal patients</b>	<b>Post-natal patients</b>
Multiple gestation	8	6
History of threatened abortion	34	37
History of placenta praevia	1	5
History of gestation hypertension/Preeclampsia	12	16
Gestational diabetes	12	10
Polyhydramnios	2	1

Any of the above complications	58	58
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5.3% of Antenatal women had Multiple Gestation in the index pregnancy. 22.7% had history of Threatened Abortion. 0.7% had history of Placenta Praevia. 8.7% had Hypertensive Disorder of Pregnancy. 8% had Gestational Diabetes. 1.3% had Polyhydroamnios. 38.7% had any one of the six Obstetric Complications mentioned above in the index pregnancy. 4.0% of Postnatal women had Multiple Gestation in the index pregnancy. 24.7% had history of Threatened Abortion. 3.3% had history of Placenta Praevia. 10.7% had Hypertensive Disorder of Pregnancy. 6.7% had Gestational Diabetes. 0.7% had Polyhydroamnios. 38.7% had any one of the six Obstetric Complications mentioned above in the index pregnancy.

Table 5: ANRQ and PNRQ score

ANRQ score	N	%
<b>Antenatal patients</b>		
<23	118	78.7
≥23	32	21.3
Mean±SD (Range)	17.5±8.57 (5-43)	
<b>Post-natal patients</b>		
<24	110	73.3
≥24	40	26.7
Mean±SD (Range)	20.7±8.52 (9-46)	

21.3% had antenatal females had antenatal risk questionnaire score ≥23 with mean score 17.5±8.57 and 26.7% had postnatal females had postnatal risk questionnaire score ≥24.

Table 6: Prevalence of psychiatric disease in antenatal and post-natal patients

Psychiatric Disease in antenatal patients	N	%
Present	28	18.7
Absent	122	81.3
<b>Psychiatric Disease in post-natal patients</b>		
Present	21	14
Absent	129	86

The prevalence of psychiatric disease in antenatal and post-natal from 32 weeks gestation till delivery was 18.7% and 14% respectively.

Table 7: Various disorders

Various disorders	Antenatal patients	Post-natal patients
Depression	13	12
Depression with melancholic features	0	0
Dysthymia	1	0
Suicidality	0	0
Hypomania	0	0
Panic disorder	2	3
Agoraphobia	0	0
Social phobia	0	0
OCD	2	1
Bipolar disorder	0	0
PTSD	0	1
Alcohol and dependence	0	0
Non-alcoholic psychoactive substance use disorder	0	0
Psychotic disorder and mood disorder with psychotic features	0	1
Anorexia nervosa	0	0
Bulimia nervosa	0	0
GAD	10	3
Total	28	21

Among 28 antenatal patients diagnosed as having Psychiatric Disorder 13 (8.7%) had Depression. One patient (0.7%) had Dysthymia, 2(1.3%) had panic disorder. 2(1.3%) had obsessive compulsive disorder. 10(6.7%) had Generalized Anxiety Disorder. None of the patients had Depression with Melancholic features, Suicidality, Hypomania, Agoraphobia, Social Phobia, Bipolar Disorder, Alcohol Dependence and abuse, Post Traumatic Stress Disorder, Psychotic Disorder, Anorexia Nervosa, and Bulimia Nervosa. 21 Postnatal patients were diagnosed as having Psychiatric Disorder, out of which 12 (8.0%) had Depression. None had Dysthymia, 3(2%) had panic disorder. 1(0.7%) had obsessive compulsive disorder. 1(0.7%) had Post Traumatic Stress Disorder. 1(0.7%) had Psychotic Disorder and Mood disorder with Psychotic features. 3(2%) had Generalized Anxiety Disorder. None of the patients had Depression with Melancholic features, Suicidality, Hypomania, Agoraphobia, Social Phobia, Bipolar Disorder, Alcohol Dependence and abuse, Anorexia Nervosa, and Bulimia Nervosa.

Table 8: Association of sociodemographic variables with psychiatric disease with antenatal patients

Characteristics		Odds ratio	95% CI		P Value
Residence	Rural	Reference			0.519
	Urban	1.53	0.42	5.57	
Literacy status	Illiterate	5.38	3.47	61.81	<0.001
	Matriculate	2.27	1.02	5.95	0.029
	HSE	0.79	0.02	4.15	0.361
	Graduate	0.15	0.01	3.15	0.225
	Post graduate	Reference			
Socioeconomic status	APL	Reference			<0.001
	BPL	3.08	1.15	11.56	
Family members	1-3	Reference			
	4-6	1.76	1.16	6.63	0.082
	≥7	2.56	0.47	13.96	0.007

The association of Literacy status with Psychiatric Disorder was statistically significant. The antenatal women who were illiterate and those who were less educated were more prone to mental health illness in pregnancy than their more educated counterparts. Similarly, the association of socio-economic status to the development of psychiatric disease in antenatal patients was also found to be statistically significant. Women who were below poverty line were more likely to have the disorder. Women who had more family members were more prone for the disease. Having 7 or more than 7 family members had statistically significant association with the development of the disorder.

