

# Postpartum Depression and its Associated Factors: A Community-based Study in Nepal

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## ABSTRACT

**Background:** Postpartum depression is a type of mental disorder associated with childbirth during pregnancy or within the first postpartum year. It is reported as a common psychological health problem affecting 10-15% of women worldwide. The duration of postpartum depression frequently depends on its severity and the time of initiation of treatment. This study assessed depression and its associated factors among postpartum period women of Godavari municipality, Lalitpur, Nepal.

**Methods:** A community-based cross-sectional study was conducted using Edinburg Postpartum Depression Scale among 195 mothers who were within six months of the postpartum period. The chi-square and logistic regression were applied to establish the association between postpartum depression and associated factors.

**Results:** Out of the total 195 postpartum women, 37(19%) women suffered from depression and out of those women 2.1% had suicidal thoughts. Among the associated factors, education, occupation, the intent of pregnancy, family support and pregnancy-related problems/complications were found to be significantly associated with Postpartum depression ( $p < 0.05$ ).

**Conclusions:** Nearly one-fifth postpartum women suffered from some type of depression. It is one of the public health concerns which directly or indirectly corresponds to the socio-economic condition of the women. The improved education and economic status of women, intention of pregnancy, family care and support during pregnancy and the postpartum period and early diagnosis and management of health problems could reduce the magnitude of the postpartum depression.

**Keywords:** Associated factors of postpartum depression; edinburg postpartum depression scale; Nepal; postpartum depression.

## INTRODUCTION

Postpartum depression (PPD) is an onset of depressive episodes among women within the first postpartum year.<sup>1-3</sup> It is a common psychological problem among women worldwide.<sup>4</sup> Its duration depends on the severity and initiation of care seeking.<sup>5</sup>

The prevalence of PPD varied with the prevalence of 10-15%<sup>4</sup> globally while it ranged 3.5 to 63.3% in Asia<sup>6</sup> and 4.9% to 29% in Nepal.<sup>7-9</sup> The factors associated with PPD may be clustered into five major groups: biophysical, psychological, obstetric, socio-demographic and cultural.<sup>6</sup>

PPD is a major public health concern which is often neglected in treatment as well as research.<sup>9</sup> It has

several consequences that affect the mother, the child, and the entire family. Its major consequences were suicidal maternal deaths<sup>10</sup> and adverse effect on the growth and development of the child.<sup>8,11</sup> The study aimed to determine the prevalence of postpartum depression and its associated factors among women.

## METHODS

A community-based cross-sectional study was conducted among postpartum mothers of Godavari Municipality of Lalitpur district, Nepal from July to December 2017. The quantitative survey method was adapted for collecting the required information. We conducted a face-to-face interview with 195 postpartum women using a structured interview schedule. For capturing the individual woman consecutive sampling technique was applied on the basis

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of the institutional delivery care records of Maternity Hospital Thapathali and Patan Hospital Lagankhel and birth registration of the Godavari Municipality, Lalitpur, Nepal until getting the required sample size.

Edinburg Postpartum Depression Scale (EPDS) validated in the Nepali language, having Cronbach's alpha value 0.74, sensitivity 92% and specificity 95.6%<sup>8</sup> was used to measure the prevalence of PPD at the cut-off point of  $\geq 13$ , after receiving permission from the author. A structured interview schedule with closed-ended questions was also used to assess the various demographic, socio-economic and healthcare-related factors. The interview schedule was translated into Nepali language and back-translated into the English language to assure the translation. The questionnaire translated into the Nepali language was pretested among 10% of the total sample, i.e., 20 (n=195) postpartum women of Pokhara-Lekhnath metropolitan, Kaski, Nepal.

