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Research Paper

Study on Correlation of Pscho-social and Demographic Factors with Perinatal Depression

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ABSTRACT

Background: There are very few studies examining the correlation of antenatal depression and postpartum depression vary with respect to the demographic and psychosocial characteristics. Analysis and comparison of the correlation of depression during and after pregnancy will throw more light than exclusively focusing on postpartum depression. ***Aim:*** To study the psycho-social predictive and protective factors for depression in antenatal and post-partum period. ***Methodology:*** This was a prospective study done during women's antenatal and postpartum period starting from 5months to 6 weeks postpartum. EPDS scale was used for screening for depressive symptoms in this cohort and those with scores of above 10 were included in the study. Then MINI interview was carried out and those who fulfilled DSM IV criteria for major depressive disorder were identified. PSLES scale was used to assess the life events that occurred in the past 1 year. Data analysis was done using SPSS-21 version. Descriptive analyses were carried out for the categorical variables by calculating the number and frequency. The continuous variables were calculated for mean and standard deviation. ***Results:*** The Psycho-social risk factors found to be significant in both groups were marital separation, duration of separation, alcohol abuse. Previous Psychiatric illness, family h/o Psychiatric illness, especially suicides found to be significant. EPDS scores showed positive correlation with the PSLES scores for stressful life events. Differentiating factors in antenatal depression and postnatal depression were high PSLES scores; financial constraints played a greater role in antenatal depression. While obstetric factors like infertility, high risk pregnancy and postpartum complications showed greater significance for postpartum depression. Use of formula feeds in newborn played a significant role in PPD. ***Conclusion:*** There is no differentiating psychosocial factor for antenatal and postpartum depression. But, obstetric factors like high risk pregnancy, infertility, postpartum complications are instrumental in the culmination of postpartum depression.

Keywords: *Antenatal Depression, Postpartum Depression, Prevalence*

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Antenatal depression significantly contributes to the psychiatric morbidity during pregnancy and adverse obstetric and neonatal outcomes (3) (4). Undiagnosed antenatal depression in the long term can disrupt maternal-child relationship and family functioning[5].Important reasons for antenatal depression remaining undiagnosed, untreated or undertreated are social stigma, embarrassment, failure to integrate questions regarding psychiatric symptoms and previous psychiatric treatment history into the obstetric history.

However medical causes for mood disturbances like thyroid dysfunction and anemia needs to be excluded prior to initiation of psychiatric treatment. Hence in these women a thorough history, physical examination and lab investigations pave way for confirming the diagnosis of depression in postpartum period.

There are very few studies examining how antenatal depression and postpartum depression vary with respect to the demographic and psychosocial characteristics. Analysis and comparison of the correlation factors of depression during and after pregnancy will throw more light than exclusively focusing on postpartum depression. So we have decided to investigate the psycho-social and demographic factors as to evaluate their predictive and protective effects on depression in pregnancy and postpartum in a tertiary care obstetric setting.

METHODS & MATERIALS

The study was carried out at the Department of Obstetrics and Gynecology at a tertiary care hospital providing maternity care for women from north Chennai and surrounding areas. The study was carried out over an eight month period. This study was a prospective study done during women's antenatal and postpartum period starting from 5months to 6 weeks postpartum. All pregnant women presenting for antenatal check-up at five months of their pregnancy were recruited for the study. Following their antenatal examination, in the first phase of recruitment, we explained the aim of the study and obtained an informed consent for the study. Women who agreed to take part accepted by signing a consent form. They were contacted by phone to schedule the baseline assessment. The Ethics Committee of the College approved the study protocol and assessment procedures.

Pregnant women were interviewed twice each during their antenatal (5th month and 9th month) and postpartum (2 weeks and 6 weeks) phases. To be included in the study, women had to be at their five months (20 weeks) of pregnancy, as confirmed in the antenatal records, give informed consent and be available to be contacted by phone. Patients must also be willing for interview at 5th month, 9th month, 14 days postpartum and 6 weeks postpartum. Women not planning delivery at the hospital where study was undertaken were excluded from the study.

Fig. 1 Procedure and timing of assessment:

