

Prevalence and Risk Factors of Postpartum Depression among Women in a Primary Health Care Unit, Qalyoubia Governorate, Egypt

¹Mohamed EA, ²Sabbour SM, ²Abdelhamid MA, ²ElBagoury LS.

¹Family physician specialist, Ministry of health and population. ²Community, Environmental and Occupational Medicine Department, Faculty of Medicine, Ain Shams University

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Abstract

Background: Postpartum depression (PPD) represents a considerable health problem affecting women and their families. **Objective:** to determine the prevalence and risk factors of postpartum depression among women attending Al- Mostkbal primary health care unit in Al-Obour city. **Method:** A cross sectional study was conducted including 225 postpartum women selected from Al- Mostakbal primary health care centre in the postpartum period. They were subjected to two forms of questionnaires (1) Edinburgh Postnatal Depression Scale (EPDS), and (2) An interview questionnaire to collect data about possible risk factors of postpartum depressive symptoms. **Results:** The mean age of studied women was 30.9 years \pm 6.09. Prevalence of postpartum depression symptoms was found to be 37.78 % according to EPDS using a cutoff point >12 . These symptoms were significantly higher in the first six months than the second six months after delivery ($P<0.001$). Mothers who had their newborns admitted to neonatal intensive care unit (NICU), hospitalization for her newborn, annoyed from weight gain after labour, lack of husband support during or after pregnancy, twins' newborn and a past history of depression were the significant variables associated with PPD symptoms. However, age, employment, pregnancy loss, and preterm labour had no significant association with PPD. **Conclusion:** Factors that may lead to development of PPD, include some socio-demographic, obstetric, and psychosocial ones. Early detection of these factors may help in prediction of the development of PPD by family physicians.

Keywords: *postpartum, depression, family physician, primary health care.*

Corresponding Author: Dr. Lamyaa Said ElBagoury e-mail: ls_bagoury@yahoo.com

Introduction

Postpartum depression (PPD) is a common disorder defined as "any non-psychotic depressive symptoms occurring during the first postpartum year".¹ Also is defined as a psychological mood disorder that occurs in a mother within 6 weeks of her giving birth. It is a condition that causes mood disturbance and might begin in, or extend after, the postpartum period.²

The negative consequences of PPD are not limited to mothers; PPD also affects the rest of family members and family dynamics. PPD can also lead to

significant language, cognitive and emotional developing problems in children.³ Husbands are also more likely to get depressed when their wives have PPD.⁴

Postpartum depression affects 10 to 22% of postpartum women in developed countries^{5, 6} and reaches up to 40% among mothers of preterm infants.⁷ In Turkey, it was estimated to be 15.4%.⁸ Arab women show rates, such as 37% in Bahrain⁹, 22% in the United Arab Emirates¹⁰ and 21% in Lebanon.¹¹

Some of the identified risk factors are hormonal, social, low self-esteem, life stress, fatigue, prenatal depression, lack of husband support, low socioeconomic status, depression or anxiety during pregnancy, preterm labour and unintended pregnancy. These risk factors predict women who may be at risk.^{12,13} A study in 2014 in the Eastern province capital of Saudi Arabia found that the most common risk factors of PPD was stressful life events, followed by a lifetime history of depression and anxiety.¹⁴ To overcome these significant impediments early detection by family physicians is crucial. The optimal time to screen for PPD is between 2 weeks and 6 months after delivery.¹⁵ Research has highlighted protective factors which include being within a social support environment, having a supportive spouse, problem-solving ability and access to community-based supports.¹⁶

Although the disease has many adverse outcomes, it has been found that the majority of the cases of postpartum depression are not detected by healthcare providers. More research studies on postpartum depression are needed, to better understand the disease and its causes, with a highlight on prevention, early diagnosis and treatment.¹⁷

Family physicians can meet mothers who may come for family planning counselling or for their babies developmental follow ups and immunizations, to actively screen them using the Edinburgh Postnatal Depression Scale (EPDS). Family physicians can manage at-risk mothers by providing them with advice, support, and medication. Mothers with persistent maladjustment can be referred for specialist assessment.¹⁸

Postpartum depression in mothers of young children represents a public health hazard and highlights the need for further research to improve prevention and management.

