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Psychological Manifestations in Puerperal Women

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ABSTRACT

The current study brings out various factors which are suggestive of emotional (mood) disturbances which are not uncommon among women after childbirth. In the present study, no significant relevance was found between psychological stress and age. Literate women were 5.5 times more prone for depression than illiterate women and there is more chances of depression of women in socioeconomic class 4. It was found that depression was fairly common in Nuclear families as compared to Extended families. No significant relevance was found between psychological stress and parity. Women were 333. 8 times more prone for depression if there were not Booked and Immunised. The Obstetricians are in a unique position where they can help women in the better experience of motherhood for both the woman and her family just by being aware of the psychological manifestations in puerperal women as "the eye cannot see what the mind does not know".

Key words: Perinatal mental illness, postpartum blues, postpartum period

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INTRODUCTION

Childbirth is a happy major life event in the life of a woman where she steps into blissful motherhood as a fulfilment of her womanhood but for some new mothers who suffer from postpartum depression it can also be a disconcerting time. 1 Women are at an increased risk for first onset of major depression from early adolescence until their mid- 50s. They have a lifetime rate of major depression 1.7 to times greater than that for men in the National Comorbidity Survey. Depression has been identified by the World Health Organization as a major cause of morbidity in the 21st century. The Global Burden of Disease study states that major depression will become the second leading worldwide cause of disease burden by 20 20.

Risk of depression increases 1n some periods of a woman's life and the Puerperium is one of these. Puerperium also termed "fourth trimester" is the period following child birth during which the body tissues, specially the pelvic organs revert back approximately to the pre pregnant stage both anatomically and physiologically, which lasts for approximately 6 weeks. The woman in this period is termed "puerpera" (Datta). In short, during this time complete physiologic involution and psychological adjustment7a,b (RCOG) takes place.

During the puerperium, about 85% of women experience some type of mood disturbance 8, for most the symptoms are mild and short-lived. Approximately 10%-15% of all new mothers get postpartum dep ression , which most frequently occurs within the first year after the birth of a child.< 9 Postpartum psychological disorders lead to maternal disability and disturbed mother-baby relationships.11

Postpartum psychiatry illnesses are typically divided into 3 categories:

1. Postpartum blues
2. Postpartum depression
3. Postpartum psychosis

Postpartum blues is the mildest and postpartum psychosis the most severe form of postpartum psychiatric illness. The presentation of these disorders does not very much in different parts of the world; however, prevalence, incidence and the risk factors associated with these disorders vary depending upon the characteristics of different study populations. This study was designed to evaluate the determinants and prevalence of postpartum psychological disorders in women during the first few days of puerperium who have no previous psychiatric illness and obvious risk factors. The study also helps to find out risk factors thereby preventing the other major psychological manifestations.

MATERIAL AND METHOD

This study was conducted in 500 women delivered in about an one year especially during the labour ward postings at the Department of Obstetrics and Gy na eco logy , Sree Balaji Medical College and Hospital , Chro mpet , Chennai - 44 in collabouration with the Department of Psychiatry, Sree Balaji Medical College and Hospital,

Chrompet, Chennai – 44. 500

Women delivered 1n SBMCH consecutively whether Nor mal Vaginal Delivery, Instrumental Deliveries or Caesarean Sections were selected for the present study. Those with the following one or a combination of Known case of previous psychiatric disorders, High risk cases like ecl amps ia, uncontrolled GDM, Intrauterine death, Babies born with congenital anomalies, Bad obstetric history, Conception after treatment for infertility were exluded from the study. 500 Women delivered in SBMCH including normal vaginal deliveries, instrumental deliveries or Caesarean sections were chosen leaving out women from the exclusion criteria. The data related to Demographic details, Clinical Assessment which included detailed History Taking and Physical Examination and Psychological assessment were recorded. The patients were analysed by General Health Questionnaire – 12 (Screening Questionnaire), Edinburgh Postpartum depression scale (EPDS).

RESULTS

In this case study of 500 women, the frequency of various factors had been considered and analysed. This frequency table (Table. 1) showed the variables which have been considered and the number and percentage of women which comprised in each variable. None amongst the 500 women had any family history of mental illness (Table. 2- 5). These frequency tables show the number and percentage of women had raised GHQ score and EPDS score respectively along with the number and percentage of women with high scores on both the scale s. The same are reflected in the Figure 1.

Table 1: Frequency Tables.

