

A Study of Postpartum Depression in Rural Community Attending Primary Health Centre

Pujari Ravi Kumar¹, S. Sarath Krishna², D. Padmavathi³, J. Sharada⁴, D. Aruna⁵

¹Assistant Professor, Department of Psychiatry, Government Medical College, Anantapur

²Assistant Professor, Department of Psychiatry, A.C. S. R Government Medical College, Nellore

³Associate Professor, Department of Psychiatry, A.C. S. R Government Medical College, Nellore

⁴Associate professor, Department of Psychiatry, Government Medical College, Anantapur

⁵Associate Professor, S.V. Medical College Tirupathi

Received: 25-01-2024 / Revised: 23-02-2024 / Accepted: 26-03-2024

Corresponding Author: Dr. J. Sharada

Conflict of interest: Nil

Abstract:

Background: The postpartum period has both positive and negative impacts on women depending on individual vulnerability. Depression frequently occurred during later weeks of pregnancy and after delivery, both in developed and developing countries, but there were cultural differences in risk factors. According to the literature, women who live in poverty, and experience family discord or violence, increased life stress, and have little social support are more likely to be depressed. Depression in the postpartum period affects mother, baby, and the relationship between them.

Aim: Aim of the study is to study the prevalence of depression in the postpartum period and to study demographic factors playing a role in postpartum women to cause depression.

Methodology: This is a cross-sectional study where 120 postpartum women conducted in Rural Primary Health Center of Chandragiri Chittoor District and in the postpartum unit government maternity hospital and Department of Psychiatry, Sri Venkateswara Ram Narayan Ruia Govt General Hospital, Tirupati, Andhra Pradesh, India.

Summary and Conclusion: The prevalence of postpartum depression was 18.3% lower socio-economic class, young age group, interpersonal conflicts are strong predictors of postpartum depression, which is consistent with previous literature. In postpartum, events such as interpersonal and marital conflicts and conflicts with in-laws, financial problems serve as important predictors of postpartum depression.

Keywords: Postpartum Depression, Demographic factors, Social factors.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

The postpartum period is portrayed as a happy time for mother and family. Contrary to this perception, women are at the highest risk for depression during their breast feeding period; the postpartum period has both positive and negative impacts on women depending on individual vulnerability. While it is a period of growth and hope, there is also a transformation in physiological, psychological, and social perspectives (financial constraints, interpersonal relationships), which can, in turn, lead to emotional instability in women. [1]

Depression frequently occurred during later weeks of pregnancy and after delivery, both in developed and developing countries, but there were cultural differences in risk factors. The perinatal period typically refers to the time from 28 weeks of gestation and ends up to 4 weeks after birth. 2 Pregnancy may induce or exacerbate stress with a negative impact on pregnancy (pregnancy loss) and

also postpartum period. These periods are considered to be a high-risk time both for pre-existing and new psychiatric illness.

Despite being a frequent medical disorder during pregnancy [3,4] depression remains under-detected and undertreated during prenatal care with potential sequelae persisting well beyond the perinatal period. According to the literature, women who live in poverty, and experience family discord or violence, increased life stress, and have little social support are more likely to be depressed. [5,6,7] Depression in the postpartum period affects mother, baby, and the relationship between them. [8,9,10] Depression in the postpartum period may cause an adverse effect on one's ability to maintain self-care, nutrition, breastfeeding of baby, infant care, reduced postnatal clinic visits, and may affect the mother's physical and mental health and infants monitoring growth and development.

A recent systematic review of WHO, perinatal mental disorders among women in high-income countries have primarily depression or anxiety in 13 % of women who have recently delivered and higher rates from developing countries, where the mean prevalence of these disorders was found to be 19.8% in women who had recently given birth. [11] Indian data of PPD reports of approximately 23% of women in hospital-based data and vary from 11% to 26% in community-based studies.

The purpose of this study is that there is a lack of Indian studies on this subject, especially in rural areas. Because of the above, the present study is being undertaken to assess depression and its correlates and to aid early diagnosis in postpartum women from a rural community in South India. Determining the prevalence and determinants of depression in postpartum can help us to target women at increased risk for screening and prevention. There is an increased opportunity to anticipate those women at risk for depression and, consequently, to decrease the impact of postnatal depression on the mother, her baby, and her family. Postpartum depression is the most common complication, and postpartum depression can affect the health of the mother and child. So it is necessary to identify and treat it.

