

**POSTPARTUM DEPRESSION IN MOTHERS OF HOSPITALIZED PREMATURE BABIES IN BASRA MATERNITY AND CHILDREN HOSPITAL**<sup>1</sup>Murtadha Abdulhasan Abdulbaqi, \*<sup>2</sup>Aida A. Manthar<sup>1</sup>M.B.Ch.B<sup>2</sup>C.A.B.P Assistant professor University of Basra- College of Medicine Department of Pediatrics.**\*Corresponding Author: Aida A. Manthar**

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**SUMMARY**

**Background:** The mother experience of having premature baby has been noticed as a psychological stress and depression. The most widely used tool for screening PPD is the Edinburgh Postnatal Depression Scale (EPDS) which was used in this study to assess postpartum depression in mothers of preterm babies. **Methods:** A cross-sectional study was carried out to assess postpartum depression in 60 mothers of previously hospitalized preterm babies in neonatal care unit while they attended neonatal out-patient clinic of Basra maternity and children hospital over a period of 6 months from July to December 2017. A special questionnaire had been designed to collect maternal, neonatal and labor data. Postpartum depression was assessed using the Arabic version of Edinburgh postpartum depression scale. **Results:** The percentage of postpartum depression of mothers of preterm babies was 43.3%. The study showed that mothers of younger age, primiparity and low educational level, low family income, lacking of breast feeding and having a male preterm baby were significantly associated with postpartum depression, ( $p$ -value  $< 0.05$ ). It was found that no significant associations were found between postpartum depression and bad obstetric and medical history, fathers age, educational level and job, place of residency, antenatal care visits, consanguinity, type and place of delivery, complication of labor, gestational age and birth weight of infant, singleton or multiple pregnancy, immediate condition, duration of hospitalization and diagnosis, ( $p$ -value  $> 0.05$ ). Logistic regression analysis revealed that significant correlation was present between postpartum depression and maternal job, parity, sex of the baby and type of feeding, ( $p$ -value  $< 0.05$ ). While no statistical significance of other variables was found as maternal age and educational level, ( $p$ -value  $> 0.05$ ). **Conclusion:** postpartum depression was shown to be higher among mothers of Preterm babies and so hospital staff should pay special attention to both the infant's development and the parental affective state in order to prevent the onset of depression or anxiety and to give a prompt Intervention.

**KEYWORDS:** Postpartum depression Mothers of preterm babies Edinburgh postpartum depression scale.**INTRODUCTION**

The relation between affection disorders and postpartum period has been known since Hippocrates time. Women are at raised risk of having severe psychological disorders throughout the puerperal period.<sup>[1]</sup> The mother experience of having premature baby has been noticed as a psychological stress that can lead to a significant psychological trauma.<sup>[2]</sup> Many studies have assessed mother psychological health issues following premature baby birth; both short and long effects. However, the chief concentrate of them was mother postpartum mental reactions and maternal adapting ways. The postpartum psychological reactions prevalence has been found to be more among mothers of preterm babies compared to those of term babies.<sup>[3]</sup> PTB constitute more than 10 % of all birth. PTB is the most common cause of neonatal death and the second cause of mortality before 5 years of

age (following pneumonia) globally. PTB also is responsible for a large portion of both long and short term morbidity.<sup>[4]</sup> The preterm birth of a baby is a worrying event, which expose the family to stressful situation due to the infant's organic instability and specialized medical care need in NCU, the family faces the separation from the preterm baby and the unpredictability about its clinical outcome and survival.<sup>[5]</sup> There are many types of maternal psychological reactions following preterm delivery like anxiety,<sup>[6]</sup> posttraumatic stress disorder,<sup>[7]</sup> postpartum psychosis,<sup>[8]</sup> and postpartum depression which have onset of 4 weeks (DSM-IV) or 6 weeks (ICD-10) after delivery, can be described as period during which there is either mood depression or the loss of pleasure in approximately all activities of at least 2 weeks duration. 5 out of 9 symptoms must be included, according to

