

Proportion of Postpartum Depression Among Pregnant Women Attending October 6th University Hospital

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ABSTRACT

Background: Post-partum depression (PPD) is a disabling mood disorder that can emerge anytime during the first post-natal year and is now documented as a major global public-health problem because it jeopardizes the well-being of mothers, infants, and entire families **Aim:** Quantify the prevalence of post-partum depression during the first post-natal week psychosocial stressors independently associated with depressive symptom severity, and explore the relation between maternal Edinburgh postnatal depression scale (EPDS) scores and selected maternal–neonatal results. **patients and methods:** A cross-sectional analytical observational study aimed at evaluating the proportion of PPD and related risk factors among pregnant women attending the obstetrics and gynecology outpatient clinic at October 6th University Hospital., located in Giza, Egypt. Data were collected over a 6-month period, from May 2025 to October 2025. **Results:** Mean age was 27.91±4.56 years; 77.3% showed no depression (EPDS mean 6.97±3.95), 16.7% mild, and 6.0% moderate-severe. Significant associations included lower education (p=0.023), smoking (p=0.017), domestic violence (p=0.005) and preterm birth (p<0.001). No significant links with parity, breastfeeding, or contraception. **Conclusion:** Several risk factors were significantly associated with higher depression scores, depression severity was also linked to adverse neonatal outcomes, particularly preterm birth. These findings underline the importance of early identification of PPD and giving medical support for at-risk mothers during the perinatal period.

Keywords: Postpartum depression, EPDS, risk factors, gestational age, neonatal outcomes

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INTRODUCTION

Post-partum depression (PPD) is a disabling mood disorder that can emerge anytime during the first post-natal year and is now documented as a major global public-health problem because it jeopardizes the well-being of mothers, infants, and entire families (1). Pooled mapping studies estimate that roughly 17 % of women experience clinically significant depressive symptoms after delivery, although point prevalence range from about 5 % to nearly 33 % as a function of region, screening threshold, and health-system capacity (2,3).

PPD arises from an intricate interplay of biological, psychological, and social determinants. Large-scale neurochemical and genetic investigations implicate serotonergic, oxytocinergic, and stress-response pathways—particularly in women hypersensitive to the abrupt withdrawal of estrogen and progesterone after birth (4).

Unchecked PPD carries profound and enduring consequences. Depressed mothers display diminished emotional availability, attenuated responsiveness, and disrupted bonding behaviors that jeopardize secure infant attachment and optimal neurodevelopment (5).

Children exposed to persistent maternal depression show higher rates of behavioral deregulation, cognitive delay, and later-life emotional disorders, effects that may persist into adolescence (6).

For mothers themselves, PPD predicts chronic mood disturbance, impaired occupational functioning, marital discord, and—at its most severe—suicidal ideation or infanticide (7).

Early detection and evidence-based intervention are therefore both clinical imperatives and economic necessities.

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Our research aimed to quantify the occurrence of postpartum depression during the first post-natal week among women attending the Obstetrics and Gynecology Outpatient Clinic at October 6th University Hospital in Giza, identify the sociodemographic characteristics, obstetric factors, and psychosocial stressors independently associated with depressive symptom severity, and explore within this early time frame, the relationships between maternal EPDS scores and selected maternal–neonatal outcomes, thereby generating evidence to inform routine screening, risk stratification, and context-appropriate interventions in Egyptian maternity care.

PATIENTS AND METHODS

a cross-sectional analytical observational research aimed at evaluating the proportion of PPD and related risk factors among pregnant women attending the obstetrics and gynecology outpatient clinic at October 6th University Hospital., located in Giza, Egypt. Data were collected over a 6-month period, from May 2025 to October 2025.

Inclusion Criteria: Women who had delivered at ≥ 24 weeks of gestation, irrespective of the mode of delivery (vaginal or cesarean) or fetal outcome

Exclusion Criteria: Women with a documented history of psychiatric illness, including mood or psychotic disorders, and women who were using antidepressant medications at the time of the study.