Objective: To determine the prevalence and risk factors of post-partum depression among postpartum women attending Al- Mostakbal primary health care unit.

Method

A cross sectional study was conducted in 2015 among postpartum women at Al-Mostakbal primary health care center (PHC). The center is located in El Mostakbal district, El Obour city, Qalyuobia governorate. El Obour city, one of the new urban areas in Greater Cairo, is about 35 kilometers north-east of Cairo and has been constructed in 1995.

Al- Mostakbal primary health care center is one of three primary health care centers in El Obour city. It includes five outpatient clinics: pediatric and internal medicine, dental, ophthalmology, gynecological and obstetric, and family planning clinic, in addition to a laboratory. The center was chosen conveniently to conduct the study.

Calculation of the sample size was based on the prevalence rate of PPD in a study done in Mansoura city, Egypt¹⁹, and on the following assumptions using EZR Stata program [R version 3.3.1 (2016-06-21)]: Alpha error = 0.05 (two sided), $p = 0.17$ for PPD, where p is the proportion of PPD among Egyptian women, confidence interval width = 0.1, and confidence level = 95 %. Accordingly, the sample size was estimated to be at least 217 postpartum women. *Sampling method:* systematic random sampling.

Any woman in the postpartum period (two weeks up to 12 months after labor) who is seeking to receive any of the PHC center services e.g. vaccination, family planning, outpatient clinic, and accepted to participate in the study.

Pregnant women, presence of any chronic disease either mental or physical, presence of any psychiatric disorder at

the time of the study, and women taking contraceptive pills.

Table (1): Frequency and interpretation of the range of EPDS score in the studied sample

EPDS Score (0-30)	Total =225	
	No.	%
0 - 7*	38	16.89
8 -12**	102	45.33
13 -14***	77	34.22
≥ 15****	8	3.56
Mean ±SD	11.64 ± 4.91	
(Min-Max)	(4-21)	

* Low probability of depression, ** Most likely just dealing with a new baby or the baby blues. *** Signs leading to possibility of PPD take the preventative measures. ****High probability of experiencing clinical depression.

Visits to AL Mostakbal Primary health care center occurred three days per week for about four months (from June to October, 2015). The investigator interviewed every postpartum woman shortly in order to know if she meets the criteria for the study, and a verbal consent was taken from them. They were subjected to two forms of questionnaires.

Data collection tools:

(a) Edinburgh Postnatal Depression Scale (EPDS): It is a 10-item, self-rated instrument used as a screening tool for postpartum depression in primary care practices with a sensitivity of 100% and a specificity of 95.5%.²⁰ A validated and reliable Arabic version of the EPDS²¹ was used in this study to determine the prevalence rate of depression in postpartum women. The mother has to choose the response according to how she has been feeling in the previous 7 days. The 10 items are as follows: (1) I have been able to laugh and see the funny side of things, (2) I have looked forward with enjoyment to things, (3*) I have blamed myself unnecessarily when things went wrong, (4) I have been anxious or worried for no good reason, (5*) I have felt scared or panicky for no very good reason, (6*) Things have been getting on top of me, (7*) I have been so unhappy that I have had difficulty sleeping, (8*) I have felt sad or

miserable, (9*) I have been so unhappy that I have been crying, and (10*) The thought of harming myself has occurred to me.