DSM-IV.<sup>[9]</sup> Its prevalence is about 10 – 15% in Western countries' women. Arabic women have higher rates, such as 21% in Lebanon and 17.8% in the UAE. Muslim women have 14% -27.2% in Turkey and 28.8% of Turkish women who living in Australia. A study of Muslim women living in Australia showed 19.5%.<sup>[10]</sup> Mothers of premature infants having higher risk for PPD as compared to those having term infants with a prevalence of 40%.<sup>[11]</sup> Specific etiology of PPD is unknown May be related to sudden drop of the raised levels of estrogen and progesterone early in the postpartum period. Estrogen founds to affect serotonin levels and receptors directly and indirectly via MAO-A levels, while progesterone founds to affect receptors of GABA-A. A decrease in brain DHA and other omega-3 PUFAs during pregnancy is found to be a contributing factor also.<sup>[12]</sup> The Risk factors include demographic and socio-economic factors like extreme maternal ages,<sup>[13]</sup> bad socioeconomic indicators such as low education, unemployment and low income have been found as risk factors.<sup>[14]</sup> with husband's psychiatric disturbances, polygamous relationships, low educational level, unemployment, marital problems, husband's support lack.<sup>[15]</sup> The obstetric factors including complications of pregnancy such as hyperemesis, preeclampsia, preterm labor and delivery instrumental delivery, CS and excessive bleeding.<sup>[9]</sup> Primiparity is more among women with PPD, also unplanned pregnancy, history of miscarriage.<sup>[15]</sup> Mothers having infants with prematurity, low birth weight, neonatal irritability, poor motor functioning are at higher risk to develop PPD.<sup>[16]</sup> Psychosocial factors were reported as risk factors for PPD as stressful events during gestation.<sup>[15]</sup> A previous depressive episode is associated with PPD.<sup>[13]</sup> Breast feeding is a protective factor for PPD but mechanisms are unknown; oxytocin and prolactin are thought to have mood changing effects.<sup>[17]</sup> The clinical criteria of PPD are as same as ordinary depression, The DSM-IV recognize PPD as a major depressive episode occurring within 4 weeks postpartum.<sup>[9]</sup> Pediatrician is responsible to screen all women in postpartum period with a screening tool.<sup>[18]</sup> The most widely used tool for screening PPD is the (EPDS).It is sensitive and specific instrument for detecting PPD.<sup>[12]</sup> PPD may have a negative effect on the personal and social activities of the mothers and the relationship with their infants.<sup>[9]</sup> The symptoms of depression interrupt the capacity to establish communicating, interacting and relationship with the baby. The maternal depression affects infant's cognitive, emotion, behavior and functions.<sup>[9,2,3,19]</sup> This study was carried out to assess postpartum depression among mothers of hospitalized preterm babies in NCU.and study its relation to selected neonatal, maternal, labor and socioeconomic factors.

#### List of abbreviation

APH antepartum hemorrhage  
 DHA Docosahexaenoic acid  
 (EPDS) Edinburgh Postnatal Depression Scale

GABA-A gamma-aminobutyric acid-A  
 ICD-10 International Classification of Diseases 10th revision  
 ID Iraqi dinar  
 MAO-A Monoamine oxidase A  
 NCU neonatal care unit  
 PUFA Polyunsaturated fatty acid  
 PROM Premature rupture of membranes  
 PPD Postpartum depression  
 PTB Preterm birth  
 UTI Urinary tract infection

