



## Prevalence and Associated Factors in Postpartum Depression at Tertiary Hospital in Nepal

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### Abstract

**Introduction:** Postpartum depression is a serious but treatable medical disease and is a neglected area of maternal healthcare in developing countries. It is essential to identify and treat PPD because it has a negative affect on both maternal parenting ability and infant cognition. It affects 15% of women around childbirth [1]. Associated factors need to be identified if it has to be prevented on time. The onset of depression during postpartum period is very important and considered as a major public health problem affecting mothers, fathers, childrens and the whole family. This study aims to identify associated factors of PPD and its prevalence.

**Objectives:** To study the prevalence of women at risk for PPD using EPDS score in the tertiary teaching hospital in Nepal, Kathmandu and to study the associated risk factors.

**Methodology:** This study was conducted from 23rd Dec 2018 to 24th Feb 2019. Total of 100 women were interviewed using a structural questionnaire. EPDS scoring was done using a Nepali translated version. Data analysed using SPSS 21 version.

**Results:** Overall prevalence of depressive symptoms in postnatal women (Defined as EPDS $\geq$ 13) was 17%. In this study socio-demographic variable are not statistically significant in relation to postnatal depression. As per univariate analysis (Chi-square test) postpartum depression is significantly associated with number of miscarriages (p-value 0.035).

**Conclusion:** Postpartum depression is highly prevalent among Nepalese women. It is recommended to screen women at high risk to ensure appropriate clinical outcomes and for proper intervention. Early detection of symptoms can facilitate timely treatment, referral to appropriate mental health providers, and prevention of major depression.

**Keywords:** Associated Factors; Edinburg Postnatal Depression Scale; Postpartum Depression; Prevalence, Tertiary Hospital

### Introduction

Postpartum depression is a non-psychotic depressive mood disorder associated with childbirth and is a serious but treatable medical disease that involves anxiety, lack of energy, feeling of sadness, changes in sleep and appetite habit. Onset of PPD is usually between one week and one month following childbirth. It affects 15% of women around childbirth [1]. PPD is a major health concern for women from different cultures. At least 50% of PPD cases remain undiagnosed. To become a mother is a joyous, exciting moment but the women with PPD it become very distressing and difficult which carried risks both to mother and child. Those who have risk factor, they need to be provided psychosocial support which may be protective in preventing PPD. Associated factors need to be identified if it has to be prevented on time. Earlier these women are identified, the sooner treatment measures can be provided to prevent PPD from worsening into a more severe chronic disease. In developing countries more than three quarters of people with serious mental disease do not receive any treatment [2]. Depression in

postnatal period contributes to several problems in the individual, family, society as well as it may affect the child cognitive, emotional and social development.

PPD is neglected in the area of maternal health care in developing countries, both in the area of research as well as in the treatment aspect. Women who have significant risk factors need to be followed more closely in postpartum period.

PPD is found across the globe with rates varying from 11% to 42% [3]. About 3% to 6% of women will experience PPD during pregnancy or immediately after birth [4]. Women who have self-centered goals are associated with depressive symptoms. Decrease social support is the one of the most important environmental factor in the onset of depression and anxiety disorders. The spouse sexual violence and other forms of domestic violence during pregnancy increase the incidence of PPD. Consumption of vegetables, fruits, legumes, seafood, milk, and dairy products, olive oil decrease

PPD by 50%. Study done in 23 countries found that increase in consumption of seafood which is found in fish oil is associated with decrease risk of PPD [5,6].

Women with history of PPD have a risk of recurrence of about 25% [7]. The prevalence of PPD varies across different countries and it is twofold higher among women from low and middle income countries [8]. Depressed mother has less enjoyment and satisfaction in their mothering role compared with non-depressed mothers.

Depression is the leading cause of disease burden in women aged 15-44 years in both high income and low and middle income countries [9]. The onset of depression during postpartum period is very important and considered as a major public health problem affecting mothers, fathers, children's and the whole family. Prevalence of PPD is 10-15% in Western countries while it is 19.8% in low and lower middle income countries [10].

Screening of PPD will recognize these disorders so that care can be enhanced to ensure appropriate clinical outcomes. If untreated it can have long-term adverse effects. This research is relevant as the prevalence of PPD and associated factors are not well known as well there is no proper intervention. This study aims to determine associated factors for PPD and its prevalence.