The collected data were entered in Epidata version 3.1, which were exported to Statistical Package for the Social Science (SPSS) version 20 for further analysis. Descriptive statistics were reported for demographic, socio-economic and various pregnancy and delivery related factors of the participants as frequencies and percentage. Chi-square test and logistic regression were applied to find out the association between postpartum depression and the test variables. Furthermore, the correlation coefficient was computed to check the internal consistency of the items applying Cronbach Alpha ( $\alpha$ ) where its value was found 0.92. Most studies accept Cronbach Alpha value 0.70 or above while testing the reliability of the Likert scale. Prior to data collection, ethical approval was obtained from the Institutional Review Committee, Pokhara University, Nepal. Informed consent was obtained from the research participants and those found to be depressed were suggested for counseling.

## RESULTS

Out of 195 participants, 37(19%) were found to be suffering from postpartum depression. Among the total participated women, 2.1% ever had suicidal thoughts during the six months of the postnatal period.

The age range of participants was between 16 and 43 with the mean age of  $25.8 \pm 4.4$  years. Almost half of the participants (48.2%) were house-makers (Table 1).

The proportion of participants having intended pregnancy was 80.5%. Majority of participants (97.9%) had received any kind of family support (Table 2 and 3).

**Table 1. Socio-demographic characteristics of the participants.**

Characteristics	Number (n=195)	Percent
<b>Current age of the participants</b>		
<20 years	15	7.7
20-35 years	177	90.8
$\geq 36$ years	3	1.5
<b>Literacy status of participant (n=195)</b>		
Literate	18	9.2
Primary level	36	18.5
Secondary level	76	39.0
Higher secondary level	31	15.9
Bachelors and above	34	17.4
<b>Participant's occupation</b>		
Agriculture	10	5.1
Service	48	24.6
Daily wage laborer	2	1.0
Own business	41	21.0
House-maker	94	48.2
<b>Household Wealth Index</b>		
Lowest quintile	3	1.5
Second quintile	12	6.2
Third quintile	27	13.8
Fourth quintile	102	52.3
Highest quintile	51	26.2

**Table 2. Pregnancy and delivery related characteristics of the participants.**

Characteristics	Number (n=195)	Percent
<b>Age at last pregnancy</b>		
<20 years	23	11.8
20-35 years	171	87.7
$\geq 36$ years	1	0.5
<b>Parity</b>		
Primipara	105	53.8
Multipara	90	46.2
<b>Sex of recent child</b>		
Male	103	52.8
Female	92	47.2
<b>The intent of pregnancy</b>		
Intended	157	80.5
Unintended	38	19.5
<b>Family support</b>		
Not having family support	4	2.1
Having some kind of family support	191	97.9

**Table 3. Health conditions of pregnant women.**

Health conditions	Number (n=195)	Percent
<b>Pregnancy-related problems (n=193)</b>		
Yes	22	11.4
No	171	88.6
<b>Antenatal anxiety/depression (n=22)</b>		
Yes	2	9.1
No	20	90.9
<b>time of delivery</b>		
Preterm	12	6.2
Term	183	93.8
<b>Type of delivery</b>		
Normal vaginal	131	67.2
Cesarean section	64	32.8

The study showed that the participant's education ( $\chi^2 = 4.270$ ,  $p=0.039$ ) and their occupation ( $\chi^2 = 17.464$ ,  $p=0.001$ ) were associated with postpartum depression (Table 4).

**Table 4. Association of socio-demographic characteristics with PPD.**

Character-istics	Postpartum depression		$\chi^2$ value	p-value
	Present (%)	Absent (%)		
<b>Current age of the participant</b>				
<20 years	3(20.0)	12(80.0)	3.35 <sup>#</sup>	0.187
20-35 years	32(18.1)	145(81.9)		
≥36 years	2(66.7)	1(33.3)		
<b>Participant's education</b>				
≤10 years of schooling	30(23.1)	100(76.9)	4.27	0.039*
>10 years of schooling	7(10.8)	58(89.2)		
<b>Participant's occupation</b>				
Agriculture/ daily wage labor	6(50.0)	6(50.0)	17.46	0.001**
Service	3(6.2)	45(93.8)		
Own business	4(9.8)	37(90.2)		
House-maker	24(25.5)	70(74.5)		
<b>Household wealth index</b>				
Lowest quintile	2(66.7)	1(33.3)	5.20 <sup>#</sup>	0.268
Second quintile	3(25.0)	9(75.0)		
Third quintile	6(22.2)	21(77.8)		
Fourth quintile	15(14.7)	87(85.3)		