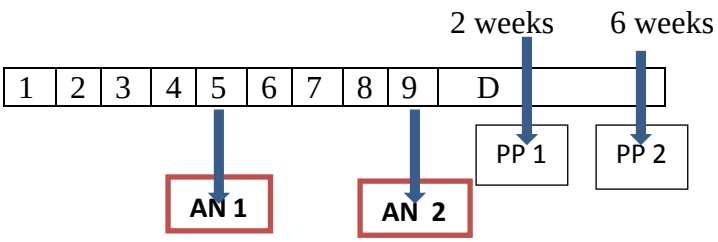


Figure 1 describes the timing of first antenatal assessment at 5months during which, all women consenting for study were given the semi-structured questionnaire for collecting demographic and psychosocial details and they were also administered the Presumptive stressful life events scale. All women during the subsequent 4 visits were given the self-report version of the Edinburgh Postnatal depression scale (EPDS-Tamil version) as a screening tool. Both administration of EPDS and subsequent psychiatric interview was performed during the same day for each participant. When the EPDS score was greater than or equal to 10, the MINI International Neuropsychiatry Interview for depression module was administered to determine whether the subject met DSM 4 diagnostic criteria for depression. For predictive and protective factors, we constructed a semi structured questionnaire for the assessment of predictive (risk factors) and protective factors for antenatal and postpartum depression based on previously reported risk factors and factors identified as being putative significance for our setting and type of study. (90)

This questionnaire was administered to all our participants during the first visit at 5 months; Details regarding current obstetric outcome was added in the 1st post natal visit at 14 days after delivery. The questionnaire covered the areas such as socio-demographic details, psychosocial details, presumptive stressful life events scale, social support care,previous history of or psychiatric illness, family history of psychiatric illness and obstetric history. During their first visit, besides administering the questionnaire for demographic, psycho-social factors, the EPDS scales were administered and subjects with scores greater than 10 were given MINI and patients with depression identified. Similarly the EPDS and MINI were used to detect depression during the subsequent three visits.

Rating scales

EPDS

The EPDS is an internationally well established and validated 10 item scale for the screening of depression in pregnancy and postpartum period(58), designed by Cox et al,1987. This self-rating scale assesses mental state during the previous 7 days. This scale has also been validated to measure depression during pregnancy(Ortega et al,2001, Murray and Cox 1990)(59)(60). In 2005, validation of the Tamil version of EPDS by Benjamin D et al, as a screening instrument to identify depression in postpartum period (61). The EPDS ranks as an effective instrument since it avoids misinterpreting biological symptoms that may be mistaken for normal physiological responses (77).

MINI

The MINI International Neuro Psychiatric Interview is one of the standardized diagnostic interview scale used frequently based on DSM 4 criteria. This scale has been used extensively in field research in India and has been found to have good inter-rater and test-retest reliability(65)(66).

Presumptive stressful life events scale (PSLES)

This scale measured 51 life events relevant to the study over the past one year and lifetime of the individual. The PSLES has been standardized in Indian population(69). Based on the original scale, the authors of a previous study had reported that an adult person in India was likely to experience on an average two stressful events in the past year and ten events in a lifetime without suffering any physical or psychological events.

STATISTICAL ANALYSES

Data analysis was carried out using SPSS-21 version. Descriptive analyses were carried out for the categorical variables(age, PSLES scores, EPDS scale scores) by calculating the number and frequency percent. The continuous variables were calculated for mean and standard deviation. The risk and protective factors for depression in pregnancy and postpartum were identified for their significance using chi square tests, Students t test for continuous variables, Pearson's correlation co-efficient for continuous variables as required .A p value of 0.05 or less was considered statistically significant.

RESULTS

Approximately 86 antenatal women were recruited during their antenatal visit at 5 months of pregnancy. Of which 82 women showed their willingness to take part in the study and for interviews during 4 different visits. Four out of the 86 pregnant women declined to take part as they were not willing for the follow up. All the 82 women were interviewed during their antenatal visits at 5 and 9 months of pregnancy(AN1, AN2 respectively) and after prior phone appointments during their visit for postnatal checkups at 2 weeks and 6 weeks postpartum (PP1, PP2 respectively).

Depression in Postpartum period was seen in 10.9% of the sample studied. None of the Antenatal depression patients showed depression during their assessment in postpartum period. But 1 patient was found to show depression during PP1 and continued in PP2 also.

Demographic and psychosocial details of the sample

Demographic characteristics of the sample as shown in table 1,has the mean age of women to be 24.13 (SD=3.887), husband's mean age being 28.72 (SD=4.161). Majority of the women had primary level of education, 14% were graduates. Of these 82 women, 87% were unemployed, 12.2% employed. Husband's educational status showed 51% of them with primary level education,58.5% of husband's were skilled labourers,3.7% were professionals. None of the spouses were unemployed in this study sample.46.3% had financial debts; 54.9% lived as nuclear families;

In this study primigravida were 38 (46.3%) and multigravida were 44 (53.7%). Majority had access for checkup (95.1%). Above 50% of women had delivered by normal delivery and 45% by LSCS.

Psycho-social characteristics of the sample along with other variables were stratified as those with depression during one or more visits as Group-1(n=16) and those without depression during any of the visits as Group-2 (n=66).