FACTORS	FREQUENCY	PERCENT
Woman's Literacy		
Illiterate	388	77.6
Literate	112	22.4
SE status		
Class 2	12	2.4
Class 3	34	6.8
Class 4	92	18.4
Class 5	362	72.4
Family type		
Extended	122	24.4
Nuclear	378	75.6
Parity		
Primi	341	68.2
Multi	159	31.8
B & I		
Yes	420	84
No	80	16
KICIO past illness		
No	353	70.6
Yes	147	29.4
Mode of Delivery		
Normal	270	54
LSCS	224	44.8
Instrumental	6	1.2
Sex of present baby		
Boy	238	47.6
Girl	262	52.4

Table 2: Family History of Mental Illness.

No of Girl children		
None	238	47.6
One	208	41.6
2 or more	54	10 .8
PNIPOSTOP Complications		
No	244	48.8
Yes	256	51.2
Breast Feeding		

Yes	458	91.6
Problems	41	8.2
No	1	0.2

Table 3: Proportion of sample with raised GHQ scores.

GHQ class	Frequency	Percent
Normal	394	78.8
Psychological Stress	106	21.2
Total	500	100

Table 4: Proportion of sample with raised EPD Sscores.

EPDS class	Frequency	Percent
Normal	377	75.4
Depressed	123	24.6
Total	500	100

Table 5: Proportion of sample with both GHQ & EPDS raised.

GHQ+ EPDS	Frequency	Percent
Women with raised scores on both GHQ and EPDS	52	10.4

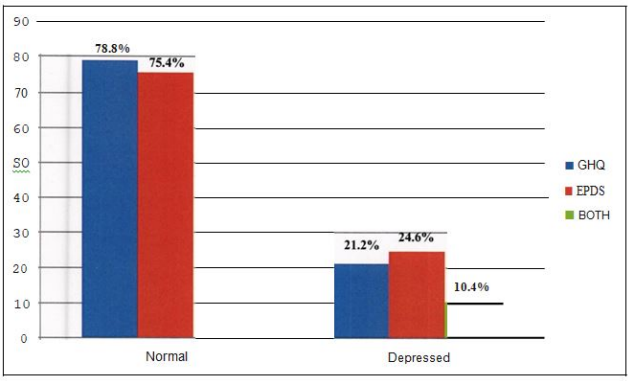


Figure 1: Proportion of sample with raised GHQ scores.

Table 6: Relationship of GHQ scores with EPDS scores.

		EPDS Raised	
		n	%
GHQ Normal	394	71	18.02
GHQ Raised	106	52	49.05

The table 6 showed the relationship of GHQ score with EPDS scores. In the sa mp le of mothers with raised GHQ score (106) , 52 (49 .05 %) had elevated EPDS scor es. But in the sample of mothers with normal GHQ scores (394), only 71(1 8.02 %) of women had elevated EPD s scores (Table. 7 - 11).

Table 7: Independent samples T-Test to compare the mean age between normal and depressed mothers based on GHQ score classification.

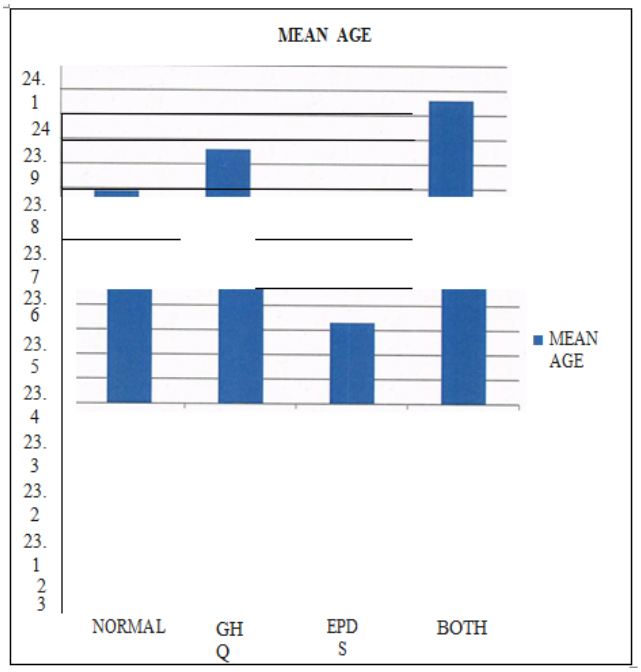
	GHQ class	N	Mean
Age	Normal	394	23.46
(years)	Depressed	106	23.76

Table 8: Independent samples T-Test to compare the mean age between normal and depressed mothers based on EPDS score classification.

	EPDS class	N	Mean	Std. Dev	t-Value
Age	Normal	377	23.59	3.047	0.842
(years)	Depressed	123	23.33	3.039	

Table 9: One way ANOVA to compare the mean age between normal and depressed mothers based on both scores classification.