#### SUBJECTS AND METHODS

Subjects- This cross-sectional study had been carried out at neonatal outpatient clinic of Basra Maternity and Children Hospital to 60 mothers of preterm babies with age from 2 weeks till end of neonatal period who were previously admitted in both neonatal care units, the first neonatal care unit (inborn babies) and second neonatal unit (out-born babies) for 6 months period from July to December 2017with following exclusion criteria: Maternal psychological illness or disorder, receiving medications as psychotropic or antidepressants Substances, neurological, chromosomal or congenital abnormalities in the neonate.<sup>[20]</sup> Data collection include two parts; one for maternal, neonatal and obstetric and delivery data and the other for PPD screening. Neonatal data include name, sex, date of birth, body weight at birth, gestational age which can be classified in to moderate-late premature (33–36 weeks) and very premature (28–32 weeks),<sup>[21]</sup> being singleton or part of multiple pregnancy, immediate newborn condition (cried immediately?, need for resuscitation?), duration of hospitalization and the last Diagnosis. Maternal data include the name, residency, job (housewife or employed), age (which was divided to high risk group if the maternal age was either less than 18 or more than 35 years and low risk group if the maternal age between 18-35 years).<sup>[22]</sup> parity (which was divided into risk group if primiparous or multiparous more than P4 and normal group if the parity was 2-4), level of education ( $\geq 10$  yrs.,  $<10$  yrs.).<sup>[23]</sup> Antenatal care attendance which was classified in to no ANC, inadequate ANC (three or less antenatal visits) and adequate ANC (four or more antenatal visits).<sup>[24]</sup> medical problems and pregnancy complications (diabetes, hypertension, PET, eclampsia, chronic respiratory diseases, cardiovascular diseases, psychiatric illnesses, sickle cell anemia, oligohydramnios, polyhydramnios, UTI, APH and others), marital status (stable, separated, divorced or widow). Partner's age, job (self-employed or employed) and evidence of consanguineous marriage, family income (divided in to Low income: below 100,000 ID per capita, medium: 100,000- 250,000 ID per capita and high: above 250,000 ID per capita).<sup>[25]</sup> Type of feeding of current baby. Labor and delivery information include: type of delivery whether vaginal (spontaneous or induced? At home or hospital?) or caesarean section (elective or emergency) and any labor complications like PROM  $>18$  hours ,cord prolapse, prolonged labor,

abnormal presentation and others and history of previously affected pregnancies like abortion, preterm birth, still birth and neonatal death .PPD was assessed using (EPDS) assembled in 1987 by John Cox which is self-report questionnaire, specifically designed and globally used to screen for PPD. It composed of 10 items, Each one scored on 4-point scale (0 to 3), some of the items are reverse-scored, highest total score is 30.<sup>(13)</sup> we used the Arabic version of the EPDS which has been validated in Morocco in 2005 .The EPDS was used to identify depression in risky mothers. It was described as a score of 12 or more.<sup>(26)</sup> Score was studied in relation to selected maternal, infant and labor factors. Statistical analysis was done using SPSS program v.23. Data were expressed by mean and standard Deviation. A comparison of proportions was performed using Chi-Square test. For all tests p-value of < 0.05 was considered as statistically significant

housewife and primi parity were associated with PPD, p-value <0.05. Table 1. It was demonstrated that low family income and lack of breast feeding were associated with PPD, p-value <0.05. Table 2 (from line 5).

Table 2. It was shown that there was no statistically significant difference in complication of labor and type and place of delivery between those with and without PPD, p-value >0.05 table 3. It was demonstrated that PPD is associated with having a male preterm baby, p-value < 0.05 table 4. This study shows that there is a positive association between PPD with mother's job, parity, infant's sex and type of feeding, p-value < 0.05. But there is no statistically significant correlation with other variables as maternal age and educational level, p-value > 0.05 table 5.