Table.1.Frequency distribution

Variables	Mean	Median	Std. Deviation	Minimum	Maximum
Age	24.13	24	3.887	18	36
Education	2.68	2	0.992	1	5
Occupation	1.12	1	0.329	1	2
Husband's age	28.72	28	4.161	21	41
Education	2.54	2	0.984	2	5
Occupation	3.21	3	0.698	3	5
PSLES	230.15	216	130.673	40	589
EPDS-AN1 *	9.17	9	4.745	0	25
EPDS-AN2	9.68	9	4.548	0	25
EPDS-PP1	9.64			0	22
EPDS-PP2	7.94	7	3.72	1	22

**Edinburgh Postnatal Depression Scale score Antenatal visit 1*

Table 2-Psychosocial details of sample

DEMOGRAPHIC &PSYCHOSOCIAL VARIABLES	GROUP 1 (n-16)	GROUP 2 (n-66)	TOTAL(n-82)	SIGNIFICANCE
EDUCATION				
Illiterate	1(6.2%)	4(6.1%)	5(6.1%)	
Primary	10(62.5%)	28(42.4%)	38(46.3%)	
Higher secondary	5(31.2%)	16(24.2%)	21(25.4%)	0.052
Graduate	0	14(21.2%)	34(17.1%)	
Post graduate	0	4(6.1%)	4(4.9%)	
EMPLOYEMENT				
Employed	14(12.5%)	58(87.9%)	10(17.2%)	
Unemployed	2(87.5%)	8(12.1%)	72(87.8%)	0.625
HUSBAND EDUCATION				
Illiterate	2(12.5%)	6(9.1%)	8(9.8%)	
Primary	9(56.2%)	33(50%)	42(51.2%)	
Higher secondary	2(12.5%)	11(16.7%)	13(15.9%)	0.464
Graduate	3(18.8%)	15(22.7%)	18(22%)	
Post graduate	0	1(1.5%)	1(1.2%)	
HUSBANDEMPLOYEMENT				
Unemployed	0	0	0	
Unskilled	3(18.8%)	7(10.6%)	10(12.2%)	
Skilled	9(56.2%)	39(59.1%)	48(58.5%)	0.355
Self employed	4(25%)	17(25.8%)	21(25.6%)	
Professional	0	3(4.5%)	3(3.7%)	
DEMOGRAPHIC & PSYCHOSOCIAL VARIABLES	**GROUP 1 (n-16)**	**GROUP 2 (n-66)**	**TOTAL (n-82)**	**SIGNIFICANCE**
FAMILY				
Joint	7(43.8%)	30(45.5%)	37(45.1%)	
Nuclear	9(56.2%)	36(54.5%)	45(54.9%)	0.564
FINANCIAL DEBT				
Yes	7(43.8%)	31(47%)	38(46.3%)	
No	9(56.2%)	35(53%)	44(53.7%)	0.521
MARITAL SEPERATION				
Yes	3(18.8%)	2(3%)	5(6.1%)	
No	13(81.2%)	64(97%)	77(93.9%)	0.049
DURATION OF SEPERATION				
3months	1	0	1	
6months	0	2	2	0.021
12months	1	1	2	

Table 3- Showing alcohol abuse in MINI Positive subjects (p value-0.001.

ALCOHOLIC SPOUSE	MINI Positive	MINI negative	TOTAL	SIGNIFICANCE
Yes	9(56.2%)	10(15.2%)	19(23%)	
No	7(43.8%)	56(84.8%)	63(76.8%)	**0.001**

Obstetric Variables

Obstetric details of previous infertility, Bad Obstetric history, pregnancy with high risk, parity, planned or unplanned pregnancy, type of delivery, gender of newborn did not show any significance between depressed and non-depressed groups (Table 4a, 4b). Occurrence of neonatal complications did show direction as a risk factor for depression in the study sample.

Table 4a. Obstetric Variables in the sample

Obstetric details	Depressed group n=16	Non depressed group n=66	Total n=82	Significance
PREVIOUS H/O INFERTILITY				
Yes	6	13	19	
No	10	53	53	0.12
BOH				
a.)Yes	5	11	16	
No	11	55	66	0.165
b.)1st trimester	3	7		
2nd trimester	1	0		
3rd trimester	1	4		0.163
RISK ASSOCIATED				
High risk	8	23	31	
Normal	8	43	51	0.388
BOOKED/UNBOOKED				
Booked	14	63	78(95.1%)	
Unbooked	2	3	4(4.9%)	0.26
ACCESS to treatment				
Yes	13	62	75(91.5%)	
No	3	4	7(8.5%)	0.131

Table 4b. Obstetric details in the sample (Contd..)