Response categories are scored 0, 1, 2, and 3 according to increased severity of the symptom. Items marked with an asterisk (*) are reverse scored (i.e. 3, 2, 1, and 0). The total score is calculated by adding together the scores for each of the 10 items, with maximum score 30. Women with scores above 12 were considered to have depression according to Cox et al.²² Scoring the Scale is (0 – 7) points= Low probability of depression, (8 – 12) points= most likely just dealing with a new baby or the baby blues, (13 – 14) points= signs leading to possibility of PPD; take preventative measures, and (15 +) points= High probability of experiencing clinical depression.²²

(b) An interview questionnaire was designed to collect data about: socio-demographic variables (age, work, residence...etc.), reproductive history including information concerning the last pregnancy (parity, labour type, ...etc.), past and family history of depression, and identifying stressful life events.

A pilot study was done to test the tools. Twenty postpartum women were interviewed and accordingly necessary modifications were done to the questionnaire. Data obtained from the pilot study were not added to the results of the study.

Data management and analysis: Data were coded and introduced to predesigned SPSS (statistical package of social science) version 18 file. Data were checked for data entry error and then analyzed. Qualitative data were expressed as frequencies and quantitative variables were expressed as mean and standard deviation (SD). Association between PPD and risk factors was tested by chi-square test and regression. The level of statistical significance was set as $P < 0.05$.

Ethical Considerations

A verbal consent was taken from all participants after describing the objectives of the research; Confidentiality

Table (2): Univariate analysis of demographic risk factors for postpartum depression among studied sample (total=225)

	Groups				OR (95% C.I.)	Chi-square test	
	Positive screened women (n=85)		Negative screened women (n=140)			x ²	p-value
	No.	%	No.	%			
Age (years)							
<20 years	5	83.33	1	16.67	8.42 (0.95, 74.81)	5.485	0.064
20-30 years	42	35.90	75	64.10	0.94 (0.54, 1.64)		
>30 years	38	37.25	64	62.75	1 (ref.)		
Education level							
Illiterate	7	77.78	2	22.22	6.893 (1.36, 35.06)	14.329	0.014 *
Read and write	9	64.29	5	35.71	3.545 (1.1, 11.43)		
Primary education	8	30.77	18	69.23	0.875 (0.34, 2.22)		
Secondary education	28	35.90	50	64.10	1.103 (0.59, 2.06)		
High education	33	33.67	65	66.33	1 (ref.)		
Employment							
Housewife	35	47.95	38	52.05	2.115 (1.11, 4.03)	5.820	0.213
Private	23	36.51	40	63.49	1.320 (0.67, 2.62)		
Governmental	27	30.34	62	69.66	1 (ref.)		
Marital status							
Currently married	65	32.50	135	67.50	0.120 (0.04-0.34)	5.151	0.002*
Separate /widow	20	80.00	5	20.00	1 (ref.)		
Family type (Living)							
Nuclear family	64	44.14	81	55.86	2.219 (1.22-4.03)	6.278	0.012*
With extended family	21	26.25	59	73.75	1 (ref.)		

*Statistically significant

and privacy of data were ensured. Approval of the Research Ethical Committee in the Faculty of Medicine, Ain Shams University was obtained. Written approval was taken from the center administration and was signed by the doctor director of the primary healthcare center.

Results

A total of 225 postpartum women were selected for the study. Their mean age was 30.9 years with a standard deviation of 6.09 and ranging from 18 to 44 years. Table (1) shows that the prevalence of depressive symptoms among the studied postpartum women was 37.78% (as 34.22% and 3.56% of women had scores above 12), according to EPDS, with a minimum score of four and a maximum of 21. The mean score was 11.64 and the standard deviation was 4.91.

