



**International Journal of Biology, Pharmacy  
and Allied Sciences (IJBPAS)**

*'A Bridge Between Laboratory and Reader'*

[www.ijbpas.com](http://www.ijbpas.com)

---

**ASSESSMENT OF POSTPARTUM DEPRESSION AMONG WOMEN HAVING  
DIFFERENT MODES OF DELIVERY: A CROSS-SECTIONAL STUDY FROM  
PAKISTAN**

**MALIK M<sup>\*1</sup>, ASIM Z<sup>2</sup>, HUSSAIN A<sup>3</sup>, HASHMI A<sup>4</sup>, JAVAID AQ<sup>5</sup>**

<sup>1</sup>Director/Associate Professor, Hamdard Institute of Pharmaceutical Sciences, Hamdard  
University, Islamabad Pakistan

<sup>2</sup>M.Phil Scholar, Hamdard Institute of Pharmaceutical Sciences, Hamdard University,  
Islamabad Pakistan

<sup>3</sup>Dean/Professor, Hamdard Institute of Pharmaceutical Sciences, Hamdard University,  
Pakistan

<sup>4</sup>Lecturer Hamdard Institute of Pharmaceutical Sciences, Hamdard University, Islamabad

<sup>5</sup>Vice President PCP, Pakistan

**\*Corresponding Author: Madeeha Malik: [Email id: madeehamalik15@gmail.com](mailto:madeehamalik15@gmail.com)**

Received 16<sup>th</sup> Nov. 2016; Revised 15<sup>th</sup> Jan. 2017; Accepted 14<sup>th</sup> April 2017; Available online 1<sup>st</sup> Sept. 2017

**ABSTRACT**

**Background:** Postpartum depression adversely affect maternal and infant's health. Behavioral and cognitive disturbances are observed among infants of postpartum depressed mothers. The aim of the current study was to assess postpartum depression among women having different modes of delivery in Pakistan. **Methods:** A descriptive cross-sectional study design was used to evaluate postpartum depression among women having different modes of delivery in Pakistan. Study sites included all immunization centers located in public and private healthcare facilities in twin cities of Pakistan. Study respondents included women in the postpartum period (6-8 weeks, 10-12 weeks, 14-16 weeks, >9 months, >15 months). Edinburgh postnatal depression scale (EPDS) was used to collect data from 382 postpartum

---

---

women undergone different mode of delivery. Non-parametric tests, Mann-Whitney and Kruskal-Wallis, were performed to find out the difference among different variables. **Results & Conclusion:** Mann-Whitney and Kruskal-Wallis test demonstrated a statistically significant difference for mode of delivery ( $p = 0.026$ ), monthly income ( $p = 0.002$ ) and husband's qualification ( $p = 0.025$ ). Women having cesarean sections were comparatively more depressed than women having normal vaginal delivery. Moreover, women whose husbands were illiterate and had no permanent source of monthly income were found relatively more depressed. The present study concluded that majority of postpartum women suffered from some sort of anxiety but not severe depression. This depression was more evident in women undergone cesarean section. Surgical intervention during cesarean lead to consistent postpartum pain, inability to cope with needs of newborn and her family which in turn reduced the postpartum quality of life of mothers and induces postpartum depression.

**MeSH terms: Cesarean section, Edinburgh postnatal depression scale, Depression, Postpartum period, Normal vaginal delivery, Pakistan**

## INTRODUCTION

Postpartum depression (PPD) is among the most common complications during the postpartum period. The rate of PPD worldwide varies between 10-16%. Most of the postpartum depressed women suffer low feeling, hunger & sleep problems, desperation, anxiety, extreme fatigue, psychomotor disturbance and feeling of inadequate care of newborn. PPD adversely affect maternal and infant's health. Behavioral and cognitive disturbances are observed among infants of postpartum depressed mothers [1]. Depression markedly reduces the daily activities of mothers. Even mild to moderate depression impair daily functioning [2]. A high prevalence of anxiety and depression was estimated during and after pregnancy

among females residing in urban Delhi. Anxiety was more during the antepartum period as compared to postpartum period and usually went unnoticed [3]. Women who had cesarean section experienced more postpartum depression as compared to those who had normal vaginal delivery in India. However, no significant difference in the frequency of the postpartum depression was reported after normal vaginal delivery and cesarean section [4]. The most common reported risk factors for PPD were financial problems, undesired gender of infant, relationship problems with in-laws and parents, complicated pregnancy and lack of physical support [5]. On the other hand, in Bangladesh the prevalence rate of postnatal depression was 22 %.