### Research Objective

- To study the prevalence of women at risk for PPD using EPDS score in a tertiary teaching hospital
- To explore the associated risk factors for PPD in Women.

## Methods

### Study design

This is a descriptive cross-sectional study of postpartum women who received antenatal and postnatal care at Shree Birendra Hospital.

### Sampling method

Edinburg postnatal depression scale (EPDS) is the one which is used frequently for screening PPD. The main outcome of the study will be defined as PPD symptomology which is assessed by EPDS. It is a comprehensive and widely used screening tool for detecting symptoms of PPD. It represents a 10 items questionnaire scored (0-30) with varying levels of specificity and sensitivity, depending on where the cutoff score falls. All post natal women were explained about the study. Women who gave consent were included in the study. Informed written consent was obtained from each postnatal women. All eligible postnatal women delivered during that time till mentioned sample size of 100 were interviewed using a structural questionnaire which included socioeconomic status,

relationship with husband, mode of delivery, number of children, past obstetric history, planned or unplanned pregnancy, pregnancy problems, infant health problems, support from family and husband. EPDS scoring has been done using a Nepali translated version. Cut off score of  $\geq 13$  was obtained to determine the symptoms of postpartum depression. The reliability of the instrument was calculated by Cronbach's alpha was 0.779 which is within very good range of reliability. Data was analyzed using statistical software (IBM SPSS V21).

### Study site

Study was done at Shree Birendra Hospital which is a military tertiary teaching hospital situated in the heart of capital of Nepal. Total number of delivery is approximately about 1250 – 1300 per year. Prevalence and associated risk factors in PPD have not been studied at SBH. It is justified to identify those factors for prevention and for further treatment of affected women.

### Study population

A total of 100 postpartum women were interviewed. They all were administered with EPDS as well as a Performa that included questions about known risk factors. All the eligible women in postnatal period before discharging from the hospital were screened. Informed consent was obtained from all the selected women, who were then given EPDS and requested to rate the items according to the instruction and researcher herself attended all queries. All the EPDS sheet and questionnaire Performa were collected. All the study data was entered and analysed in SPSS statistical software.

### Sampling unit

All eligible women who delivered at SBH were the study group. Mothers with psychological problems under treatment, Mothers whose babies present serious health problems, women whose child died at birth, suffering from severe medical illness were excluded from the study.

### Data collection techniques and tools

Complete enumeration of postpartum women who delivered at SBH, were included in the study by using EPDS and questionnaire. Data was analyzed using IBM SPSS 21 version. Chi-square test was applied for association of postpartum depression with different variables.

## Result

A total of 100 patient who were eligible were enrolled in the study. Association of postpartum Depression with sociodemographic variable and obstetric and infant characteristics of the study sample are shown in Table 1 and table 2.

		Score_Categorize						Chi-square	df	p-value
		No Depression (1-12)		Depression (13 or more)		Total				
		Count	Column N %	Count	Column N %	Count	Column N %			
Age	Less than 20 years	2	2.4%	0	0.0%	2	2.0%	3.263	5	0.66
	21-25 years	20	24.1%	6	35.3%	26	26.0%			
	26-30 years	33	39.8%	4	23.5%	37	37.0%			
	31-35 years	24	28.9%	6	35.3%	30	30.0%			
	36-40 years	2	2.4%	1	5.9%	3	3.0%			
	Greater than 40 years	2	2.4%	0	0.0%	2	2.0%			
Marital status	Married	83	100.0%	17	100.0%	100	100.0%	Only one category		
	Unmarried	0	0.0%	0	0.0%	0	0.0%			
	Others (Widowed/ Divorced)	0	0.0%	0	0.0%	0	0.0%			
Occupation	Business	10	12.0%	1	5.9%	11	11.0%	3.056	3	0.383
	Housewife	52	62.7%	13	76.5%	65	65.0%			
	Teachers	5	6.0%	2	11.8%	7	7.0%			
	Others	16	19.3%	1	5.9%	17	17.0%			
Religion	Hindu	77	92.8%	15	88.2%	92	92.0%	0.901	2	0.637
	Buddhist	5	6.0%	2	11.8%	7	7.0%			
	Others	1	1.2%	0	0.0%	1	1.0%			
Caste	Bramin/chhetri	47	56.6%	12	70.6%	59	59.0%	2.758	4	0.599
	Dalit	7	8.4%	0	0.0%	7	7.0%			
	Mangolion	19	22.9%	4	23.5%	23	23.0%			
	Newar	6	7.2%	1	5.9%	7	7.0%			
	Others	4	4.8%	0	0.0%	4	4.0%			
Education	Not gone to school	4	4.8%	2	11.8%	6	6.0%	5.226	3	0.156
	Primary level	11	13.3%	0	0.0%	11	11.0%			
	Secondary level	44	53.0%	7	41.2%	51	51.0%			
	Bachloer and higher	24	28.9%	8	47.1%	32	32.0%			
Family income (year)	less than 50000	8	9.6%	1	5.9%	9	9.0%	0.617	4	0.961
	50001- 100000	13	15.7%	3	17.6%	16	16.0%			
	100001-150000	10	12.0%	2	11.8%	12	12.0%			
	150001- 200000	33	39.8%	8	47.1%	41	41.0%			
	greater than 200000	19	22.9%	3	17.6%	22	22.0%			