Table (2) shows that the studied postpartum women who are illiterate or can just read and write, those who are separated from their husbands or widowed, and those who live in a nuclear family, have significantly high risk for postpartum depressive symptoms than those who are not. Age and employment of women didn't show significant association with postpartum depression. In table (3), postpartum women who lack husband support, and those who have past or family history of depression have significantly high risk for postnatal depression than those who are not. Smoking showed no association with postpartum depression symptoms. As regard obstetric risk factors shown in table (4), multiparity, delivery of multiple newborns (twin), unintended pregnancy, presence of diseases during or after pregnancy, mother being annoyed from weight gain, having delivered by caesarian section, and

admission of the newborn to ICU or hospital, are all factors that showed significant association with postpartum

depression in the studied sample. Among those in the first six

Table (3): Univariate analysis of social risk factors for postpartum depression among studied sample (total=225)

	Groups				OR (95% C.I.)	Chi-square test	
	Positive screened women (n=85)		Negative screened women (n=140)			x ²	p-value
	No.	%	No.	%			
Smoking during or after pregnancy	2	40.00	3	60.00	1.100 (0.18-6.72)	2.403	0.121
Lack of husband support	45	48.39	48	51.61	0.469 (0.27-0.81)	7.362	0.007*
History of depression	9	69.23	4	30.77	5.026 (1.20-13.51)	5.807	0.016*
Family history of depression	10	62.50	6	37.5	2.978 (1.04-8.52)	4.479	0.043*

*Statistically significant

Table (4): Univariate analysis of obstetric risk factors for postpartum depression among studied sample (total=225)

	Positive screened women (n=85)		Negative screened women (n=140)		OR (95% C.I.)	Chi-square test	
	No.	%	No.	%		x ²	p-value
	Parity						
Primipara	14	29.79	33	70.21	0.64 (0.32-1.27)	4.481	0.023*
Multipara	71	39.89	107	60.11	1 (ref.)		
Delivery of multiple newborns (twin)	10	66.67	5	33.33	3.60 (1.19-10.92)	4.667	0.032*
Unintended pregnancy	50	33.78	98	66.22	0.612 (0.35-1.08)	4.935	0.047 *
Diseases during or after pregnancy	30	58.82	21	41.18	3.09 (1.62-5.88)	12.427	0.001*
History of pregnancy loss	30	46.15	35	53.85	1.64 (0.91-2.94)	3.314	0.069
Annoyed from weight gain	70	43.75	90	56.25	2.59 (1.35-4.99)	7.541	0.006*
Mode of delivery							
Normal delivery	45	31.69	97	68.31	0.49 (0.29-0.87)	6.069	0.014 *
Caesarian section	40	48.19	43	51.81	1 (ref.)		
Preterm labour	6	66.67	3	33.33	3.468 (0.84-14.25)	2.177	0.140
Newborn incubation, hospitalization	29	48.33	31	51.67	1.82 (0.99-3.32)	3.878	0.049*
Postpartum interval							
1st six months	75	78.95	20	21.05	45 (19.9-101.3)	115.547	<0.001*
2nd six months	10	7.69	120	92.31	1 (ref.)		

*Statistically significant

months after delivery, 78.95% were found positive for PPD, compared to 7.69% in the second six months, and the difference was found to be significant (p=0.001). Whereas history of pregnancy

loss and having a preterm labour did not show significant association with the condition.

Nine out of 13 stressful life events were found significant risk factors for

occurrence of PPD. These are: severe illness of a close one, major change in finances, increase arguments with

spouse, work problems, change in work responsibilities, change in work hours,

Table (5): Multivariate logistic regression analysis of risk factors for postpartum depression among studied sample (total=225)

	Odds ratio	OR		Sig.
		Lower	Upper	
Major change in finances	8.039	4.342	14.882	<0.001*
History of depression	5.026	1.04	8.52	0.016*
Delivery of multiple newborns (twin)	3.600	1.186	10.924	0.024*
Family history depression	2.978	1.199	13.51	0.043*
Annoyed from weight gain after labour	2.593	1.345	4.996	0.004*
Living in a nuclear family	2.220	1.223	4.029	0.009*
NICU admission or hospitalization	1.821	0.999	3.319	0.050*
Multiparity	0.639	0.32	1.28	0.206
Lack of husband support	0.469	0.27	0.81	0.007*
Unintended pregnancy	0.161	0.349	1.075	0.088

*Statistically significant

change in residence, change in religious activities, and change in social activities (data not shown in tables).