Obstetric details	Depressed group n=16	Non depressed group n=66	Total n=82	Significance
PARITY				
Primi	9	29	38	
Multi	7	37	44	0.272
PLANNED				
Yes	13	60	73	
No	3	6	9	0.241
DELIVERY				
LSCS	7	30	37(45.1%)	
Normal	8	35	43(52.4%)	0.545
Instrumental	1	1	2(2.4%)	
SEX OF NEWBORN				
Male	8	38	46	
Female	8	28	36	0.809
NN PROBLEMS				
Yes	7	13	20	
No	9	53	62	0.050
PP COMPLICATIONS				
Yes	5	14	19	0.292

MEDICAL AND PSYCHIATRIC ILLNESSES

Among the women, history of medical illness did not contribute as a risk factor for depression during comparison between the depression positive and negative women. Among women who were depressed during antenatal period there was one each with history of seizure disorder, thyroid dysfunction and anaemia. Postpartum depressives were one each with the previous history of Diabetes mellitus, treated Koch's infection, anaemia (Figure 2).

Figure 2. Medical illnesses in depressed and non-depressed individuals:

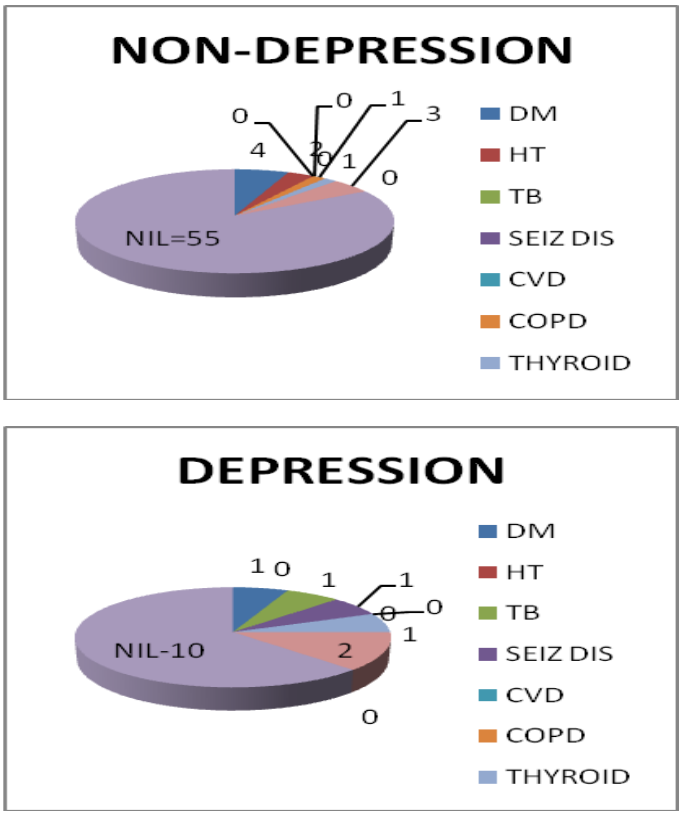


TABLE 5.Comparison of psychiatric history between groups in study sample.

VARIABLE	MINI POSITIVE FOR DEPRESSION	MINI NEGATIVE FOR DEPRESSION	SIGNIFICANCE
Previous psychiatric history 1-DSH 2-Grief 3-Suicide	 2 0 1	 0 1 0	 0.012
History of psychiatric treatment 1-yes 2-no	 1 15	 0 16	 0.041
History of psychiatric hospitalization 1-yes 2-no	 2 14	 0 66	 0.036
Family history of psychiatric illness 1-yes 2-no	 4 12	 5 61	 0.045
Family history of suicides Yes No 1° 2° 3°	 4 12 3 0 1	 4 62 1 2 1	 0.043 0.019

Previous history of psychiatric illness showed significance (p value= 0.02) as a risk factor for depression in the sample. Features of depression found in study sample in their past was self-harm and suicide attempt, seen in 3 of 16 depressed women; 1 grief reaction following IUD in a woman falling in the non- depressed group. Patients with previous psychiatric treatment, though a brief period of less than 3 months and hospitalization for suicidal attempts did show significance as a risk factor for depression using chi-square tests (p value=0.036) (Table 5). Family history of psychiatric illness and the relationship with respect to subjects as 1°/2°/3° relative showed significance as a risk factor for depression (p value=0.04). Family history of psychiatric illness, their relationship (p value=0.05), family history of suicide attempted by 1°/2°/3°relatives again showed relevance as a risk factor for depression in pregnancy and postpartum (Table 5).Lack of any support from husband or other relations was not observed in our sample as all had either the husband or their parents caring and supporting them

Breast Feeding

Lack of breastfeeding as a risk factor showed an association with depression (p value=0.036), formula feeds (p value=0.001) and dissatisfaction about breast feeding in women did contribute as a significant risk factor for depression. Correlation analysis showed obstetric factors, neonatal factors and mothers' attitude towards breast feeding to have association with depression (Table 6).