Depression Status	N	Mean	Std. Dev
Normal	323	23.59	3.037
Only GHQ	54	23.57	3.136
Only EPDS	71	22.86	2.934
Both	52	23.96	3.093
Total	500	23.53	3.044



In this study, puerpera from age 17 to 37 were present. This table shows the mean age of normal women was 23.59, the mean age for women with raised GHQ scores is 23.57 but the mean age of raised EPDS scores is 22.86. Figure 2.

Figure 2: Mean age of women in this study.

Table 10: Association of raised GHQ and EPDS scores with the puerpera's literacy.

WOMAN'S LITERACY	GHQ		EPDS	BOTH		
	n	%	n	%	n	%
Illiterate	87	22.4	74	19.1	39	10.1
Literate	19	17	49	43.8	13	11.6
Total	106	21.2	123	24.6	52	10.4

Table 10A

Chi-Square Test	Value	P-Value
Pearson Chi-Square	41.082	<0.001

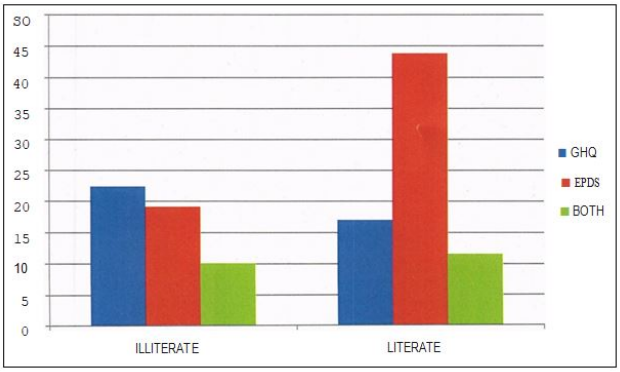


Figure 3: association of women's literacy to raised GHQ scores and raised EPDS scores.

This table shows the association of women's literacy to raised GHQ scores and raised EPDS scores (Table. 10, 10A). Depression is more common in literate women (p value <0.001 hence statistically significant). The same are reflected in the Figure. 3

Table 11: Association of raised GHQ and EPDS scores with the Socioeconomic Status (SE Status).

SE STATUS	GHQ		EPDS	BOTH		
	n	%	n	%	n	%
CLASS 2	4	33.3	7	58.3	4	33.3
CLASS 3	10	29.4	11	32.4	7	20.6
CLASS 4	29	31.5	38	41.3	10	10.9
CLASS 5	63	17.4	67	18.5	31	8.6
TOTAL	106	21.2	123	24.6	52	10.4

Table 11A

Chi-Square Test	Value	p-Value
Pearson Chi-Square	59.28	<0.001

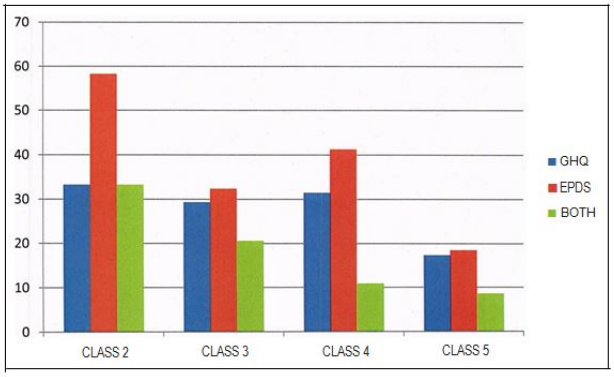


Figure 4 : the relationship of socio economic status to raised GHQ scores and raised EPDS scores.

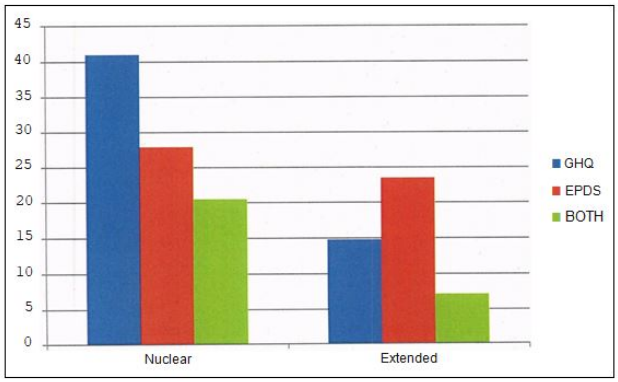
This table showed (Table. 11 and 11A) the relationship of socio economic status to raised GHQ scores and raised EPDS scores. Depression is more common in greater socio economic status. (p value <0.001 hence statistically significant). The same are reflected in the Figure 4.

Table 12: Association of raised GHQ and EPDS scores with the Type of Family.