The multivariate logistic regression analysis in table (5) revealed eight risk factors for postpartum depression, which are: major change in finances, past history of depression, delivery of multiple newborns (twin), family history of depression, mother being annoyed from weight gain, living in a nuclear family, admission of the newborn to ICU or hospital, and lack of husband support.

Discussion

By using the (EPDS) in the current study, the prevalence of postpartum depressive symptoms was 37.78%. The scale was originally designed to screen rather than to diagnose postnatal depression. This rate highlights the importance of postnatal depression as a public health problem in the community of El Obour city, Qalyoubia Governorate.

The prevalence rate in this study is higher than a previous study in Egypt conducted on 120 postpartum women in Mansoura city, Dakahlia Governorate, (17.9%). In that study, women were diagnosed using the Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision (DSM IV-TR) for major depression with postpartum onset. The diagnosis was

further confirmed by the (EPDS), using the 13 cut-off score in detecting depression, ie, EPDS \geq 13 indicates depressive disorder¹⁹ and this might be the cause of the difference in rates if compared with the current study. However, a higher rate (49.5%) than the current study was reported in a village in El- Minia in 2014 on 200 postpartum women.²³ The study was a community based one and included women up to 14 months postpartum, while the present study is a health-facility one and included women only up to 12 months after delivery.

Previous studies have reported prevalence rates for post-partum depression that affects 10 to 22% of postpartum women in developed countries^{5, 6} and reaches up to 40% among mothers of preterm infants.⁷ In Turkey, it was estimated to be 15.4%.⁸ Arab women show rates, such as 37% in Bahrain⁹, 22% in the United Arab Emirates¹⁰ and 21% in Lebanon.¹¹ Comparisons with other studies are compromised by the variations in the timing of follow-up and using different EPDS thresholds.

Variation in the prevalence rate of PPD among different countries is mostly based on two observations. First, the countries cultural and varied socio-economic factors, and second is the

variability of cut-off scores of EPDS used in different settings.¹³ In addition, the sample size and sampling methods share in the variation of prevalence rates.²⁴

In the current study the relation between presence of depressive symptoms and age groups was statistically insignificant. This finding was consistent with a cross sectional study on 379 women in Egypt by Saleh et al. who found that no association between age and PPD.¹⁹ On the other hand, a study by Wolf et al. on 1256 women in two Latin American countries considered young age as a risk factor for puerperal depression.²⁵

In this study, there was a statistically significant relation between presence of depressive symptoms and various socioeconomic characteristics like level of education. It was found that (77.8%) of those who are illiterate and (64.3%) of those who can just read and write, were positive for PPD, compared with lower percentages of groups with higher educational levels. This result is consistent with that of Grussu et al.²⁶, and Goyal et al. who found that women with low income, low level of education, unmarried, and unemployed were much more likely than women with no socioeconomic risk factors to have higher depression scores in early postpartum period.²⁷

The present study revealed no significant relation between presence of depressive symptoms and unemployment. Most women in the Egyptian society are supported financially by their husbands or families, so unemployment would not represent a stress on the mother. In contrast, a cross-sectional study was conducted in five large primary healthcare centers in Dammam and found a significant relation between unemployment and PPD.¹⁴

Regarding marital status, statistically significant relation was shown between divorce or marital separation and presence of depressive symptoms as

(80%) of separated or widowed women screened positive for PPD versus (32.5%) of those married at the time of the study. A meta-analysis by the National Mental Health Association (2005) concluded that divorce and having troubles with a spouse is one of the strongest risk factors for postpartum depression.²⁸

The current study shows no association between smoking and presence of depressive symptoms. Smoking in our society is mainly associated with male gender and it is a shame for women to smoke. On the contrary, McCoy and Jane found that cigarette smoking was a significant risk factor for PPD.²⁹ Also, the MGH Center For Women's Mental Health reported an association between PPD and smoking.³⁰ The difference in finding between the current study and the two previous studies may be due to the small number of smoker women (five) in the current study.