Relationship problems with in-laws and partner, psychological distress in past or during pregnancy and death of infant were recognized as noteworthy risk factors [6]. Postnatal depression detrimentally affected women's postpartum quality of life and functioning status in Australia [7]. A positive correlation between fatigue and postpartum depression was reported in Korea [8]. Depressive symptoms in breastfeeding mothers were evaluated and need to identify breastfeeding mothers with depressive symptoms in order to improve QOL and enhance breastfeeding duration of those mothers was reported in Canada [9]. Women who had social support from partner and family usually suffered less postnatal depression in Australia [10]. Postpartum depression led to a poor quality of life during 2<sup>nd</sup> and 4<sup>th</sup> month of postpartum. Screening of PPD in routine postnatal care has been suggested [11]. The prevalence of postpartum depression was reported 36 % and pre-natal depression was reported 70 % at 12 weeks postpartum in a population based survey conducted in Pakistan [12]. The pregnant women were suffering from some form of anxiety or depression. The most common indications were older age at the time of delivery, physical and verbal abuse, abortion, still birth and respondent's role in household decision making. Pregnant women should

be screened in early pregnancy and social support should be provided accordingly to pregnant women to avoid psychological disorders [13]. On the other hand, factors associated with pre-natal depression among women were rural background, working women, violence, cesarean sections, abortion, unplanned pregnancy and number of daughters as compared to sons. Moreover, need to design has been identified [14]. Extensive research is required to identify different factors promoting depression during postpartum period and useful interventions to control depression during pregnancy. Thus, the present study was designed to assess postpartum depression among women having different modes of delivery in Pakistan.

## METHODOLOGY

### Study Design

A descriptive cross-sectional study design was used to evaluate postpartum depression among women having different modes of delivery in twin cities of Pakistan. Study site for this research was all immunization centers in public and private hospitals in twin cities of Pakistan. Study respondents included women in the postpartum period (6-8 weeks, 10-12 weeks, 14-16 weeks, >9 months, >15 months). Inclusion criteria were women aged 16-50 years by the time of delivery; women who had elective or

emergency cesarean sections and normal vaginal delivery; women in the postpartum period and women who had delivered a single live child. Exclusion criteria included a history of any psychotic disorder, having a previous congenitally abnormal child; a previous prenatal death; age less than 16 years; multiple gestations; and obstetric or neonatal complications.

### **Study Approval**

National bioethical committee is present for this type of research and it states that only institutional head approval is required for this type of study [15]. Beside this approval was obtained for the study from the Ethical Committee of Hamdard University (Ref. No. HU/ DRA/2016/978). Moreover in Pakistan, questionnaire-based studies do not need any endorsement from Ministry of Health. Despite that, prior information was sent to the Ministry of Health, Government of Pakistan for the execution of this research. For data collection approval from MS of the hospitals and respective prescribers was taken. Informed and verbal consent for participation was also taken from the respondents. Respondents were ensured for the confidentiality of information verbally as well as confidentiality under taking was signed by the principal investigator.

### **Sample Size & Sampling Procedure**

Calculation of sample size was performed by using Rao soft sample size calculator to determine the size of sample representing the population of post-partum women. Calculated sample size was 382 to achieve 95 % confidence interval with 5% margin of error. As there was no updated record of postpartum women, convenience sampling technique was used for this study and all the respondents that were available at the time of data collection were selected.