TYPE OF FAMILY	GHQ		EPDS
	n	%	n
Nuclear	50	41	34
Extended	56	14.8	89
Total	106	21.2	123

Table 12A

Chi-Square Test	Value	p-Value
Pearson Chi- Square	39.325	<0.001



This table shows the relationship of type of family to raised GHQ scores and raised EPDS scores. Depression is more common in Nuclear fami lies (Table. 12 and 12A). (p value <0.001 hence statistically significant). The same are reflected in the Figure5

Figure 5: Depression in Nuclear family.

Table 13: Association of raised GHQ and EPDS scores with the Parity.

PARITY	GHQ		EPDS	BOTH		
	n	%	n	%	n	%
Primi	55	16.1	80	23.5	27	7.9
Multi	51	32.1	43	27	25	15. 7
Total	106	21.2	123	24 .6	52	10.4

Table 13A

Chi-Square Test	Value	p-Value
Pearson Chi-Square	16.676	0.001

This table shows the relationship of parity to raised GHQ scores and raised EPDS scores (Table. 13 and 13A). Depression is more common in multigravida. (p value 0.001 hence statistically significant). The same are reflected in the Figure 6

Chi-Square Test	Value	p-Value
Pearson Chi-Square	16.676	0.001

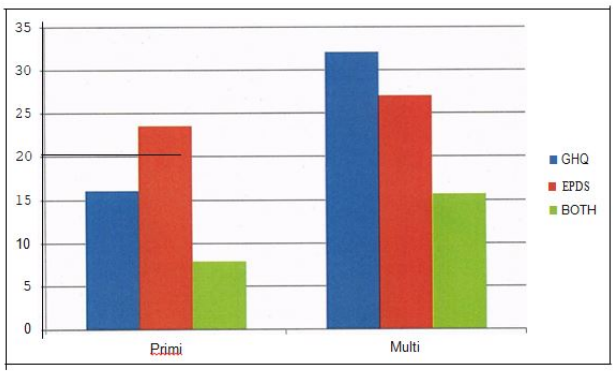


Figure 6: relationship of parity to raised GHQ scores and raised EPDS scores.

Table 14: Association of raised GHQ and EPDS scores with mothers who are Booked and Immunised in the antenatal period.

B & I	GHQ		EPDS	BOTH	
	n	%	n	%	n
Yes	41	9.8	85	20.2	18
No	65	81.3	38	47.5	34
Total	106	21.2	123	24.6	52

Table 14A

Chi-Square Test	Value	p-Value
Pearson Chi-Square	20.7.046	< 0.001

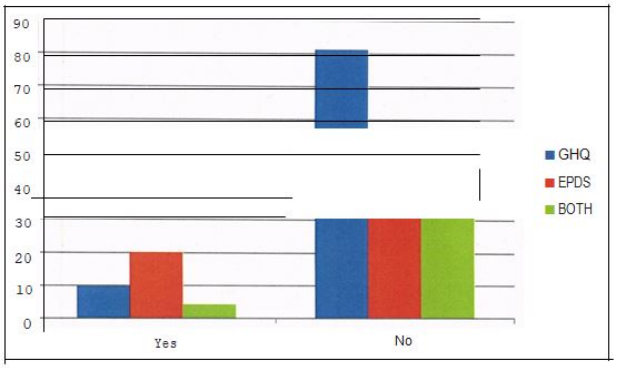
This table shows the relationship of women who were booked and immunised (regular antenatal care) to raised GHQ scores and raised EPDS scores (Table. 14 and 14A). Depression is more common in women who were not booked and immunised. (p value <0.001 hence statistically significant). The same are reflected in the Figure 7.

Table 15: Association of raised GHQ and EPDS scores with History of Past Illnesses.

H/O PAST	GHQ		EPDS	BOTH	
ILLNESS	n	%	n	%	n
No	101	28 .6	101	28.6	51
Yes	5	3.4	22	15	1
Total	106	21.2	123	24.6	52

Table 15A

Chi -Square Test	Value	p-Value
Pearson Chi-Square	41.611	<0.001



In the present stu dy , Depression 1s more common m women with no history of past illness (Table 15 and 15A). (p value <0.001 hence statistically significant). This could because 143 out of the 147 women with a h/o past illness had hypothyroidism and were on regular treatment. This table shows the relationship of history of past illness to raised GHQ scores and raised EPDS scores. The same are reflected in the Figure 8

Figure 7: Depression is more common in women who were not booked and immunised.

Table 16: Association of raised GHQ and EPDS scores with Mode of Delivery.