Highest quintile	11(21.6)	40(78.4)
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\*p-value significant at  $\alpha < 0.05$ , \*\*p-value significant at  $\alpha < 0.01$ , # - Likelihood ratio

Among the pregnancy and delivery related factors, the intention of pregnancy ( $\chi^2 = 34.776$   $p=0.000$ ), family support ( $\chi^2 = 8.338$   $p=0.022$ ) and pregnancy-related problems ( $\chi^2 = 16.080$   $p=0.000$ ) were found to be associated with PPD (Table 5).

**Table 5. Association between pregnancy and delivery related characteristics, and PPD.**

Character-istics	Postpartum depression		$\chi^2$ value	p-value
	Present (%)	Absent (%)		
<b>Age at last pregnancy</b>				
Age <20 and >35 years	6(25.0)	18(75.0)	0.65	0.412
Age 20-35 years	31(18.1)	140(81.9)		
<b>Parity</b>				
Primiparity	16(15.2)	89(84.8)	2.07	0.151
Multiparity	21(23.3)	69(76.7)		
<b>Sex of recent child</b>				
Male	18(17.5)	85(82.5)	0.32	0.572
Female	19(20.7)	73(79.3)		
<b>Intention of pregnancy</b>				
Intended	17(10.8)	140(89.2)	34.78	0.000***
Unintended	20(52.6)	18(47.4)		
<b>Family support</b>				
Not having support	3(75.0)	1(25.0)	8.34	0.022*
Having any kind of support	34(17.5)	157(82.2)		
<b>Pregnancy-related problems</b>				
Yes	11(50.0)	11(50.0)	16.08	0.000***
No	25(14.6)	146(85.4)		
<b>Type of delivery</b>				
Normal vaginal	22(16.8)	109(83.2)	1.23	0.267
Cesarean section	15(23.4)	49(76.6)		

\*p-value significant at  $< 0.05$ , \*\*\*p-value significant at  $< 0.001$

The participants who had less than ten years of schooling were found to be 2.5 times (UOR-2.48, 95% CI, 1.027-6.017) more likely to be depressed than those who had more than ten years of schooling. Likewise, the odds of developing postpartum depression was higher among

women who were engaged in agriculture and daily wage labor work (UOR-15.00, 95% CI, 2.948-76.310), own business activities (UOR-1.62, 95% CI, 0.341-7.708) and

house-maker (UOR-5.14, 95% CI, 1.463-18.082) than those engaged in service sector (Table 6).

Table 6. Association between socioeconomic factors and PPD.

Characteristics	Postpartum depression		UOR	95% CI	
	Present (%)	Absent (%)		Lower	Upper
<b>Participant's education</b>					
>10 years of schooling	7 (10.8)	58 (89.2)	Ref.		
≤10 years of schooling	30 (23.1)	100 (76.9)	2.49	1.03	6.02
<b>Participant's occupation</b>					
Service	3 (6.2)	45 (93.8)	Ref.		
Agriculture and labor work	6 (50.0)	6 (50.0)	15.00	2.95	76.31
Own business	4 (9.8)	37 (90.2)	1.62	0.34	7.71
House-maker	24 (25.5)	70 (74.5)	5.14	1.46	18.10
<b>Intent of pregnancy</b>					
Intended	17 (10.8)	140 (89.2)	Ref.		
Unintended	20 (52.6)	18 (47.4)	9.150	4.06	26.615
<b>Family support</b>					
Having any kind of support	34 (17.8)	157 (82.2)	Ref.		
Not having support	3 (75.0)	1 (25.0)	13.85	1.39	137.25
<b>Pregnancy-related problems</b>					
No	25 (14.6)	146 (85.4)	Ref.		
Yes	11 (50.0)	11 (50.0)	5.84	2.28	14.91