Table 6. Comparison of MINI results for depression with breast feeding

BREAST FEEDING	MINI POSITIVE	MINI NEGATIVE	significance
Yes	14	66	
No	2	0	0.036
USE OF FORMULA FEEDS			
Yes	6	2	
No	10	64	0.001
SATISFIED-BF			
Yes	13	64	
No	3	2	0.049

Table 7.Comparison of MINI results in Antenatal and Postpartum depression patients

MINI-AN1	N=16	N=66	
positive	4	0	0.001
negative	12	66	
MINI-AN2			
positive	3	0	0.006
negative	13	66	
MINI-PP1			
positive	6	0	0.000
negative	10	66	
MINI-PP2			
positive	4	0	0.001
negative	12	66	

EPDS scores analysis

Individuals with EPDS above 10, who were administered with the MINI interview were 38.Of which 16 were found to be depressed,7 during pregnancy and 9 in the postpartum period (Figure 3). Comparing the mean PSLES scores in women who were depressed during antenatal (7) period with those depressed during postpartum (9) showed difference relating to high average scores of PSLES scores in antenatal depression patients(mean score of 401.4),while postpartum depressed patients had mean score of 284.When the correlation was

run with the EPDS scores as a continuous variables, there was significance with the PSLES scores as in AN1,PP1 rating (significance of 0.01,0.014 respectively). Paired t test showed significance with the EPDS scores PP1 and PP2(Table 8).

Figure 3. Subjects with EPDS scores>10 and MINI findings

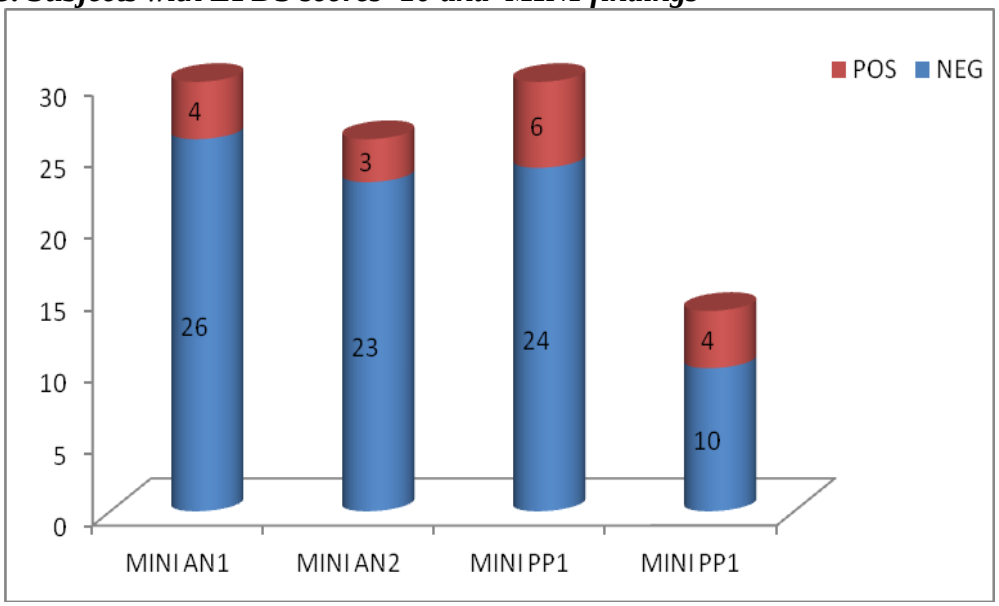


Table 8.Correlation analysis of PSLES scores with EPDS scores

		PSLES	EPDS AN1	EPDS AN2	EPDS PP1	EPDS PP2
PSLES	Pearson Correlation	1	**.282***	.217	**.285****	.145
	Sig. (2-tailed)		**.010**	.050	**.010**	.194
	N	82	82	82	81	82
EPDS AN1	Pearson Correlation	**.282***	1	**.706****	**.471****	**.447****
	Sig. (2-tailed)	**.010**		**.000**	**.000**	**.000**
	N	82	82	82	81	82
EPDS AN2	Pearson Correlation	.217	**.706****	1	**.513****	**.453****
	Sig. (2-tailed)	.050	**.000**		**.000**	**.000**
	N	82	82	82	81	82
EPDS PP1	Pearson Correlation	**.285****	**.471****	**.513****	1	**.786****
	Sig. (2-tailed)	**.010**	**.000**	**.000**		**.000**
	N	81	81	81	81	81
EPDS PP2	Pearson Correlation	.145	**.447****	**.453****	**.786****	1
	Sig. (2-tailed)	.194	**.000**	**.000**	**.000**	
	N	82	82	82	81	82

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

Pair 1	EPDS AN1 & EPDS AN2	82	.706	.000
Pair 2	EPDS PP1 & EPDS PP2	81	.786	.000
Pair 3	EPDS AN2 & EPDS PP1	81	.513	.000
Pair 4	EPDS AN2 & EPDS PP2	82	.453	.000

Analysis of non-depressive group

To find out the protective factors operating in women who did not develop depression, age of the patient and husband's age, PSLES scores as variables affecting the EPDS scores were assessed. There were 66 women without depression; mean age of women was 24.18(SD-3.794); husband's mean age was 28.53(4.152).Mean score of the PSLES was 204.58.The EPDS mean scores during the 4 visits ranged from 6.90 to 8.70 (Table 9) (Fig. 4).