MODE OF DELIVERY	GHQ		EPDS	BOTH		
	n	%	n	%	n	%
Normal	55	20.4	58	21.5	30	11.1
LSCS	51	10.2	65	13	22	4.4
Instrumental	0	0	0	0	0	0
Total	106	21.2	123	24.6	52	10.4

Table 16A

Chi-Square Test	Value	p-Value
Pearson Chi-Square	89.056	<0.062

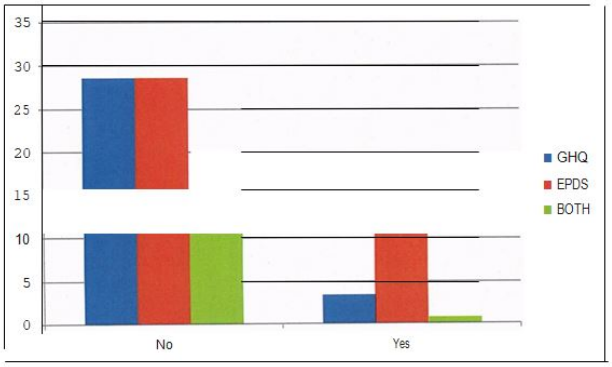


Figure 8: History of past illness to raised GHQ scores and raised EPDS scores.

This table shows the relationship of mode of delivery to raised GHQ scores and raised EPDS scores (Table. 16 and 16A). Women who underwent instrumental delivery (total of 6 women out of 500) showed no signs of psychological manifestations. (p value not <0.05 hence statistically not significant). The same are reflected in the Figure 9

Table 17: Association of raised GHQ and EPDS scores with Sex of Present Baby.

SEX OF PRESENT BABY	GHQ		EPDS		BOTH	
	n	%	n	%	n	%
Boy	43	18.1	53	18.1	18	7.6
Girl	63	24.0	70	24.0	34	13.0
Total	106	21.2	123	24.6	52	10.4

Table 17A

Chi-Square Test	Value	p-Value
Pearson Chi-Square	4.119	0.249

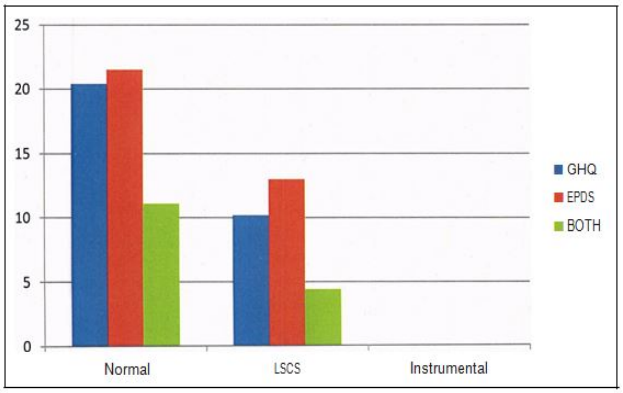


Figure 9: Relationship of mode of delivery to raised GHQ scores and raised EPDS scores.

This table shows the relationship of sex of the present baby to raised GHQ scores and raised EPDS scores (Table. 17 and 17A). Depression is more common in women with girl babies. (p value >0.05 hence statistically not significant). The same are reflected in the Figure 10

Table 18: Association of raised GHQ and EPDS scores with Number of Girl Children.

No. of Girl Children	GHQ		EPDS		BOTH	
	n	%	n	%	n	%
None	43	18.1	53	22.3	18	7.6
One	43	20.7	55	26.4	24	11.5
2 or more	20	37	15	27.8	10	18.5
Total	106	21.2	123	24.6	52	10.4

Table 18A

Chi-Square Test	Value	p-Value
Pearson Chi-Square	11.347	0.078

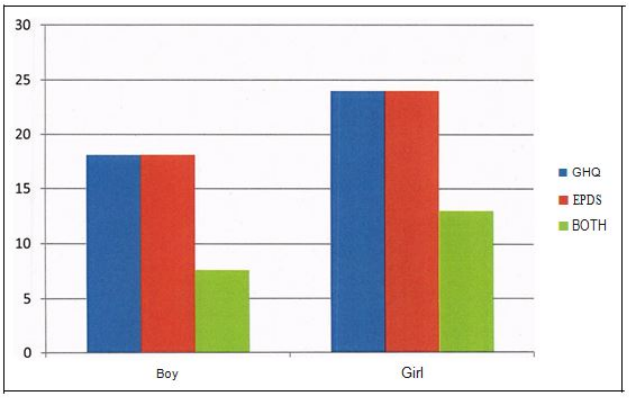


Figure10: The relationship of sex of the present baby to raised GHQ scores and raised EPDS scores.