Sample size

A total of 150 postpartum women have been recruited for this study. This sample size was estimated based on clinic flow and feasibility over the 6-month data collection period. Participants have been selected utilizing a consecutive non-probability sampling technique, where all eligible women presenting to the clinic during designated data collection days (four days per week) were invited to participate until the required sample size has been achieved.

METHODS

Data Collection Tools

Data were collected using two validated tools: Modified Obstetric Questionnaire: To collect essential demographic, clinical, obstetric, medical, and psychosocial information from study participants. This form was adapted from the publicly available Obstetric History Form developed by HHM Health 2024 (Healing Hands Ministries Women’s Health Center), which has been widely used in outpatient obstetric settings in the United States and is suitable for adaptation in diverse populations. The questionnaire encompassed the following domains: Sociodemographic information, obstetric History, medical and surgical history, lifestyle and psychosocial data (8). Edinburgh Postnatal Depression Scale (EPDS): the EPDS is a globally recognized screening instrument designed specifically to recognize women at risk of postpartum depression in both clinical and community settings (9). The scale comprises 10 self-reported items, each reflecting

a symptom commonly associated with depressive states (e.g., anhedonia “inability to feel pleasure”, self-blame, anxiety, sleep disturbance, sadness, and suicidal ideation). Each item is scored on a 4-point scale (0–3) based on the severity or frequency of symptoms over the past seven days. The total score ranges from 0 to 30, with greater scores indicating more severe depressive symptoms. For the purpose of this study, the following cutoff scores were applied: ≥ 14 : Indicative of moderate to severe postpartum depression, warranting clinical follow-up, 7–13: Reflective of mild depression, requiring monitoring and possible intervention, and < 6 : Considered non-depressive, suggesting no immediate mental health concerns. The Arabic version of the Edinburgh Postnatal Depression Scale has demonstrated robust psychometric properties, involving high sensitivity and specificity, and has been widely used across Arab populations with strong cultural validity (10).

Data Management and Confidentiality

All participants were assigned serial identification numbers to ensure confidentiality. Personal identifiers were not recorded on study documents. Collected data have been stored securely in password-protected files and were accessible only to the research team. No therapeutic or diagnostic intervention was introduced during the study. The research involved human subjects but did not include any biological samples or identifiable health information beyond what was consented to by participants.

Outcome Measures: Primary Outcome Measure: The proportion of PPD (mild, moderate, and severe) among postpartum women attending the outpatient clinic, as measured by the Arabic EPDS. **Secondary Outcome Measures:** The association between depression severity and obstetric variables such as parity, mode of delivery, and presence of complications. The impact of social and familial support on the degree of postpartum depression. The comparison between depression levels and maternal–neonatal outcomes.

Ethical Considerations

The research has been conducted in full line with the ethical standards outlined by the Faculty of Medicine, October 6th University, and received approval from the institutional scientific and ethical committee in April 2025 “Code number: O6U-ERC-0067”. Written informed consent has been attained from all participants following explaining the objectives, procedures, potential benefits, and the voluntary nature of participation. Confidentiality was strictly maintained by assigning serial numbers to participants, and no personally identifiable information was disclosed. Participants were assured that their responses would be used solely for research purposes and that there were no anticipated risks associated with participation in the study.

Statistical Analysis

The data have been entered into the computer, and the International Business Machines Corporation and statistical package for the social sciences (IBM SPSS)

software program version 20.0 was used to perform the analysis. (IBM Corporation, Armonk, New York) In the description of qualitative information, both numbers and percentages were used. In order to determine whether or not the distribution was normal, the Kolmogorov-Smirnov test had been utilized. The range (minimum & maximum), mean, median, standard deviation, & interquartile range (IQR) were the statistical measures that have been utilized to characterize the quantitative information. An evaluation of the significance of the results obtained has been carried

out at a level of five percent. For the purpose of analyzing the associations between postpartum depression scores & categorical variables, the Chi-square test was utilized. On the other hand, independent t-tests or analysis of variance were utilized for continuous variables, depending on the circumstances. The statistical significance of the results has been determined by a p-value that was lower than 0.05.