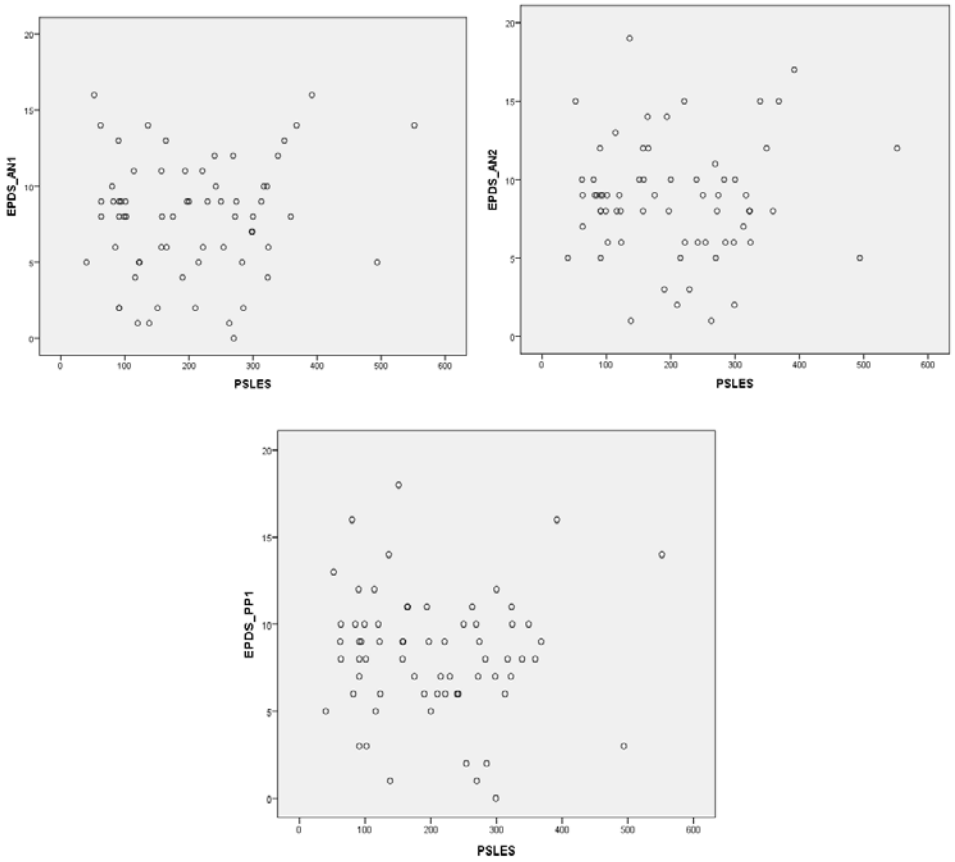
Table 9.correlation analysis of variables in non –depressive patients.

CORRELATION TABLE		age	Husband age	PSLES	EPDS_AN1
Age	Pearson Correlation	1	**.741****	.088	-.031
	Sig. (2-tailed)		**.000**	.484	.802
	N	66	66	66	66
Husband_age	Pearson Correlation	**.741****	1	.043	-.189
	Sig. (2-tailed)	**.000**		.730	.129
	N	66	66	66	66
PSLES	Pearson Correlation	.088	.043	1	.124
	Sig. (2-tailed)	.484	.730		.323
	N	66	66	66	66
EPDS-AN1	Pearson Correlation	-.031	-.189	.124	1
	Sig. (2-tailed)	.802	.129	.323	
	N	66	66	66	66
EPDS-AN2	Pearson Correlation	-.012	-.173	.018	**.731****
	Sig. (2-tailed)	.921	.164	.883	**.000**
	N	66	66	66	66
EPDS-PP1	Pearson Correlation	.018	-.094	-.040	**.453****
	Sig. (2-tailed)	.883	.452	.751	**.000**
	N	66	66	66	66
EPDS-PP2	Pearson Correlation	-.034	-.095	-.016	**.439****
	Sig. (2-tailed)	.788	.446	.900	**.000**
	N	66	66	66	66