Aims:

- To study the prevalence of depression in the postpartum period.
- To study demographic factors playing a role in postpartum women to cause depression.
- To study the association between socio demographic factors with depression in postpartum women.

Methodology

This is a cross sectional study done in 120 Postpartum women during October 2018 to September 2019 in Rural Primary Health Center of Chandragiri Chittoor District and in the postpartum unit government maternity hospital and Department of Psychiatry, Sri Venkateswara Ram Narayan Ruia Govt General Hospital, Tirupati, Andhra

Pradesh, India. The institutional ethics committee has given ethical approval for this study, written informed consent obtained from all participants. The information and objectives of the study and the information about the questionnaire explained and informed to all the participants. The data was collected using a self-administered semi-structured questionnaire. The questionnaire was designed to collect information on the participant's socio-demographic characteristics and employed the EPDS scale for screening postpartum depression and ICD 10 for diagnosis.

Inclusion Criteria: Postpartum women at the age of 18-40 yrs. irrespective of parity.

Exclusion Criteria: Individual Subjects with a history of substance dependence, Past History of psychiatry illness, organic brain disorders, Subjects with acute medical conditions like a cardiac failure etc. Subjects with intellectual disability.

Tools used for assessment: A semi-structured socio-demographic proforma; Kuppaswamy's socioeconomic status scale; The Edinburgh Postnatal Depression Scale (EPDS); ICD International Classification of Diseases-10 Criteria.

The study has been approved by the Institutional Ethics Committee of S.V. Medical College, Tirupati during its meeting with Lr.No.03/2019.

Statistical analysis: The Statistical software namely SPSS 21.0, Med Calc 9.0.1, and Ep Info were used for the analysis of the data and Microsoft Word and Excel have been used to generate graphs, tables, etc. to assess the prevalence of postpartum depression in post-partum women and to assess the association between socio-demographic factors with depression in postpartum women and the role of obstetric factors and depression in postpartum women. The odds ratio and chi-square/ Fisher Exact test have been used to find the significance of study parameters on a categorical scale between two or more groups. $P < 0.05$ was considered to be statistically significant.

Observation & Results

Table 1: Distribution of patients according to Post-partum depression

EPDS	No. of postpartum women	%
No Depression	98	81.7
Depression Present	22	18.3
Total	120	100.0

Table 2: Distribution of subjects based on Age

Age	EPDS					
	Depression Present		No Depression		Total	
	postpartum women (n)	%	postpartum women (n)	%	Total postpartum women (N)	%
18 - 21 Years	5	22.7	25	25.5	30	25.0
22 - 25 Years	10	45.5	52	53.1	62	51.7
26 - 29 Years	0	0	12	12.2	12	10.0

> 30 Years	7	31.8	9	9.2	16	13.3
Total	22	100.0	98	100.0	120	100.0
Chi-square	X ² Value = 9.854; df = 3; P=0.019 (significant at 0.01 at level) (p<0.01)					

Table 3: Distribution of subjects based on Religion

Religion	EPDS					
	Depression Present		No Depression		Total	
	postpartum women (n)	%	postpartum women (n)	%	Total postpartum women (N)	%
Hindu	20	90.9	66	67.3	86	71.7
Muslim	1	4.5	0	0.0	1	0.8
Christian	1	4.5	32	32.7	33	27.5
Others	0	0.0	0	0.0	0	0.0
Total	22	100.0	98	100.0	120	100.0
Chi-square	X ² Value = 11.008; df = 2; P=0.004 (significant at 0.01 at level) (p<0.01)					

Table 4: Distribution of subjects based on Education:

Education	EPDS					
	Depression Present		No Depression		Total	
	postpartum women (n)	%	postpartum women (n)	%	Total postpartum women (n)	%
Illiterate	8	36.4	20	20.4	28	23.3
Primary school	2	9.1	18	18.4	20	16.7
Secondary school	4	18.2	12	12.2	16	13.3
High School	6	27.3	18	18.4	24	20.0
Intermediate	0	0.0	20	20.4	20	16.7
Graduate / PG	2	9.1	10	10.2	12	10.0
Professional	0	0.0	0	0.0	0	0.0
Total	22	100.0	98	100	120	100.0
Chi-square	X ² Value = 8.587; df = 5; P=0.127 (Not significant) (p>0.05)					