Regarding husband support, the current study showed a statistically significant relation between lack of husband support and presence of depressive. This result is consistent with Alasoom and Koura who revealed that a supportive husband had a significant role in protection against PPD.¹⁴

In the current study 78.95% of women in their first six months after delivery were positive screened for PPD while only 7.69% of those in their second six months postpartum were positive for PPD and the difference was statistically significant. This finding agrees with a previous study in Egypt by Saleh et al. who found that 98% of depressed postpartum women were in the first six months after delivery.¹⁹ A cross-sectional study on a sample of 150 postpartum women in the Perth metropolitan region of Western Australia found that the younger the mothers' babies the higher the level of PPD.² The high prevalence rate at that time may be explained that women are very loaded with infant cues,

change in sleep pattern, housekeeping and work. In the second six months, infants become less dependent and have regular sleep.

Regarding parity, a statistically significant relation between multiparity and presence of depressive symptoms was present. This finding is confirmed with Shoeb and Hassan in Saudi Arabia³¹ and Esquivel et al. in Mexico³², who revealed that having more children associated with higher EPDS scores. Another study has found that primipara are riskier for postpartum depression.³³ This could be explained as newly married women are likely to spend the first few years of their marriage with the extended family, where there is considerable support. The couples are likely to leave apart from the extended family after a few years of marriage when they have more children and are becoming more independent financially, thus the mother becomes less supported during pregnancy and after delivery.

A statistically significant relation was found between presence of diseases during or after pregnancy and occurrence of depressive symptoms. This result is consistent with a study in Norway, which reported that diseases during and after pregnancy is significantly associated with postpartum depressive symptoms.³⁴

A statistically significant relation between presence of depressive symptoms and being annoyed from weight gain during or after pregnancy was found in the present study. This result is consistent with that of a study providing a significant relationship between high BMI and symptoms of depression in the postpartum period.³⁵

The current study revealed a statistically significant relation between presence of depressive symptoms and mode of delivery, as (48.2%) of women delivered by caesarian section screened positive for PPD versus (31.7%) of those delivered normally. This result is consistent with Yang et al. who conducted a case control

study in Taiwan on 2107 postpartum women and revealed that the risk of acquiring PPD was lower in mothers with a normal vaginal delivery compared to mothers with caesarean section.³⁶ On the other hand, Goker et al. revealed no association between PPD and delivery type.³⁷

Regarding multiple births, the current study showed a statistically significant relation between delivering multiple births (twins) and presence of depressive symptoms. This finding is confirmed by Glazebrook et al. who revealed that multiple births associated with increased risk of postpartum depression.³⁸ This may be due to the high levels of child caring stress, fatigue and other risk factors that have been reported by mothers of multiple births.

The current study revealed a statistically significant relation between stressful life events (e.g severe illness of a close one, major change in finances and increase arguments with spouse) and presence of depressive symptoms. The psychosocial life stress is a powerful predictor for PPD.^{13, 39} This result is confirmed by Alasoom and Koura who revealed that the most common risk factor for PPD were stressful life events.¹⁴

Conclusion

The magnitude of postpartum depression is considerable among the population of women in reproductive age living in El Obour City, Qalyoubia Governorate. Several demographic, social, obstetric, and medical risk factors are associated with the condition.

Recommendations:

Findings from the current study recommends adoption of a postpartum depression prevention and control program by family physicians and nurses. Primary prevention strategies, as health education, should be considered in order to decrease the incidence of PPD through reducing risk factors. Secondary prevention is important by early

identification of PPD mothers especially in the first six months, through using EPDS as a screening tool in primary health care and family centres. This would allow early treatment and protection from subsequent effects on mothers, their babies, and their whole families.

Limitations: This study is a single center, and health facility based not a community based one. Data could be generalized on similar populations as El Obour City, but not on the whole country.

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