**Table 1:** Association of Socio - Demographic variables with postpartum Depression.

Mean age of women 21-35 years. All women were married and had secondary level education (51%) whereas 6% had never gone to school. Most women were hindus (92%), housewives (65%), belong to Bramin/Chhetri caste (59%) and 41% of household had an average family income from 150001- 200000 Nepalese rupees per year.

The pregnancy was planned in 77% of the women, 62% had no miscarriages. Vaginal delivery was 54% and 55% are multiparous.

In almost all women there was no infant health problem (92%) and pregnancy problem(86%). Most of the women have family support (61%).

Overall prevalence of depressive symptoms in postnatal women (Defined as EPDS≥13) was 17% shown in Figure 1. In this study socio-demographic variable are not statistically significant in relation to postnatal depression. As per univariate analysis (Chi- square test) postpartum depression is significantly associated with number of miscarriages (p- value 0.035).

		Score_Categorize						Chi-square	df	p-value
		No Depression (1-12)		Depression (13 or more)		Total				
		Count	Column N %	Count	Column N %	Count	Column N %			
First child	No	45	54.2%	10	58.8%	55	55.0%	0.121	1	0.728
	Yes	38	45.8%	7	41.2%	45	45.0%			
	Total	83	100.0%	17	100.0%	100	100.0%			
Miscarriage	One	21	25.3%	5	29.4%	26	26.0%	6.699	2	0.035
	Two or more	7	8.4%	5	29.4%	12	12.0%			
	None	55	66.3%	7	41.2%	62	62.0%			
	Total	83	100.0%	17	100.0%	100	100.0%			
Planned pregnancy	No	17	20.5%	6	35.3%	23	23.0%	1.748	1	0.186
	Yes	66	79.5%	11	64.7%	77	77.0%			
	Total	83	100.0%	17	100.0%	100	100.0%			
Mode of delivery	Vaginal delivery	47	56.6%	7	41.2%	54	54.0%	1.356	1	0.244
	Cesarean section	36	43.4%	10	58.8%	46	46.0%			
	Total	83	100.0%	17	100.0%	100	100.0%			
Infant health problem	No	78	94.0%	14	82.4%	92	92.0%	2.590	1	0.108
	Yes	5	6.0%	3	17.6%	8	8.0%			
	Total	83	100.0%	17	100.0%	100	100.0%			
Pregnancy problem	No	73	88.0%	13	76.5%	86	86.0%	1.545	1	0.214
	Yes	10	12.0%	4	23.5%	14	14.0%			
	Total	83	100.0%	17	100.0%	100	100.0%			
Support from	Family	47	56.6%	14	82.4%	61	61.0%	5.120	2	0.077
	Partner	9	10.8%	2	11.8%	11	11.0%			
	Both family and partner	27	32.5%	1	5.9%	28	28.0%			
	Total	83	100.0%	17	100.0%	100	100.0%			

Table 2: Association of obstetric and infant characteristics with postpartum Depression.