CORRELATION TABLE		EPDS_AN2	EPDS_PP1	EPDS_PP2
Age	Pearson Correlation	-.012	.018**	-.034
	Sig. (2-tailed)	.921	.883	.788
	N	66	66	66
Husbnd-age	Pearson Correlation	-.173**	-.094	-.095
	Sig. (2-tailed)	.164	.452	.446
	N	66	66	66
PSLES	Pearson Correlation	.018	-.040	-.016
	Sig. (2-tailed)	.883	.751	.900
	N	66	66	66
EPDS-AN1	Pearson Correlation	.731	.453	.439
	Sig. (2-tailed)	**.000**	**.000**	**.000**
	N	66	66	66
EPDS-AN2	Pearson Correlation	1	.643	.525
	Sig. (2-tailed)		**.000**	**.000**
	N	66	66	66
EPDS-PP1	Pearson Correlation	.643	1	.796
	Sig. (2-tailed)	**.000**		**.000**
	N	66	66	66
EPDS-PP2	Pearson Correlation	.525	.796	1
	Sig. (2-tailed)	**.000**	**.000**	
	N	66	66	66

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

Fig 4.Scatter Diagram in non-depressives showing EPDS scores during 4 visits against the PSLES values.



DISCUSSION

In this study factors which operate to influence the occurrence of depression in these two periods were studied in the entire sample of 82, both during pregnancy and postpartum; all subjects were assessed four times during the study; twice in pregnancy, (5th month Antenatal-1 and 9th month Antenatal-2, and twice during the Postpartum period (two weeks after delivery Postpartum- 1 and 6 weeks after Postpartum- 2,respectively).

The method of using the same subjects as control for the next assessment has been used in many prospective studies. Previous studies had assessed patients earliest from 1st trimester to maximum of 4 years (follow up) in the postpartum period. (52)

Cross-tabulations of the MINI with Psycho-social variables ,the EPDS scores, PSLES are presented in tables 1and 2 for the entire sample stratifying as those with depression (n=16) and those without depression(n=66).The Psycho-social variables correlating with MINI results (P value< 0.05) included marital separation and duration of separation, alcohol abuse in spouse, previous history of psychiatric problems and related treatment and hospitalisation, family history of psychiatric illness and family history of suicides; obstetric variables like neonatal problems, breast feeding, use of formula feeds, satisfaction with breast feeds, EPDS scores, PSLES.

Spouse's alcoholism observed in 9 of 16 was again showing psycho-social factors as contributing for depression when combined (n=16, with p value of 0.002).In the previous study by Chandran and Thrayan et al, depressed postpartum women reported anguish about their husband's alcohol use than in those without depression. (48)

Previous study by Ryan et al, Robertson et al (2004,2005) graded predictors of postpartum depression as strongest for - previous depressive illness, depression in pregnancy ; moderate to severe were life stress ,lack of social support; moderate effect size-psychological factors and marital problems; Obstetric factors and socio-economic status of small effect size.

In our study, demographic factors did not show any significance with respect to MINI findings. As a risk factor , financial debts also did not show significance in the study group(p value-0.561).Such findings of socio-economic status not typically related to postpartum depression have been observed in previous studies by Cutrona et al(1982), O'Hara and Zekoski(1988),Gotlib et al (1989). (31)

Indian study by Chandran et al, 2002 identified risk factors like low income, low level of education, female gender of new born, as a significant risk factor for onset of post partum depression. But in our study there were just two women of the non-depressed group who were upset about the female gender of the newborn. Poverty as a risk factor for depression needs further research at different levels to devise effective, broad scale policy interventions.

As our study has a 2 two stage assessment for depression, we used above 10 as cut off score, thinking as the more false positives (by EPDS with cutoff >10) could be detected as true depressives using the other inventory(MINI) and avoiding false negatives. One reason for having more false positives was, EPDS measured the symptoms in last one week while MINI captured depression in pregnancy and Postpartum based on the DSM 4 duration criteria of 2 weeks.

Two interviews were taken up during antenatal period at 5 months of pregnancy and 9 months of pregnancy to see if depressive features were consistent in both the phases of pregnancy or if extending from antenatal to post partum period.

In our study 7 cases presented with MINI positive in antenatal period and did not reveal the same features in post partum period. Contrary to this, out of 6 cases of MINI positive in first post partum period, 5 cases did not reveal MINI positive in 2ndpost partum visit. Only one patient along with 3 other patients became MINI positive in the 2ndpost partum visit.

Patient presenting with depression in both the antenatal phases were duly referred for psychiatric intervention strategies and did not recur with depressive symptoms in the later visit. Brief psychiatric interventions in the form of psychotherapy, brief pharmacological therapy and emphasis on family support advocated. It is also observed that MINI positive patients in post partum phase did not have any antecedent depressive profile in the antenatal period. Observing this strength it is construed that antenatal depression is a separate entity and post partum depression is another category with the interaction of complex factors. This observation is cognisance with the study by Kumar and Robson (1984)(88), but not replicating the findings of Kitamura(33)and Dennerstein(89).