Table 9: Association of sociodemographic variables with psychiatric disease with postnatal patients

Characteristics		Odds ratio	95% CI		P Value
Residence	Rural	Reference			0.669
	Urban	1.3	0.39	4.37	
Literacy status	Illiterate	3.94	2.83	13.28	<0.001
	Matriculate	2.13	1.93	4.67	0.034
	HSE	0.65	0.13	2.86	0.465
	Graduate	0.37	0.09	1.97	0.671



	Post graduate	Reference			
Socioeconomic status	APL	Reference			<0.001
	BPL	2.66	1.39	8.76	
Family members	1-3	Reference			
	4-6	1.31	0.83	4.85	0.219
	≥7	1.97	0.65	5.68	0.043

The association of residence with that of psychiatric disorder was not statistically significant. The association of Literacy status was statistically significant. The women who were illiterate and those who were less educated were more prone to mental health illness in pregnancy. Similarly, the association of socio-economic status to the development of psychiatric disease in postnatal patients is also found to be statistically significant. Women who are below poverty line are more likely to have the disorder. Women who had more family members were more prone for the disease. Having 7 or more than 7 family members had statistically significant association with the development of the disorder.

Table 10: Association of history of /family history of with psychiatric disease in antenatal and post-natal patients

Psychiatric disease in antenatal patients		Odds ratio	95% CI		P Value
Family history	Present	2.27	1.09	7.48	0.037
	Absent	Reference			
Previous history	Present	19.00	4.69	76.90	<0.001
	Absent	Reference			
Psychiatric disease in postnatal patients					
Family history	Present	2.89	1.89	10.59	0.002
	Absent	Reference			
Previous history	Present	19.50	5.11	74.41	<0.001
	Absent	Reference			

The association of psychiatric disorder with past history and family history of psychiatric disease was statistically significant in antenatal patients. Similarly, the association of psychiatric disorder with family history of psychiatric disease in postnatal patients was statistically significant in post-natal patients.

#### 4. DISCUSSION

Pregnancy is a period of remarkable transition in the life of women with multiple challenges associated with assuming the role of a mother, thus making her vulnerable to psychological distress. Apart from medical and obstetric challenges, it involves a lot of emotional, psychological and social aspects too. Although women having medical and obstetric disorders commonly seek treatment, psychological problems are not often addressed. A female may continue to live in a state of turmoil and may attribute these changes to hormonal changes in the body due to pregnancy and postpartum. The mothers can experience these symptoms any time after delivery to a year post-delivery.<sup>8</sup> Up to 20 per cent of women worldwide reportedly experience PPD.<sup>9</sup> Higher rates of antenatal anxiety spectrum disorders are most commonly associated with high postpartum psychiatric illness as well<sup>10</sup>. The overall prevalence of anxiety disorders at 1-24 wk post birth is reportedly 15 per cent, the situation is particularly alarming in low- and middle-income countries (LMICs), especially India.<sup>11,12</sup>

The overall prevalence of psychiatric disorders in the present study was found to be 16.4%. This prevalence in pregnancy ranges from 15- 29% Worldwide.<sup>13</sup>

Some of the underlying reasons for such huge variations include diverse socio-cultural milieu of surveyed populations, different sampling methods, different types of screening tools used, and varying definitions of the cases. It may also be due to the fact that the Prevalence rates are based on a single point in time in some studies and over a period of time in other. A high prevalence of antenatal psychiatric disorder has been reported by Nasreen HE et al<sup>14</sup>, 2011 in Bangladesh and Ali NS et al<sup>15</sup>, 2012 in Pakistan. The probable reason of high prevalence in these studies may be due to the reason that prevalence of psychiatric disease varies in different trimesters of pregnancy, different investigators use different tools for their study, and the relationship of disease with biology, socio-cultural factors and support system within community.