### **Data Collection Tool and Scoring**

Prospective data was collected from primary sources directly from respondents. Data was collected directly from the respondents at their respective healthcare facility. Data collection tool used in this study was Edinburgh postnatal depression scale (EPDS). The tool consists of 10 short statements. The respondents checks off one of four possible answers that is closest to how she has felt during the past week. Responses are scored 0, 1, 2 and 3 based on the seriousness of the symptom. Items 3, 5 to 10 are reverse scored (i.e., 3, 2, 1, and 0). The total score is found by adding together the scores for each of the 10 items. Total score of 1-8 show new mothers often have mood swings, score between 9-10 show mild anxiety, score between 11 show moderate postpartum depression (PPD) or anxiety while 12 or 13 are likely to be

suffering from severe depression. Two focus group discussions were conducted at different time intervals with experts from hospitals, and academia for content validation of the tools. Besides this, pilot testing had been conducted at 10% of sample size to test reliability of the tools after data collection. Value of Cronbach's alpha for PHQ-9 was 0.791 which is satisfactory considering that 0.68 is the cut off value for being acceptable.

### Data Collection and Analysis

Questionnaires were self administered by the researchers and were collected back on the same day to avoid study biasness. After data collection, data was cleaned, coded and entered in SPSS version 16. Skewness test was performed and histograms with normal curves were used to check normal distribution of data. Descriptive statistics comprising of frequency and percentages were calculated. Non-parametric tests, Mann-Whitney and Kruskal-Wallis, were performed to find out the difference among different variables.

### RESULTS

Of the total respondents, 46.1% (n=176) women had cesarean section while 53.9% (n=156) women had normal vaginal delivery. Of the total respondents, 23.3% (n=89) women were belonging to postpartum period 6-8 weeks, 15.2% (n=58) were from 10-12 weeks postpartum

period, 27.2% (n=104) women were from 14-16 weeks postpartum period, 22.8% (n=87) women were from 9 months postpartum period and 11.5% (n=44) women were from 15 months postpartum period. Regarding age, 6.8% (n=26) were of age group 16-20 years, 6.1% (n=138) were of age group 21-25 years, 38.2% (n=146) were of age group 26-30 years, 15.7% (n=60) were of age group 31-35 years and 3.1% (n=12) were of age group 36-40 years. On the other hand, 93.2% (n = 356) of the women were housewives while 6.8% (n = 26) were working women (Table 1).

The results highlighted that 45% (n = 175) of the respondents have been able to laugh and see the funny side of things as much as they always could and 42.4% (n = 162) of the respondents have looked forward with enjoyment to things as much as they ever did. Most of the respondents 62.3% (n = 238) never blamed their self unnecessarily when things went wrong while 62.8% (n = 240) respondents were not at all anxious or worried for no good reason (Table 2).

Comparison of postnatal depression scores by demographic characteristics using Mann-Whitney and Kruskal-Wallis test demonstrated a statistically significant difference for monthly income (p = 0.002) and husband's qualification (p = 0.025). Respondents with no monthly income were

significantly more depressed than others and women whose husbands were illiterate were relatively more depressed. Women having cesarean sections were

comparatively more depressed ( $p = 0.026$ ) than women having normal vaginal delivery (Table 3).