Previously antenatal depression was taken as a risk factor for PPD (Robertson et al, 2004) but in this study detection of antenatal depression prompted us to refer these patients for psychiatric consultation. Women who were thus identified as depressed in antenatal period were managed prior to delivery and they did not show up with depression in the postpartum period in the present Study. This could be one reason why no antenatal depression patient progressed to postpartum depression.(51)Comparison of PSLES scores in pregnant and

postpartum depressed women revealed stressful events affecting them more during pregnancy than postpartum,(mean PSLES scores in Antenatal Depression Vs Postpartum depression was 401.4 Vs 284) .

PSLES scores were found to be correlating with EPDS- AnteNatal1 more than in EPDS-AnteNatal-2.This finding shows previous 1 year of stressful life events having an impact during the mid pregnancy period when women are less troubled by somatic complaints of pregnancy, increasing the risk of depression. Contrary to previous study where PSLES scores failed to correlate with Postpartum Depression.(51)Postpartum depression patients EPDS scores correlated positively with PSLES score and this could be attributed to the cumulative effects of previous stressful life events and current demanding state of childbirth.

Previous psychiatric illness, family history of psychiatric illness, family history of suicides showed highly significant values under each category and confirms nature Vs nurture concept operating in depression of pregnancy and postpartum.

As in previous studies(72), evaluation of depression for medical illnesses found 6 of the 16 depression positive women with one or the other medical conditions, namely Diabetes, TB, Seizures, Thyroid dysfunction and anaemia. Among the non-depressives DM, COPD, anaemia, Hypertension were seen. However, medical illness did not show any significance for patients with depression. Postpartum complications & neonatal problems worsened the stress of childbirth culminating in a depressive episode.

Post natal factors of breast feeding was found to show significance in this study; clearly when newborns were formula fed the post natal women were significantly affected with reference to role confusion of motherhood.

As in previous studies, formula feeding shows significance as risk factor for Postpartum depression in this study. Women who did not breast feed because of their illness or Neonatal problems, formula feeding emerged as a definite predictive factor for depression in this phase.

Among the protective factors, in women without depression, their age and husband's age showed correlation with low EPDS Scores. As majority of the patients fell within normal range for age this demographic variable did not show any significance as such.

Other protective factors as observed in previous studies like subjects education did not show significance in the present study(p value of 0.052).Same with respect to employment status of the women (p value-0.625).

Another factor considered as protective against depression in both antenatal and postpartum period was social support .In this study all patients had one or the other relation supporting them. Among the depressed group(n=16), 6 women had their parents supporting them,9 had both-husband and parents; while only one person had husband as the sole support. Research articles on social support suggests that rather than more social support being better, it was whether there was any social support at all for the women during pregnancy or postpartum that influenced as a predictive or protective factor for depression.(31) In future analysis the qualitative aspect of support by spouse and non-spouse relatives would help in designating this factor as predictive or preventive for depression in these two phases. Similarly the cross-cultural research study by Bernazzani et al showed significant association between severe adversity and onset of perinatal depression. Quality of social support-poor prenatal quality of

partner relationship contributed to 3 times high risk for antenatal depression and postpartum depression(2 times high).Poor quality of other relationship was associated with antenatal depression than postpartum depression.(53)

Limitations and Strengths

The present study was conducted with a small sample size and studied for only 8 months covering both pregnancy and Postpartum, the occurrence of depressive features in early pregnancy or before is not known .Since this study was conducted in tertiary care hospital setting ,it may have introduced a selection bias.

The strengths of the study are the longitudinal design, application of EPDS ,well validated scale and use of MINI ,based on DSM-4 criteria. Antenatal depression may fall in the continuum with PPD .But comparing the interplay of these risk and protective factors in depressed and non-depressed subjects help us to anticipate and intervene in women during pregnancy when at risk for depression or any psychiatric illness. This will be a preventive measure in limiting the occurrence of antenatal and postpartum depression.

CONCLUSIONS

It is evident in this study as with the identification and necessary management, the antenatal depression cases had no identifiable problem during postpartum follow up. At the same time identifying the protective factors will lead to better intervention strategies. Identifying the risk factors like alcohol abuse, marital separation, spouse's supportive role in this challenging period of the women will help us to plan better intervention strategies for spouse's alcoholism. Obstetric complications have to be dealt with in liaison with other specialists, may ensue a riskless psychological postpartum period. All antenatal cases with a family history of psychiatric disturbances have to be identified as at-risk group as per the study and this goes a long way in the prevention of depression in this high-risk women's population.

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Conflict of Interest
The authors carefully declare this paper to bear not a conflict of interests

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