Among 28 antenatal patients diagnosed as having Psychiatric Disorder 13 (8.7%) had Depression. One patient (0.7%) had Dysthymia, 2(1.3%) had panic disorder. 2(1.3%) had obsessive compulsive disorder. 10(6.7%) had Generalized Anxiety Disorder. None of the patients had Depression with Melancholic features, Suicidality, Hypomania, Agoraphobia, Social Phobia, Bipolar Disorder, Alcohol Dependence and abuse, Post-Traumatic Stress Disorder, Psychotic Disorder, Anorexia Nervosa, and Bulimia Nervosa. 21 Postnatal patients were diagnosed as having Psychiatric Disorder, out of which 12 (8.0%) had Depression. None had Dysthymia, 3(2%) had panic disorder. 1(0.7%) had obsessive compulsive disorder. 1(0.7%) had Post Traumatic Stress Disorder. 1(0.7) had Psychotic Disorder and Mood disorder with Psychotic features. 3(2%) had Generalized Anxiety Disorder. None of the patients had Depression with Melancholic features, Suicidality, Hypomania, Agoraphobia, Social Phobia, Bipolar Disorder, Alcohol Dependence and abuse, Anorexia Nervosa, and Bulimia Nervosa.

We can conclude that the majority of patients in our study belonged to anxiety and depression spectrum disorder. This finding correlates well with other studies. Depression (8.7%) and GAD (6.7%) were most frequent observed psychiatric disorders in antenatal women. Depression (8%) was the most commonly observed disorder amongst the postnatal women.

In the antenatal group, the association of Literacy status with Psychiatric Disorder was statistically significant. The antenatal women who were illiterate and those who were less educated were more prone to mental health illness in pregnancy than their more educated counterparts. Similarly, the association of socio-economic status to the development of psychiatric disease in antenatal patients was also found to be statistically significant. Women who were below the poverty line were more likely to have the disorder. Our study had one interesting finding. Antenatal and postnatal women having 7 or more than 7 family members

had statistically significant association with the development of the disorder. Most of the previous studies say otherwise. The probable reason of this discrepancy is that, most of the studies are conducted in well developed countries where social isolation is a problem, whereas in countries like India poverty, overcrowded households and thus increased financial burden is the issue. The association of residence with that of psychiatric disorder was not statistically significant in both the groups.

The association of Literacy status was also statistically significant in the postnatal patients. The women who were illiterate and those who were less educated were more prone to mental health illness post pregnancy. Similarly, the association of socio-economic status to the development of psychiatric disease in postnatal patients is also found to be statistically significant. The prevalence of GAD in our study in postpartum women was 2%. Its prevalence is reported to be between 4.4-8.2% in the first postpartum.<sup>16,17</sup> The risk of Generalised Anxiety Disorder may be decreased due better support system, having members to take care of the baby and the responsibilities of parenthood in early postpartum in our setup.

In our study, the women who scored more on ANRQ and PNRQ were more at risk of developing the psychiatric disease. That is women who are psychologically more vulnerable (having an abusive partner, less support by mother while growing up, type A personality, history of emotional and physical abuse) as calculated using the antenatal and postnatal risk questionnaire, were more likely to have the disorder. The pregnant and postnatal women who either had family history or previous history of psychiatric disorder were at increased risk of psycho pathological disorder. This in itself is self-explanatory. Similar observations were seen in other studies. It suggests consideration of these women as at significant risk of having perinatal mental health problems and further inquiry is indicated to establish psychosocial care needs and treatment planning.

The results pertaining to association of obstetric factors to the psychiatric disorder may vary due to different sample sizes, different demography, different scales used and many other confounding factors. In our study, the investigation of relationship of obstetric history with psychiatric disease in our study in antenatal women revealed that the pregnant women who had history of infertility, history of two or more abortions and delivery within past 12 months and were more likely to have mental health problems. The postnatal women who had history of two or more abortions, delivery within past 12 months and history of ART were more at risk of psychiatric disease.

We also studied the association of obstetric complications in present pregnancy to the development of psychopathology in the pregnant and postpartum women. From our study we concluded that the obstetric complications in present pregnancy was significantly associated with psychiatric disease both in antenatal and the postnatal period.

This study has generated useful baseline data, future studies with bigger sample size and uniform techniques are needed in this area as the results widely differ, so as to reach a common conclusion and formulate a line of management.

## 5. CONCLUSION

Pregnancy-related psychiatric disorders are frequent. A female may continue to live in turmoil and attribute these changes to hormonal changes in the body due to pregnancy. If left untreated can disrupt social life and can have undesirable effects on Fetal and neonatal development apart from being detrimental to the health of women. So, it becomes important to identify these women to initiate timely management. The outcomes for pregnant women, infants, and women's health are all improved by proper diagnosis and treatment of psychiatric problems. The study has generated useful data on the prevalence of psychiatric disorders and sociodemographic, psycho social, and obstetric risk factors associated with it which can be used gainfully to improve their mental health condition.

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