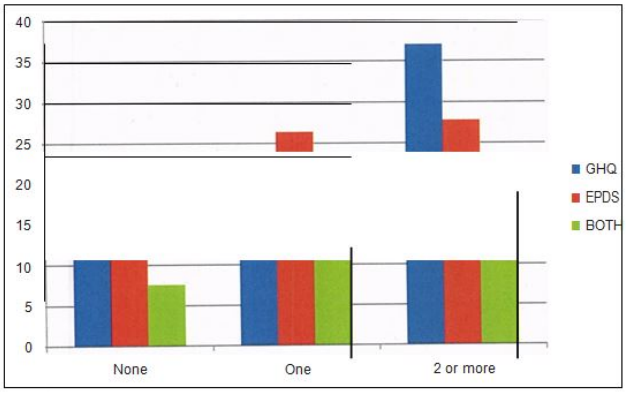
This table shows the relationship of number of girl children to raised GHQ scores and raised EPDS scores (Table 18 and 18A). Depression is more common in women with 2 or more girl babies, least common in women with one girl child and the lesser in women with no girl babies. (p value >0.05 hence statistically not significant). The same are reflected in the Figure 11.

Table 19: Association of raised GHQ and EPDS scores with Post Natal / Post Operative Complications.

PN/Post-op Complications	GHQ		EPDS	BOTH		
	n	%	n	%	n	%
No	41	16.8	32	13.11	13	5.3
Yes	65	25	89	34	39	15.23
Total	106	21.2	123	24.6	52	10.4

Table 19A

Chi-Square Test	Value	P-Value
Pearson Chi-Square	142.074	<0.001



This table shows the relationship of history of postnatal or post operative complications to raised GHQ scores and raised EPDS scores (Table. 19 and 19A). Depression is more common in women with history of postnatal or post operative complications. (p value <0.001 hence statistically significant). The same are reflected in the Figure 12

Figure11: Number of girl children to raised GHQ scores and raised EPDS scores.

Table 20: Association of raised GHQ and EPDS scores with Breastfeeding.

BREAST FEEDING	GHQ		EPDS	BOTH		
	n	%	n	%	n	%
Yes	88	19.2	84	18.3	37	8.1
Problems present	17	41.5	39	95.1	15	36.6
No	1	100	0	0	0	0
Total	106	21.2	123	24.6	52	10.4

Table 20A

Chi-Square Test	Value	P-Value
Pearson Chi-Square	129.776	<0.001

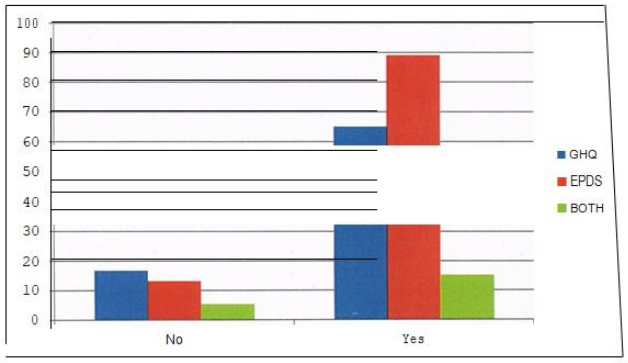


Figure12: The relationship of history of postnatal or post operative complications to raised GHQ scores and raised EPDS scores.

This table shows the relationship of breast feeding and raised GHQ scores and raised EPDS scores (Table. 20 and 20A). In women with breast feeding problems, depression 1s more common. One woman chose not to breast feed as she was hepatitis B affected and she scored high on GHQ but not on EPDS . (p value <0.001 hence statistically significant). The same are reflected in the Figure 13

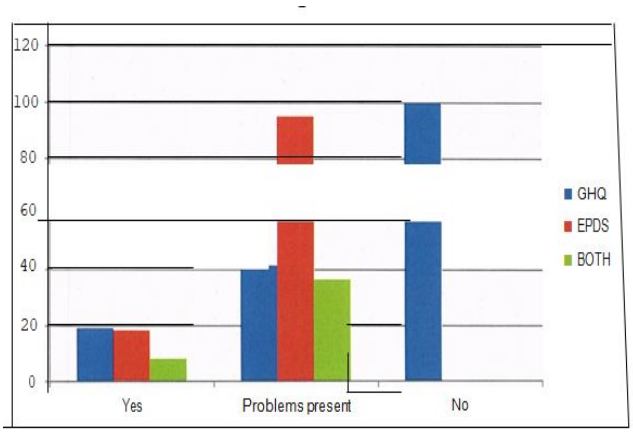


Figure13: the relationship of breast feeding and raised GHQ scores and raised EPDS scores.

Table 21: Uni-variate logistic regression for GHQ Score.