Table 5: Distribution of postpartum women according to Occupation

Occupation of the patient	EPDS					
	Depression Present		No Depression		Total	
	postpartum women (n)	%	postpartum women (n)	%	Total postpartum women (n)	%
Unemployed	12	54.5	42	42.9	54	45.0
Unskilled	7	31.8	32	32.7	39	32.5
Semiskilled	2	9.1	21	21.4	23	19.2
Skilled	1	4.5	3	3.1	4	3.3
Total	22	100	98	100	120	100.0
Chi-square	X ² Value = 2.095; df = 3; P=0.553 (Not significant) (p>0.01)					

Table 6: Distribution of subjects, head of the family according to Occupation

Occupation of the head of the family	EPDS					
	Depression Present		No Depression		Total	
	No. of Present	%	No. of Present	%	No. of Present	%
Profession	4	18.2	32	32.7	36	30.0
semi-professional	16	72.7	24	24.5	40	33.3
Shop owner	0	0.0	20	20.4	20	16.7
Skilled Worker	2	9.1	10	10.2	12	10.0
Semi-skilled worker	0	0.0	4	4.1	4	3.3
Unskilled worker	0	0.0	8	8.2	8	6.7
Unemployed	0	0.0	0	0.0	0	0.0
Total	22	100.0	98	100.0	120	100.0
Chi-square	X ² Value = 21.002; df = 5; P=0.001 (significant at 0.01 at level) (p<0.01)					

Table 7: Distribution of subjects according to Monthly family Income

Month Income	EPDS					
	Depression Present		No Depression		Total	
	No. of Present	%	No. of Present	%	No. of Present	%
> 41430	0	0.0	0	0.0	0	0.0
20715- 41429	0	0.0	0	0.0	0	0.0
15536 - 20714	6	27.3	22	22.4	28	23.3
10357 - 15535	8	36.4	32	32.7	40	33.3
6214 - 10356	0	0.0	2	2.0	2	1.7
2092 - 6213	8	36.4	42	42.9	50	41.7
< 2091	0	0.0	0	0.0	0	0.0
Total	22	100.0	98	100.0	120	100.0
Chi-square	X ² Value = 0.884; df = 3; P=0.829 (Not significant) (p<0.05)					

Table 8: Distribution of subjects according to socioeconomic status

SES	EPDS					
	Depression Present		No Depression		Total	
	postpartum women (n)	%	postpartum women (n)	%	Total postpartum women (n)	%
Upper	2	9.1	2	2.0	4	3.3
Upper middle	0	0.0	8	8.2	8	6.7
Lower middle	6	27.3	46	46.9	52	43.3
Upper lower	14	63.6	34	34.7	48	40.0
Lower	0	0.0	8	8.2	8	6.7
Total	22	100.0	98	100.0	120	100.0
Chi-square	X ² Value = 11.637; df = 4; P=0.020 (significant at 0.01 level) (p<0.01)					

Table 9: Distribution of subjects according to family type

Family type	EPDS					
	Depression Present		No Depression		Total	
	postpartum women (n)	%	postpartum women (n)	%	Total postpartum women (n)	%
Nuclear	8	36.4	20	20.4	28	23.3
Joint	14	63.6	78	79.6	92	76.7
Total	22	100.0	98	100.0	120	100.0
Chi-square	X ² Value = 2.557; df = 1; P=0.110 (Not significant) (p>0.05)					

Table 10: Distribution of subjects according to marital status

Marital status	EPDS					
	Depression Present		No Depression		Total	
	postpartum women (n)	%	postpartum women (n)	%	Total postpartum women (n)	%
Married	22	100.0	98	100.0	120	100.0
Widow	0	.0	0	0.0	0	0.0
Total	22	100.0	98	100.0	120	100.0

Table 11: Distribution of subjects according to Family support

Family support	EPDS					
	Depression Present		No Depression		Total	
	postpartum women (n)	%	Postpartum Women (n)	%	Total Postpartum women (n)	%
Yes	6	27.3	42	42.9	48	40.0
NO	16	72.7	56	57.1	72	60.0
Total	22	100.0	98	100.0	120	100.0
Chi-square	X ² Value = 1.818; df = 1; P=0.178 (Not significant) (p>0.05)					