**RESULTS**

This study shows that young aged mothers (< 18 years old), low educational level (<10 years studying years),

**Table 1: PPD in relation to selected maternal characteristics characteristics.**

		Depressed (total 26)		Non-depressed (total 34)		Total	P-Value	
		No.	%	No.	%			
Mother's Age (years)	< 18 years	19	73.1	10	29.4	29	0.004	
	18-35 years	4	15.4	15	44.1	19		
	> 35 years	3	11.5	9	26.5	12		
Educational level (years)	< 10 years	18	69.2	14	41.2	32	0.031	
	≥ 10 years	8	30.8	20	58.8	28		
Mother's job	Unemployed	24	92.3	19	55.	43	0.002	
	Employed	2	7.7	15	44.	17		
parity	Prim parous	20	76.9	13	38.2	33	0.006	
	2-4	5	19.2	11	32.4	16		
	≥ 5	1	3.8	10	29.4	11		
Previously affected pregnancies	Absent	16	61.5	18	52.9	34	0.0587	
	present	Abortion	8	30.8	9	26.5		17
		Neonatal deat	1	3.	1	2.9		2
		stillbirth	0	0.0	1	2.9		1
		preterm	1	3.8	5	14.7		6
Medical problems	Present	3	11.5	6	17.6	9	0.511	
	Absent	23	88.5	28	82.4	51		
Obstetric problems	Present	10	38.5	17	50.0	27	0.373	
	Absent	16	61.5	17	50.0	33		

\*chi-square and fisher's exact tests were used

**Table 2: PPD in relation to selected socioeconomic characteristics.**

variables		Depressed		Non-depressed		Total	p- value
		No.	%	No.	%		
Income (ID/capita)	<100000	16	61.5	9	26.5	25	0.024
	100000-250000	8	30.8	20	58.8	28	
	> 250000	2	7.7	5	14.7	7	
Educational level of father	< 10 years	12	46.2	18	52.9	30	0.602
	≥ 10 years	14	53.8	16	47.1	30	
Father's job	Employed	12	46.2	12	35.3	24	0.395
	Self-employer	14	53.8	22	64.7	36	

Place of residency	Rural	11	42.3	17	50.0	28	0.554
	Urban	15	57.7	17	50.0	32	
Antenatal care	No	5	19.2	6	17.6	11	0.988
	Inadequate	15	57.7	20	58.8	35	
	Adequate	6	23.1	8	23.5	14	
Type of feeding	Breast	7	26.9	21	61.8	28	0.018
	Bottle	12	46.2	6	17.6	18	
	Mixed	7	26.9	7	20.6	14	
consanguinity	Yes	11	42.3	10	29.4	21	0.299
	No	15	57.7	24	70.6	39	

\*chi-square and fisher's exact tests were used

Table 3: Postpartum depression in relation to selected labor and delivery characteristics.

Variables			depressed		Non-depressed		Total	P-value
			No.	%	No.	%		
Types of delivery	Vaginal	spontaneous	14	53.8	11	29.4	35	0.242
		induced	4	15.4	7	20.6		
	caesarean section	elective	3	11.5	9	26.5	25	
		emergency	5	19.2	8	23.5		
Place of delivery	Home		1	3.8	1	2.9	2	0.0847
	Hospital		25	96.2	33	97.1	58	
Complication of labor	present		14	53.8	14	41.2	28	0.33
	Absent		12	46.2	20	58.8	32	

\*chi-square and fisher's exact tests were used.

Table 4: Postpartum depression in relation to selected neonatal characteristics.

Variables		Depressed		Not depressed		Total	P-value
		No.	%	No.	%		
Gestational age	28-32 weeks	7	26.9	11	32.4	18	0.649
	33-36 weeks	19	73.1	23	67.6	42	
Birth	Singleton	25	96.2	27	79.4	52	0.059
	multiple	1	3.8	7	20.6	8	
Sex	Male	18	69.2	10	29.4	28	0.002
	female	8	30.8	24	70.6	32	
Birth weight	< 1500 gm	2	7.7	6	17.6	8	0.529
	1500-2000gm	16	61.5	19	55.9	35	
	> 2000 gm	8	30.8	9	26.5	17	
Immediate condition	Cried immediately	14	53.8	12	35.3	26	0.157
	Needed resuscitation	12	46.2	22	64.7	34	
Duration of hospitalization	≤ 3 days	15	57.7	17	50.0	32	0.554
	> 3 days	11	42.3	17	50.0	28	
final diagnosis	RDS	14	53.8	17	50.0	31	0.677
	pneumonia	4	15.4	4	11.8	8	
	Sepsis	5	19.2	5	14.7	10	
	jaundice	3	11.5	8	23.5	11	