Table 1: Demographic Characteristic of the Respondents

Indicator		Total n (%)	Indicator		Total n (%)
Age	16-20 Y	26 (6.8)	Respondent profession	House wife	356 (93.2)
	21-25 Y	138 (36.1)		Working women	26 (6.8)
	26-30 Y	146 (38.2)	Infant's gender	Male	193 (50.5)
	31-35 Y	60 (15.7)		Female	189 (49.5)
	36-40 Y	12 (3.1)			
Mode of delivery	Cesarean sections	176 (46.1)	City	Islamabad	162 (42.9)
	Normal Delivery	206 (53.9)		Rawalpindi	220 (57.6)
Family system	Separate	114 (29.8)	Healthcare facility	Public	207 (54.2)
	Combined	268 (70.2)		Private	175 (45.8)
Respondent's Qualification	Illiterate	53 (13.9)	Husband's Qualification	Illiterate	35 (9.2)
	Primary	32 (8.4)		Primary	26 (6.8)
	Secondary	30 (7.9)		Secondary	25 (6.5)
	Matriculation	91 (23.8)		Matriculation	128 (33.5)
	Intermediate	65 (17.0)		Intermediate	62 (16.2)
	Bachelors	70 (18.3)		Bachelors	62 (16.2)
Higher	41 (10.7)	Higher	44 (11.5)		
Monthly income (Rs)	No income	15 (3.9)	Husband age	16-20 Y	4 (1.0)
	≥ 10,000	101 (26.4)		21-25 Y	46 (12.0)
	11,000-20,000	111 (29.1)		26-30 Y	138 (36.1)
	21,000-30,000	63 (16.5)		31-35 Y	115 (30.1)
	31,000-40,000	33 (8.6)		36-40 Y	60 (15.7)
	41,000-50,000	17 (4.5)		41-45 Y	16 (4.2)
	Greater than 50,000	42 (11.0)		46-50 Y	3 (0.8)
	Husband's Profession	Professional		38 (9.9)	Number of children
Government Job		43 (11.3)	2-5 children	243 (63.6)	
Businessman		28 (7.3)	≤ five child	4 (1.0)	
Shopkeeper		100 (26.2)	Total cost on delivery	Free	106 (27.7)
Abroad		24 (6.3)		1000-20,000	180 (47.1)
Daily wager		78 (20.4)		21,000-50,000	67 (17.5)
Jobless		12 (3.1)		51,000-1 Lac	27 (7.1)
Private job in company		59 (15.4)		≤ 1 Lac	2 (0.5)
How many days you lived in hospital after delivery?	None	156 (40.8)	Number of hospital visits after delivery?	None	200 (52.4)
	One to two days	85 (22.3)		One to two visits	175 (45.8)

	Three to five days	132 (34.6)		Three to five visits	7 (1.8)
	Greater than five days	9 (2.4)			

Table 2: Assessment of Postnatal Depression among Women with Different Modes of Delivery

Indicators		n (%)
I have been able to laugh and see the funny side of things	As much as I always could	172 (45.0)
	Not quite so much now	104 (27.2)
	Definitely not so much now	74 (19.4)
	Not at all	32 (8.4)
I have looked forward with enjoyment to things	As much as I ever did	162 (42.4)
	Rather less than I used to	110 (28.8)
	Definitely less than I used to	78 (20.4)
	Hardly at all	32 (8.4)
I have blamed myself unnecessarily when things went wrong	Yes, most of the time	22 (5.8)
	Yes, some of the time	65 (17.0)
	Not very often	57 (14.9)
	No, never	238 (62.3)
I have been anxious or worried for no good reason	No, not at all	240 (62.8)
	Hardly ever	33 (8.6)
	Yes, sometimes	47 (12.3)
	Yes, very often	62 (16.2)
I have felt scared or panicky for no very good reason	Yes, quite a lot	22 (5.8)
	Yes, sometimes	57 (14.9)
	No, not much	47 (12.3)
	No, not at all	256 (67.0)
Things have been getting on top of me	Yes, most of the time I haven't been able to cope at all	147 (38.5)
	Yes, sometimes I have not been coping as well as usual	66 (17.3)
	No, most of the time I have coped quite well	24 (6.3)
	No, I have been coping as well as ever	145 (38.0)
I have been so unhappy that I have had difficulty sleeping	Yes, most of the time	32 (8.4)
	Yes, sometimes	81 (21.2)
	Not very often	64 (16.8)
	No, not at all	205 (53.7)
I have felt sad or miserable	Yes, most of the time	15 (3.9)
	Yes, quite often	95 (24.9)
	Not very often	112 (29.3)
	No, not at all	160 (41.9)
I have been so unhappy that I have been crying	Yes, most of the time	36 (9.4)
	Yes, quite often	67 (17.5)
	Only occasionally	67 (17.5)
	No, never	212 (56.5)
The thought of harming myself has occurred to me	Yes, quite often	9 (2.4)
	Sometimes	10 (2.6)
	Hardly ever	24 (6.3)
	Never	339 (88.7)