Table 12: Distribution of subjects according to Partner Violence

Partner Violence	EPDS					
	Depression Present		No Depression		Total	
	postpartum women (n)	%	postpartum women (n)	%	Total postpartum women (n)	%
Yes	13	59.1	44	44.9	57	47.5
NO	9	40.9	54	55.1	63	52.5
Total	22	100.0	98	100.0	120	100.0
Chi-square	X ² Value = 1.451; df = 1; P=0.228 (Not significant) (p>0.05)					

Table 13: Distribution of subjects according to Interpersonal conflicts

IP conflicts	EPDS					
	Depression Present		No Depression		Total	
	postpartum women (n)	%	postpartum women (n)	%	Total postpartum women (n)	%
Yes	16	72.7	38	38.8	54	45.0
NO	6	27.3	60	61.2	66	55.0
Total	22	100.0	98	100.0	120	100.0
Chi-square	X ² Value = 8.368; df = 1; P=0.004 (significant at 0.01 level) (p<0.01)					

Table 14: Distribution of subjects according to Alcohol abuse by husband

Alcohol abuse by husband	EPDS					
	Depression Present		No Depression		Total	
	postpartum women (n)	%	postpartum women (n)	%	Total postpartum women (n)	%
Yes	6	27.3	44	44.9	50	41.7
NO	16	72.7	54	55.1	70	58.3
Total	22	100.0	98	100.0	120	100.0
Chi-square	X ² Value = 2.296; df = 1; P=0.130 (Not significant) (p>0.05)					

Discussion

Prevalence of postpartum depression: Results from the study 120 postpartum women participated and screened with Edinburg Postnatal depression scale (EPDS) and found 22 participants have postpartum depression (PPD), and 98 participants do not have postpartum depression (PPD), so this study has postpartum depression (PPD) prevalence of 18.3%.

This study is in comparison with the study conducted in Tamilnadu by Chandran et al. in 2002, in 2002 on 359 women at six weeks postpartum period, which found 19.8% prevalence of postpartum depression. 12 Compared to the current study, the higher percentage was noted, i.e., 40.4% PPD in the study conducted in Turkey by Ekuklu G et al. in 2004 on 178 women at six weeks postpartum using EPDS with cut off ≥ 12 . [13]

In the Arabian country, a study done by F.H. Al Dallal, I. N. Grant (2012) documented the prevalence of postpartum depression among Bahraini women was 37.1% using EPDS with cut off score >12 . [14]

Indian studies were done by Patel V et al. in 2002 in Goa, were assessed on 252 women in 6 – 8 weeks postpartum using EPDS with cut off ≥ 12 found a higher prevalence of 23% postpartum depression. [15] In south India, Karnataka, a higher

prevalence of postnatal depression, was 31.4% among 102 women using EPDS with cut off score >13 (Shivalli S. Gururaj N, 2015) [16]

The difference in findings of the present study with other studies quoted above could be due to variations in culture, use of different screening/diagnostic tools, and different cut off points on various depression scales to determine postpartum depression, further due to varying time points during the postpartum period when the symptoms are assessed.

Distribution of postpartum depression according to maternal age: In this study Out of 120 study subjects 30 (25%) women were in the age group of 18 – 21 among them 5 (22.7%) were depressed, among 62 (51.7%) women in the age group of 20 – 25, among them 10 (45.5%) were depressed, among 12 (10%) women in the age group of 26 – 29, among them No one depressed and among 16 (13.3%) women in the age group of ≥ 30 among them 7 (31.8%) were depressed in postpartum respectively. Age had a statistically significant relationship with postpartum depression.

This study is in contrast with studies of O'Hara and Swain (1996) [17], Beck (2001) [18], Pireira PK et al. (2009) [19] and Shivalli S (2015), [16] that maternal age was not significantly associated with the development of postpartum depression. This study is in similar to the Study of Johanson et al.

[20] found a significant relationship between young age and postpartum depression

This difference may be due to might have been because of the sample size, difference in the socio-cultural aspects like age at marriage, the difference in the study type, and the use of different screening tools with different cut off points or diagnostic scales.