Factors	OR	95% CI		p-Value
SE status				
Class 5	1			
Class 2	2.373	0.693	8.123	0.169
Class 3	1.978	0.901	4.34	0.089
Class 4	2.185	1.303	3.664	0.003
Family type				
Extended	1			
Nuclear	3.993	2.523	6.319	<0.001
Parity				
Primi	1			
Multi	2.456	1.58	3.815	<0.001
B & I				
Yes	1			
No	40.057	20.968	76.525	<0.001
KICIO past illness				
Yes	1			
No	11.383	4.531	28.597	<0.001
Sex of new baby				
Boy	1			
Girl	1.436	0.929	2.218	0.103
Number of Girl children				
None	1			
One	1.182	0.738	1.892	0.487
2 or more	2.668	1.402	5.077	0.003
PNIPOSTOP COMPL				
No	1			
Yes	3.922	2.132	7.215	<0.001
Breast Feeding				
Yes	1			
Problems	3.153	1.64	6.064	0.001

Table 22: Uni-variate logistic regression for GHQ Score.

Factors	AOR	95% CI		P-Value
SE status				
Class 5	1			
Class 2	0.858	0.045	16.435	0.919
Class 3	2.393	0.579	9.891	0.228
Class 4	4.613	1.937	10.989	0.001
Family type				
Extended	1			
Nuclear	12.063	5.103	28.519	<0.001
Parity				
Primi	1			
Multi	2.239	0.926	5.413	0.044
B & I				
Yes	1			
No	333.82	98.2	1134.82	<0.001
KI C I O past illness				
Yes	1			
No	150.71	26.48	857.71	<0.001
Sex of new baby				
Boy	1			
Girl	3.666	1.044	12 .872	0.043
Number of Girl children				
None	1			
One	0.427	0.036	2.917	0.137
2 or more	1.668	1.029	3.789	0.047
PNI POSTOP COMPL				
No	1			
Yes	22.722	1.563	330.38	0.022
Breast Feeding				
Yes	1			
Problems	0.333	0.02	5.512	0.442

Table 23: Uni-variate Logistic Regression for EPDS Score.

Factors	OR	95% CI		P-Value
Woman's Education				
Illiterate	1.00			
Literate	3.300	2.102	5.182	<0.001
SE status				
Class 5	1.00			
Class 2	6.164	1.898	20.018	0.002
Class 3	2.106	0.979	4.529	0.057
Class 4	3.098	1.893	5.070	<0.001
B & I				
Yes	1.00			
No	3.566	2.164	5.874	<0.001
KICIO past illness				
Yes	1.00			

No	2.277	1.369	3.787	0.002
No	1.00			
Yes	74.476	22.58	245.64	<0.001
Breast Feeding				
Yes				
Problems	57.881	17.47	191.77	<0.001

Table 24: Multi-variate Logistic Regression for EPDS Score.

Factors	AOR	95% CI		P-Value
Woman's Education				
Illiterate	1.00			
Literate	5.599	1.877	16.699	0.002
SE status				
Class 5	1.00			
Class 2	0.814	0.121	5.468	0.832
Class 3	0.264	0.060	1.166	0.079
Class 4	1.068	0.378	3.019	0.902
B & I				
Yes	1.00			
No	5.347	2.934	9.745	<0.001
KI CI O past illness				
Yes	1.00			
No	2.148	1.126	4.099	0.020
PNIPOSTOP COMPL				
No	1.00			
Yes	97.411	9.765	971.72	<0.001
Breast Feeding				
Yes	1.00			
Problems	1.081	0.096	12.109	0.950

NOTE: For logistic regression analysis the factors which has a p-value <0.20 (Association with outcome) will be considered. Forced entry method is used to calculate the OR and it 95% Confidence intervals.

DISCUSSION

Labour and child birth are natural events. It is a unique experience in a woman's life. But, due to any number of reasons ranging from support of the family, course of the antenatal period to the delivery itself and the adjustments that need to be made to accommodate the baby into the daily schedule can make the woman stressed out. Our study demonstrates the prevalence of psychological manifestations 1n puerperal women with various variables. In 500 puerperal women, 106 (21.2%) had raised GHQ scores indicating psychological stress, 123 (24.6%) had raised EPDS scores indicating depression and 52 (10.4%) had raised scores on both the questionnaires. In the 394 women with GHQ normal scores, 71 (18.02%) had raised EPDS scores. p-Values <O. 05 are statistically significant. were present and the mean age of normal women was 23.59, the mean age for women with raised GHQ scores is 23.57 but the mean age of raised EPDS scores is 22.86. 1n our study was > 0.001 this data was not statistically significant. partum depression in a cohort of women from a rural area of Tamilnadu, the mean age of the 384 women was 22.8 yrs (s.d. 3.7,range 17-37). Research which has examined the rates of postpartum depression in mothers aged 14 - 18 years (n=l28) showed a much higher 19 rate of illness, approximately 26% (Troutman & Cutrona, 1990) however stating that this is a population which requires further research to establish specific risk factors as within this younger population there may be risk factors which predispose not only to postpartum depress1•on.