Table 3: Comparison of Postnatal Depression by Demographic Characteristics

Indicator	Postnatal depression			
	n	Mean Rank	Test Statistics	p-value
		Infant's Gender		
Male	193	189.01	17758.500 <sup>a</sup>	0.323
Female	189	194.04		
		Profession of Respondent		

House wife	356	193.42	3945.500 <sup>a</sup>	0.195
Working women	26	165.25		
		Family System		
Combined family	268	189.58	14761.000 <sup>a</sup>	0.300
Separate family	114	196.02		
		Mode of Delivery of Baby		
Cesarean section	176	203.35	16042.000 <sup>a</sup>	0.026
Normal vaginal delivery	206	181.37		
		Healthcare Facility		
Public	207	195.84	17215.000 <sup>a</sup>	0.199
private	175	186.37		
		Postpartum Period of Women		
6-8 wks	89	198.73	0.562 <sup>b</sup>	0.967
10-12 wks	58	191.41		
14-16 wks	104	189.58		
9 months	87	189.26		
15 months	44	185.95		
		Age of Respondent		
16-20	26	202.19	0.802 <sup>b</sup>	0.938
21-25	138	186.43		
26-30	146	192.22		
31-35	60	193.69		
36-40	12	206.92		
		Number of Children		
One child	135	158.71	2.926 <sup>b</sup>	0.232
2-5 children	114	155.47		
>5 children	74	178.06		
		Husband's Age		
16-20	4	257.75	4.965 <sup>b</sup>	0.548
21-25	46	184.76		
26-30	138	180.91		
31-35	115	202.57		
36-40	60	200.52		
41-45	16	171.84		
46-50	3	193.33		
		Monthly Income		
No income	15	279.67	20.441 <sup>b</sup>	0.002
10,000 or less	101	205.55		
11,000-20,000	111	196.96		
21,000-30,000	63	185.15		
31,000-40,000	33	156.64		
41,000-50,000	17	182.44		
≤ 50,000	42	152.37		
		Qualification of Respondent		
Illiterate	53	206.00	11.976 <sup>b</sup>	0.063
Primary	32	205.91		
Secondary	30	223.63		
Matriculation	91	199.97		
Inter	65	193.66		
B.A	70	167.51		
Higher	41	156.73		
		Husband's Qualification		
Illiterate	35	224.01	14.397 <sup>b</sup>	0.026
Primary	26	208.50		
Secondary	25	215.48		
Matriculation	128	200.18		
Inter	62	170.41		
B.A	62	189.48		
Higher	44	149.27		

Mann-Whitney test ( $p \geq 0.05$ )<sup>a</sup>; Kruskal-Wallis test ( $p \geq 0.05$ )<sup>b</sup>

## DISCUSSION

Postpartum depression has devastating effects on the health related quality of life

of mothers. The findings of the present study demonstrated mild postpartum depression among women. Most of the

respondents were not suffering from postpartum depression. Mode of delivery was a significant determinant of postnatal depression in this study. Women who had cesarean section were more prone to depression in postnatal period. This might be due to increased hospitalization, health issues and financial pressure related to cesarean sections which lead to postnatal depression. These findings are in line with another study where postnatal depression was significantly associated with women undergoing cesarean sections [16]. Numerous predicting factors for postnatal depression were identified in the present study including monthly income, mode of delivery, qualification of the respondent and her husband. Lower monthly income was a significant predictor of postnatal depression in the present study and husband qualification was also associated with postnatal depression. Women whose husbands were illiterate were relatively more depressed than others. This might be due to husband illiteracy and unemployment which leads to lack of financial resources to meet the household needs and eventually leading to depressive symptoms. The present study findings are in agreement with a study conducted in Rawalpindi, Pakistan, where poverty, uneducated husband and having 5 or more

children were significant determinants of depression in the first postnatal year [17].