Distribution of postpartum depression according to religion: In the current study majority of them, i.e., 86 (71.7%) were Hindus, only 01(0.8%) were Muslims and 33 (27.5%) were Christians. Among them 20 (90.9%), 1(4.5%) and 1(4.5%) have postpartum depression respectively. Religion had a statistically significant relationship with postpartum depression. This study is in contrast with the study done by Shivalli S, Gururaj (2015) in Bangalore rural south India. [16]

This difference may be due to sample size and as the study was done at the Tirupati rural community, which was populated majorly by the Hindu community and small Muslim community.

Distribution of postpartum depression according to education: In the current study among 120 women, 28 women were Illiterate, 20 women studied up to Primary school, 16 women studied up to secondary school, 24 women studied up to high school, 20 women studied up to intermediate, 12 women done graduation. Among them 8 (36.4%), 2 (9.1%), 4 (18.2%), 6(27.3%), 0(0%) and 2(9.1%) have postpartum depression respectively. education had no statistically significant relationship with postpartum depression. This study is in comparison with the results of the meta-analyses by O'Hara and Swain (1996) [19], and Beck (2001) [18] found that the level of education was not significantly associated with the development of postpartum depression

Distribution of postpartum depression according to subject's occupation: In the current study, out of 120 women, 54 (45%) were an Unemployed, 39 (32.5%) Unskilled, 23 (19.2%) Semi-skilled, 4 (3.3%) were skilled by occupation. among them 12 (54.5%) were an Unemployed, 7 (31.8%) Unskilled, 2 (9.1%) Semi-skilled, 1 (4.5%) were skilled by occupation have postpartum depression respectively. Subject's occupation had no statistically significant relationship with postpartum depression.

The current study is similar to studies of Hobofoll (1995) [21], F.H. Al Dallal, [14] and I.N. Grant (2012), [22] that there is no significant relationship with occupation in ante and postpartum depression. But this study is in contrast with Shivalli S, Gururaj (2015) [16] in Bangalore, where employed women have shown the risk for PND, but binominal logistic regression ruled its effect.

These differences might have been due to the methodological differences and the economic variations in the place of study.

Distribution of postpartum depression according to socioeconomic status: In the current study, out of 120 women, four women are in upper, 8 in upper-middle, 52 in the lower middle, 48 in upper-lower, and 8 in lower socioeconomic status. Among them, 2 (9.1%) upper socioeconomic status, 6 (27.3%) lower-middle and 14 (63.6%) upper-lower socioeconomic status have postpartum depression respectively. The high proportion of postpartum depression was seen in (63.6%) upper-lower socioeconomic status .so in this study. Lower Socioeconomic status had a statistically significant relationship with postpartum depression.

Low SES has emerged as one of the most significant determinants of postpartum depression in this study.

In the current study, poverty played a major significant factor in developing postpartum depression. This is similar to the studies of Lee (2001) [23], Patel (2002), [15] which specifically studied low-income populations within China and India, respectively, and found that financial strain was an important risk factor in postpartum depression. Similar findings are also seen in the Indian study of Chandran et al. (2002) [12] in which poverty plays a significant role in PPD.

Findings from this study suggest that the relationship between poverty and mental disorders is a universal one, occurring in all societies irrespective of their levels of development. Hence, the low SES can posit a woman to be at increased risk of depressive symptoms during postpartum when facing troubles related to an increased number of children, an infant's increased demand for food, clothes, and education, care for infant's illnesses and other stressful life events.

Distribution of postpartum depression according to family type: In a current study among 120 women majority of women belong to the joint family. 76.7% belong to a joint family, and 23.3% belong to the nuclear family. Among 92 women in the joint family, 14(63.6%) have postpartum depression, and Among 28 women in the nuclear family, 8(36.4%) was postpartum depression. Thus showing the type of family is not significantly associated with postpartum depression.

This study is similar to an Indian study done by Chandran et al. (2002), [12] which found the type of family does not show a significant risk for depression. In contrast to this study, an Indian study carried in Karnataka by Shivalli S (2015) [16] found a significant association between type of family and postpartum depression.