10 had higher scores on the the International Journal of GHQ than illiterate women Social Psychiatry Jan 2010 - but slightly less number of Post partum depression in the illiterate women had raised community - A qualitative EPDS score as compared to study from rural south India , literate women. p Value the following factors were <0.001 associated with post-partum. In the present study, more women who were literate fact that they being well age and education: age less educated are well read than 20 or over 30 years, and form unrealistic schooling less than five expectations which when years55 .they do not transpire pushes them to become anxious and depressed. In another study Gender, Poverty, and Postnatal Depression: In the multi variate logistic regression of the EPDS score, no significant result was arrived. P values > 0.05 This finding is similar to many other findings. public hospitals in Southern India. In the present study, in the 1. In a study done in multi variate logistic Marmara Medical School regression for GHQ score, Department of Psychiatry women in nuclear families Consultation- Istanbul, were 12 times more prone Turkey - Early adverse for psychological emotional response to manifestation. P value child birth in Turkey: the <0.001. Impact of maternal It was found that the new attachment styles and mothers who live 1n family support by Kuscu extended families had MK et al 59 , it was found significantly lower that the mean EPDS score incidence of psychological of mothers who live in stress and depression than others who live in nuclear families. This is correlating with other studies. This may be due to the reason that the need for emotional and physical support after a child birth in a puerperal woman is met by the other members of the family. extended families is found to be significantly lower than others who live in nuclear families. In a study published by Dr. Nimisha Desai 60 found that absence of someone other than mother and partner in whom the woman could confide [OR 8.909, CI(l.869,42.473)] were found to be the strongest predictors for developing postpartum depression. In the present study, the However, in a study done in multi variate logistic Kaohsiung Medical regression for GHQ score University Hospital, showed that, multipara were Kaohsiung, Taiwan - The 2.2 times more prone for Psychosocial Consequences psychological stress than For Primiparas And primipara with a p-value of Multiparas, Chich-Hsiu 0.044. Multiparity may act as an attainment, as well as for additional burden for the measures of social support, postpartum woman as she family support, and friend has to cater, not only to the support. needs of the newborn but also look after her other children. The extra support and care from the family too is not as much as given to a pnm1para.

The National Family Health multi variate logistic Survey-2 from Ind ia 12 has regression for GHQ score reported that nearly 34% of showed women were 333. 8 pregnant women do not times more prone for receive even a single depression if there were not antenatal check-up and only Booked and Immunised (did 35% of deliveries are not undergo regular antenatal conducted 1n health check up). P value <0.001 facilities. In some states up This might be because of the to 65% mothers did not get confidence that everything even one antenatal check-up. will be safe due to the fact Both antenatal and postnatal that they are going to check-ups were reported to Regular Antenatal Checkups be less among low-income and also may be due to the women and those who had mental preparation through low literacy levels, both of counselling they get through which have been identified the course of the same.

CONCLUSION

The literature has rich evidence of having association between post partum period and psychological disturbances, very often, depressive stage. Our present study also throws more light to this fact. It is found 1n our study that psychological manifestations are a fairly common and sizeable problem as significant numbers of puerperal women were suffering from psychological manifestations. Diagnosing any psychological manifestations, as early as 3 to 5 days post-partum enables prompt and timely support and counselling to these needy women. The family can be counselled to give support so that the woman can adjust better and sooner to the new phase in her life. This support will improve the patients' attitude, the mother child bond along with interpersonal relations within the family especially the partner as well as long term mental health. Referral to a specialist should be considered, if essential.

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DECLARATION OF CONFLICT OF INTEREST

The authors declare no conflict of interest.

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ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee.

REFERENCES

1. Danaci AE, Dinc G, Deveci A, ET AL. Içelli I. Postnatal depression in turkey: epidemiological and cultural aspects. Soc Psychiatry Psychiatr Epidemiol 2002;37:125-129.
2. Kessler RC, McGonagle KA, Swartz M, et al. Sex and depression in the National Comorbidity Survey I: Lifetime prevalence, chronicity and recurrence. J Affect Disord 1993;29:85-96.
3. Weissman MM, Bland R, Joyce PR, et al. Sex differences in rates of depression: cross-national perspectives. J Clin Invest 1993;29:77-84.

4. Kornstein SG. The evaluation and management of depression in women across the life span. J Clin Psychiatry. 2001;62:11-17.
5. Murray CJ, Lopez AD. Evidence-based health policy--lessons from the Global Burden of Disease Study. Science. 1996;274:740-743.