## CONCLUSION

The present study concluded that women having normal vaginal delivery were less depressed than women who had cesarean section. Surgical intervention during cesarean lead to consistent postpartum pain, inability to cope with needs of newborn and her family which in turn reduced the postpartum quality of life of mothers and induces postpartum depression. Thus, normal vaginal delivery should be considered as first choice in absence of any medical complication. Beside this the government must devise effective strategies to combat illiteracy and unemployment in order to promote better health related quality of life in Pakistan. This in turn will not only help to reduce depression among society but will also help to promote better mother & child health.

## REFERENCES

- [1] Costa, D., et al., Health-related quality of life in postpartum depressed women. Archives of women's mental health, 2006. **9**(2): p. 95-102.
- [2] Rojas, G., et al., Quality of life of women depressed in the postpartum period. Revista médica de Chile, 2006. **134**(6): p. 713-720.

- [3] Mina, S., et al., Anxiety and Depression amongst the urban females of Delhi in Ante-partum and Post-partum period. *Delhi Psychiatry Journal*, 2012. **15**(2): p. 347-351.
- [4] Sankapithilu, G., et al., A comparative study of frequency of postnatal depression among subjects with normal and caesarean deliveries. *Online Journal of Health and Allied Sciences*, 2010. **9**(2).
- [5] Chandran, M., et al., Post-partum depression in a cohort of women from a rural area of Tamil Nadu, India. *The British Journal of Psychiatry*, 2002. **181**(6): p. 499-504.
- [6] Gausia, K., et al., Magnitude and contributory factors of postnatal depression: a community-based cohort study from a rural subdistrict of Bangladesh. *Psychological medicine*, 2009. **39**(06): p. 999-1007.
- [7] Boyce, P., et al., Functioning and well-being at 24 weeks postpartum of women with postnatal depression. *Archives of women's mental health*, 2000. **3**(3): p. 91-97.
- [8] Choi, S.-Y., H.-J. Gu, and E.-J. Ryu, Effects of Fatigue and Postpartum Depression on Maternal Perceived Quality of Life (MAPP-QOL) in Early Postpartum Mothers. *Korean Journal of Women Health Nursing*, 2011. **17**(2).
- [9] Dennis, C.L. and K. McQueen, Does maternal postpartum depressive symptomatology influence infant feeding outcomes? *Acta paediatrica*, 2007. **96**(4): p. 590-594.
- [10] Webster, J., et al., Quality of life and depression following childbirth: impact of social support. *Midwifery*, 2011. **27**(5): p. 745-749.
- [11] Sadat, Z., et al., The Impact of Postpartum Depression on Quality of Life in Women After Child's Birth. *Iranian Red Crescent Medical Journal*, 2014. **16**(2): p. e14995-e14995.
- [12] Husain, N., et al., Prevalence and social correlates of postnatal depression in a low income country. *Archives of women's mental health*, 2006. **9**(4): p. 197-202.
- [13] Ali, N.S., et al., Frequency and associated factors for anxiety and depression in pregnant women: a hospital-based cross-sectional study. *The Scientific World Journal*, 2012. **2012**.

- [14] Waqas, A., et al., Psychosocial factors of antenatal anxiety and depression in pakistan: is social support a mediator? PloS one, 2015. **10**(1): p. e0116510.
- [15] Ministry of Health. National Bioethics Committee. 2004 [cited 2017 12th March]; Available from: <http://nbcPakistan.org.pk/>.
- [16] Torkan, B., et al., Comparative analysis of life quality in mothers after cesarean section and normal vaginal delivery. Iranian Journal of Nursing and Midwifery Research, 2008. **12**(1).
- [17] Rahman, A. and F. Creed, Outcome of prenatal depression and risk factors associated with persistence in the first postnatal year: Prospective study from Rawalpindi, Pakistan. Journal of affective disorders, 2007. **100**(1): p. 115-121.