Distribution of postpartum depression according to marital status: In this study majority, i.e., 120(100%) of women, are married, and there are no widow women. Thus showing marital status not significantly associated with postpartum depression. These results may be due to small sample size.

Distribution of postpartum depression according to family and social support: In this study, social support means support from mother in law, husband, and neighbours. In this study sample, as is common in rural communities in India, most participants were from extended families and lived in the home of their parents-in-law. Because the postpartum period needs much practical and emotional support from mother in law and husband, Cultural factors probably play a vital role in the family and social support.

Out of 120 subjects, 48 (40%) women had family and social support and 72(60%) of women do not have family support. Among them, 6(27.3%) women with family and social support, 16(72.7%) women without family, and social support have post-partum depression. Thus showing is family and social support not significantly associated with postpartum depression. O'Hara & Swain (1996) [19] examined five studies in which overall levels of social support measured during pregnancy based on over 500 subjects. They found that there was a strong negative relationship between social support and PPD. This study suggests that women who do not receive good social support during pregnancy are more likely to develop postpartum depression.

Distribution of postpartum depression according to Partner Violence: In this study, partner violence is considered as verbal abuse, physical abuse, and sexual abuse by husband, but none of the patients in the study have reported sexual abuse, so only verbal and physical abuse were considered. Out of 120 subjects, 57 (47.5%) women had Partner Violence and 63 (52.5%) of women do not have Partner Violence. Among them, 13 (59.1%) women with Partner Violence 9 (40.9%) women without Partner Violence have postpartum depression. Thus showing is Partner Violence not statistically significantly associated with postpartum depression. This is in contrast to the study of Milogrom (2008) [24], where they identified a history of husband abuse as a significant risk factor in perinatal depression. Jesse & Swanson (2007) [25] also identified a significant association between perinatal depression and abuse by the husband.

Distribution of postpartum depression according to Interpersonal conflicts: Out of 120 subjects, 54 (45%) women had interpersonal conflicts and 66 (55%) of women do not have Interpersonal conflicts. Among them, 16 (72.7%)

women with Interpersonal conflicts, 6 (27.3%) women without Interpersonal conflicts have postpartum depression. Thus showing is Interpersonal conflicts statistically significantly associated with postpartum depression. Similar results were found in a study from Goa (Patel et al., 2002), [15] where poverty and marital violence Interpersonal conflicts in the context of an infant gender bias were significant risk factors for the prevalence of post-partum depression. None of the subjects in this study had a family history of depression. May be due to cultural norms affecting women's reporting of their family illness or lack of knowledge, which are strong predictors of depression according to previous literature.

Distribution of postpartum depression according to Planned Pregnancy: Out of 120 subjects, 40 (33.3%) women had Planned Pregnancy and 80 (66.7%) of women do not have Planned Pregnancy. Among them, 6 (27.3%) women with Planned Pregnancy 16 (72.7%) women without Planned Pregnancy have postpartum depression. Thus showing Planned Pregnancy is not statistically significantly associated with postpartum depression.

These similar findings were reported in the studies of Hedge S et al. (2012), [26] Milogrom J et al. (2008), [25] and Shivalli S (2015) [16] that unwanted pregnancies do not have a relationship with postpartum depression.

References

1. Correia LL, Linhares MB. Maternal anxiety in the pre and postnatal period: a literature review. *Rev Lat Am Enfermagem*. 2007; 15: 677-83.
2. Gavin NI, Gaynes BN, Lohr KN, Meltzer-Brody S, Gartlehner G, Swinson T: Perinatal depression: a systematic review of prevalence and incidence. *Obstet Gynecol* 2005; 106: 1071-83.
3. Stewart DE, Gucciardi E, Grace SL. Depression. Available from: http://www.phac-aspc.gc.ca/publicat/whsr-rssf/ack_e.html. Women's Health Surveillance Report. Toronto: Health Canada; 2003;1-14.
4. WHO. Depression. Available from: http://www.who.int/mental_health/management/depression/definition/en/. WHO 2003.
5. Da-Silva VA, Moraes-Santos AR, Carvalho MS, Martins MLP, Teixeira NA. Prenatal and postnatal depression among low-income Brazilian women. *Braz J Med & Biol Res*. 1998; 31:799-804.
6. Zuckerman BS, Amaro H, Bauchner H, Cabral H. Depression symptoms during pregnancy: Relationship to poor health behaviors. *Am J Obstet Gynecol*. 1989; 160: 1107-11.