## DISCUSSION

The prevalence of postpartum depression as revealed in this study (19%) was consistent with a study conducted in Tamil Nadu, India, which is 19.8%.<sup>12</sup> However, it was higher than the prevalence in the Lalitpur district of Nepal (4.9%)<sup>7</sup> and lower than that of women delivering in Dhulikhel hospital of Kathmandu, Nepal (29%).<sup>9</sup> The variation in prevalence rate may be due to the variation in the method of assessment, length of the postpartum period<sup>13</sup> and the population characteristics.<sup>14</sup>

In this study, the low educational level of the participants was statistically significant with the occurrence of depression which is consistent with a study conducted in Lebanon.<sup>15</sup> In case of occupation, this study found that, in reference to women who were engaged in any service sector, those who were engaged in agriculture and daily wage labor were found more likely to be depressed. Consistent with this finding, a study among Turkish women showed that being a housewife increased the risk of depression nearly two folds.<sup>16</sup> Similarly, in India, the unemployed women were found to be more depressed than the employed ones.<sup>17</sup> Returning to social life and earning own money seems to be a protective factor against depressive symptoms.

This study identified no significant association between parity and occurrence of postpartum depression which is in line with another study conducted in Nepal in 2014 among women delivering at Dhulikhel hospital<sup>9</sup> and a study conducted in Saudi Arabia.<sup>18</sup> However, different studies had shown inconsistent results in this context. Studies conducted among Japanese<sup>19</sup> and Chinese women<sup>20</sup> suggest that postpartum depression occurs in case of primiparity, while, studies were done among Canadian women<sup>21</sup> suggest its occurrence in case of multiparity. There can be other confounding variables behind these inconsistencies which require further studies.

Although the studies in the past had shown that an association exists between the sex of newborn and postpartum depression<sup>12,17</sup>, these studies deny the fact. However, the findings of this study are consistent with recent studies conducted among Turkish<sup>22</sup> and Saudi Arabian women<sup>18</sup> where there was no association found between sex of child and PPD. This may be due to the change in gender preference in recent years as equal preference is given to both genders in the present context.

This study revealed a significant association between the intent of pregnancy and postpartum depression which

was an inconsistency with various studies conducted in different parts of the world.<sup>23-24</sup> An unwanted pregnancy may be a stressful experience which further brings about difficulties in motherhood including depressive symptoms.

Our findings indicated that the lack of help and support from husband and family increased the odds of being depressed by almost fourteen folds. Similar findings were shared by several other studies.<sup>12,25,26</sup> As numerous physical and emotional changes occur in women during pregnancy and the postpartum period, lack of adequate care and support can lead to higher level of stress, anxiety, and development of depressive symptoms among women.

This study revealed that having pregnancy-related problems increased the likelihood of being depressed in the postpartum period by six folds, which is in line with other studies conducted in Eastern Finland<sup>27</sup>, India<sup>17</sup> and Nepal.<sup>9</sup>

In this study, it was seen that the mode of delivery was not associated with postpartum depression which is consistent with studies conducted among Chinese<sup>28</sup> and Saudi women.<sup>18</sup>

The findings of the study are based on the primary information which was collected using the validated EPDS scale in the community settings through the active involvement of the researchers. The results of the study were further validated by applying statistical tests. However, it was a cross-sectional study and was conducted among a minimum required sample of postpartum women; so, the results obtained may not be generalized and established the causal association. Further analytical and interventional studies need to be conducted to establish the causal association with the associated factors.

## CONCLUSIONS

Nearly one-fifth postpartum women suffered from depression in the study area. Educational level and occupation of women, the intention of pregnancy, family support and pregnancy-related complications were found to be significantly associated with postpartum depression. Emphasis should be given to improving the education, socio-economic status, family support, and care during pregnancy and postpartum period to prevent depression among postpartum mothers.

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