\*chi-square and fisher's exact tests were used

Table 5: Logistic regression analysis of selected variables related to postpartum depression.

Variables	OR	95% CI		p-value
		Lower value	Upper value	
Mother's age	3.773	0.989	11.433	0.052
Maternal Educational level	0.293	0.043	5.99	0.588
Mother's job	6.102	2.227	1046.041	0.014
Parity	6.927	1.725	41.523	0.008
Male gender	5.967	1.624	83.27	0.015
Breast feeding	5.613	0.074	0.782	0.018

\*Binary logistic regression test



## DISCUSSION

The preterm infant birth is an abnormal transition in the family that can produce high stress to parents, bad thoughts about a healthy infant; fear from death can lead to sense of depression mostly in mothers.<sup>[27]</sup> In the current study EPDS which is one of the most commonly used screening tools for PPD was used to assess maternal depression in relation to selected maternal and infant factors. It was found that the PPD had occurred in 43.3% of mothers which approximate the rate found in Australia 40.3%, 12% to 63% in Southeast Asia, 29.3% in Dhaka, Bangladesh and in Pakistan (35.3%).<sup>[28]</sup> This study showed that mothers of younger age (less than 18 years) are at greater risk of PPD (p-value 0.004), which was in agreement to Iranian study done by Kheirabadi, et al,<sup>[29]</sup> and study of Benner, et al,<sup>[30]</sup> in Qatar, it was observed that low educational level was associated with greater risk of PPD (p-value 0.031) as similar as studies of Quispel, et al in Netherland,<sup>[31]</sup> and Davis, et al in Australia.<sup>[32]</sup> In the current study mother's unemployment was significantly associated with PPD (p-value 0.002) which agrees with studies of Benner, et al,<sup>[30]</sup> and Eilat-Tsanani, et al,<sup>[33]</sup> in Haifa. Low family income was found to be a risk factor in this study (p-value 0.024) and this was in agreement with study of Glasser, et al,<sup>[14]</sup> among Arab Israel and a study of Masho, et al.<sup>[34]</sup> in USA. These results could be explained by unemployment, low family income and low education cause lacking of social support and poverty which may interfere with child care responsibilities and put additional pressure on women. In the current study the Primiparous was found as a risk factor for PPD (p-value 0.006) which goes with Kheirabadi, et al,<sup>[29]</sup> Benner, et al.<sup>[30]</sup> and Green, et al.<sup>[35]</sup> results which as some women entering new emotional and physical domain may find it's hard to adapt for the changes they experience, also multiple deliveries diminish the risk of PPD due to nonspecific diminish in stress accompanied with pregnancy and deliveries. It was observed that history of medical, pregnancy, labour and delivery complications didn't have a relationship with PPD as similar as Gulamani, et al.<sup>[28]</sup> study. However Kheirabadi, et al.<sup>[29]</sup> and Benner, et al.<sup>[30]</sup> studies showed significant association with PPD. It was observed that no association between EPDS score and mode of delivery. This was in consistence with study of Sharifi, et al in Iran.<sup>[36]</sup> It was observed that father's age, educational level and employment had no significant relationship with PPD of mother and this resembles results of Rizk, et al.<sup>[37]</sup> and Poehlmann, et al.<sup>[27]</sup> So routine screening for postpartum depression should be done for all women and ward staff should give a special care to the psychological state of the parents to prevent development of anxiety and depression and to give the correct intervention.

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