7. Norbeck JS, Tilden VP. Life Stress, Social Support, and Emotional Disequilibrium in Complications of Pregnancy: A Prospective, Multivariate Study. *J Health SocBeh.* 1983; 24: 30-46
8. Cooper PJ, Tomlinson M, Swartz L, Woolgar M, Murray, L, Molteno C: Post-partum depression and the mother-infant relationship in a South African peri-urban settlement. *Br J Psychiatry.* 1999; 175: 554-8.
9. Murray L, Fiori-Cowley A, Hooper R, Cooper P: The impact of postnatal depression and associated adversity on early mother-infant interactions and later infant outcome. *Child Dev.* 1996; 67: 2512-26.
10. Murray L, Cooper PJ, Hipwell A Mental health of parents caring for infants. *Arch Wom-MentHlth.* 2003; s71-s77.
11. Weissman MM, Olfson M. Depression in women: implications for health care research. *Science.* 1995;269: 799-801.
12. Chandran, M., Tharyan, J., Muliylil, J., & Abraham, S. Postpartum depression in a cohort of women from a rural area of Tamil Nadu, India. *British Journal of Psychiatry,* 2002; 181: 499-04.
13. C. Roomuangwong, C.N. Epperson; Review article, Perinatal depression in Asian women: prevalence, associated factors, and cultural aspects. *Asian Biomedicine.* 2011;179-93.
14. F.H. Al Dallal and I.N. Grant. Postnatal depression among Bahraini women: prevalence of symptoms and psychosocial risk factors *Eastern Mediterranean Health Journal.* 2012; 18 No. 5
15. Patel, V., Rodrigues, M., & De Souza, N. Gender, poverty, and postnatal depression: A study of mothers in Goa, India. *American Journal of Psychiatry,* 2002; 159: 43-47.
16. Shivalli S, Gururaj N. Postnatal Depression among Rural Women in South India: Do Socio-Demographic, Obstetric, and Pregnancy Outcome Have a Role to Play? *PLoS ONE.* 2015; 10: e0122079.
17. O'Hara, M.W., & Swain, A.M. Rates and risk of postpartum depression: a meta-analysis. *International Review of Psychiatry,* 1996; 8: 37-54.
18. Beck, C.T. Predictors of postpartum depression: an update. *Nursing Research,* 2001; 50: 275-85.
19. Pereira PK et al., Giovanni Marcos Lovisi. Depression during pregnancy: prevalence and risk factors among women attending a public health clinic, Brazil. 2009; 25:2725-36.
20. Johnson, J., Weissman, M. M., &Klerman, G. L. Service utilization and social morbidity associated with depressive symptoms in the community. *Journal of the American Medical Association,* 1992; 267: 1478-83.
21. Hobfoll SE, Ritter C, Lavin J, Hulsizer MR, Cameron RP: Depression prevalence and incidence among inner-city pregnant and postpartum women. *J Consult ClinPsychol.* 1995; 63: 445-53.
22. H. E. Nasreen, Z. N. Kabir, Y. Forsell, and M. Edhborg, "Prevalence and associated factors of depressive and anxiety symptoms during pregnancy: a population-based study in rural Bangladesh," *BMC Women's Health,* 2011;11: article 22.
23. Lee, D., Yip, A., Chiu, H., Leung, T., & Chung, T. A psychiatric epidemiological study of postpartum Chinese women. *American Journal of Psychiatry,* 2001; 158: 220-26.
24. Milgrom J, Gemmill AW, Bilszta JL, Hayes B, Barnett B, Brooks J, et al. Antenatal risk factors for postnatal depression: a large prospective study. *J Affect Disord.* 2008; 108: 147-57.
25. Jesse, D., & Swanson, M. Risks and Resources Associated with Antepartum risk for depression among rural southern women. *Nursing Research.* 2007; 56: 378-86.
26. Hegde S, Latha K, Bhat S, Sharma P, Kamath A, Shetty A. Postpartum Depression: Prevalence and Associated Factors among Women in India. *Journal of Women's Health, Issues, and Care.* 2012; 1-7.