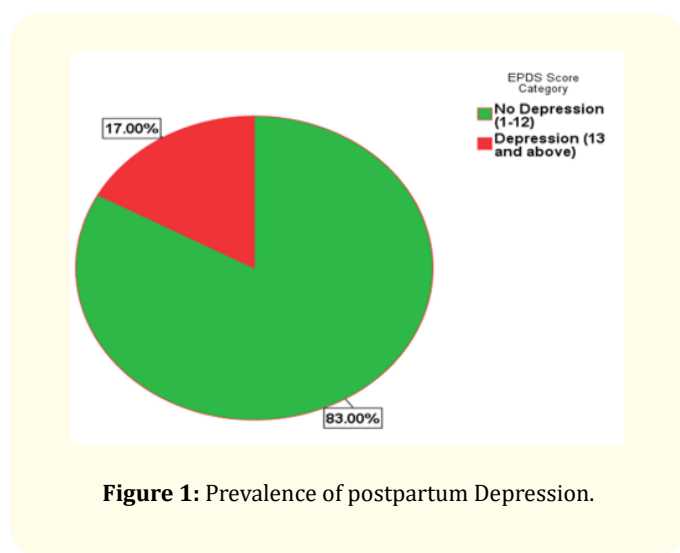


Figure 1: Prevalence of postpartum Depression.

Discussion

Prevalence of PPD

In this study prevalence of postpartum depression was 17% which is similar 17.1% with the study done at TUTH hospitals by Bhusal and colleague [11] but was higher than the other study conducted at TUTH Nepal 12% [12] whereas prevalence is much lesser than the another study done at Dulikhel hospital and other Nepalese population 29% and 22.2% [13]. The prevalence of postpartum depression in this study is less than the prevalence of PPD among women who came for postnatal services at Addis Ababa public health centres of Ethiopia was 23.3%, China 27%, city of Poland 23%. Lahore Pakistan 25% respectively [14,15]. This difference might be due to different sample sizes, use of different investigation tools, different methods in assessment of PPD and economic status of the regions investigated.

### Sociodemographic characteristics

In this study no significant association of postpartum depression in relation to sociodemographic variable was found like age, religion, ethnicity, family income, occupation, education which is similar to the study conducted in postpartum women at TUTH and at Dhulikhel hospital, Nepal. Nevertheless few studies reported women with low level socioeconomic status were found to be at greater risk of having PPD.

### Pregnancy and birth related factors

In this study postpartum depression is significantly associated with number of miscarriages. Even other studies concluded that major depressive disorders are common in women who suffer a miscarriage so they should be monitored in 1st week after reproductive loss. Similarly, a comparison study done on 448 women with history of miscarriage and 2343 pregnant women without history of miscarriage were 1.66 times more likely to report probable depress compared with no history of miscarriage [16]. Likewise another study conducted on 200 Gujarati women with history of miscarriage, the odds to get depressed is 4.613 times more than without history of miscarriage. Similarly, women with history of abortion were three times more likely to develop PPD symptoms (aOR = 3.25, 95% CI = 1.208–9.065) than those without such history [17]. This may be as women are scared that they will lose this baby, being childless thereafter if they have miscarriage again. In this study mode of delivery, infant health problem, pregnancy complications, number of pregnancy, planned or unplanned pregnancy are not significantly associated with postpartum depression even though other studies have shown some significant. This may be due to as it limits its generalization as military personnel family are only treated in this hospital which is free of cost.

### Marital and family relationship factors/Psychological factors and mental history

In this study social support of family and husband was not significantly associated with postpartum depression as similar with the study done by Burgha., *et al.* who evaluated the decrease in PPD who receive social support through friends and relatives during stressful times [18].

### Cultural factors

The cultural aspects of postpartum period have been described in the literature however the impact of cultural factors upon PPD has been less investigated and studies that looked at this association have yielded oppositional conclusions and even literature are inconclusive and discrepancies were found in the incidence of PPD. In cultures where an EPDS cutoff was not validated so validation should be made before using this instrument.

### Conclusion

Postpartum depression is highly prevalent among Nepalese women. Its associated factors need to be identified if it has to be prevented as it has a serious consequences on both baby and mother. Women who have significant risk factors need to be evaluated with EPDS score and need to be followed more closely in the postpartum period. All women during antenatal period must be educated in regard to risk factor and symptoms of PPD which can be done through prenatal classes, media and health clinics. We cannot expect all delivered women to turn back to obstetrician after discharge so it is very important to evaluate women before discharge that will help us to avoid missing PPD women It is recommended to perform study in a larger scale in a community to identify various associated factors for postpartum depression.

### Limitation

Major limitation of the present study was that it was hospital based and it limits its generalisation. So further large scale community studies are recommended.

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### Competing Interests

The authors declare that they have no competing interests.

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