RESULTS

Table 1: Distribution of the examined cases according to demographic data (num. =150)

Demographic data	No.	%
Age (years)		
<20	7	4.7
20 – <25	27	18.0
25 – <30	63	42.0
≥30	53	35.3
Min. – Max.	18.0 – 39.0	
Mean ± SD.	27.91 ± 4.56	
Median (IQR)	28.0 (25.0 – 31.0)	
Education Level		
No formal education	11	7.3
Primary	31	20.7
Secondary	55	36.7
Tertiary	53	35.3
Occupation		
Student	7	4.7
Unemployed	69	46
Office-based employees	50	33.3
Employed-physically active work	24	16.0

IQR: Inter quartile range SD: Standard deviation

Table (1) shows that the age with a mean age of 27.91 ± 4.56 years. In terms of education, most had secondary education. Regarding occupation, nearly half.

Table 2: Distribution of the examined cases according to EPDS (num. =150)

EPDS	No.	%
EPDS Category		
No Depression	116	77.3
Mild	25	16.7
Moderate-Severe	9	6.0
Min. – Max.	0.0 – 18.0	
Mean ± SD.	6.97 ± 3.95	
Median (IQR)	7.0 (4.0 – 9.0)	

Table (2) shows that the EPDS of individuals showed no signs of depression (77.3%) . EPDS scores ranged from (0.0–18.0), with a mean of (6.97 ± 3.95) and a median (IQR) 7.0 (4.0–9.0).

Table 2: Relation between EPDS Category and demographic data (n=150)

Demographic data	EPDS Category						χ ²	FE _p
	No Depression (n=116)		Mild (n=25)		Moderate-Severe (n=9)			
	No.	%	No.	%	No.	%		
Education Level								
No formal education	4	3.4	3	12.0	2	22.2	13.641*	0.023*
Primary	28	24.1	2	8.0	1	11.1		
Secondary	43	37.1	11	44.0	3	33.3		
Tertiary	41	35.3	9	36.0	3	33.3		

Occupation								
Student	6	5.2	1	4.0	0	0.0	2.410	0.890
Unemployed	54	46.6	11	44.0	4	44.4		
Office based employees	39	33.6	8	32.0	3	33.3		
Employed-physically active work	17	14.7	5	20.0	2	22.2		

FET: Fisher Exact test χ^2 : Chi square test

p: p value for comparing between Associated EPDS Categories

*: Statistically significant at $p \leq 0.05$

Table (3) shows that participants with no depressive education, showing a statistically significant association (p symptoms were more likely to have tertiary or secondary = 0.023*).

Table 4: Relation between EPDS Category and Obstetric history (n=150)

Obstetric history	EPDS Category			H	p
	No Depression (num.=116)	Mild (num.=25)	Moderate-Severe (num.=9)		
Gravidity					
Median (Min – Max.)	2.0 (1.0 – 5.0)	2.0 (1.0 – 6.0)	3.0 (1.0 – 4.0)	0.738	0.691
IQR	1.0 – 3.0	1.0 – 3.0	1.0 – 3.0		
Parity					
Median (Min – Max.)	2.0 (1.0 – 4.0)	2.0 (1.0 – 5.0)	2.0 (1.0 – 3.0)	0.645	0.724
IQR	1.0 – 2.0	1.0 – 2.0	1.0 – 2.0		

H: H for Kruskal Wallis test

Table (4) shows that obstetric history, gravidity was depression (median = 3.0) compared to the other groups highest among participants with moderate-severe (median = 2.0), though the variance

Table 3: Relation between EPDS Category and Neonatal sex (n=150)

Neonatal sex	EPDS Category						χ^2	p
	No Depression (n=116)		Mild (n=25)		Moderate-Severe (n=9)			
	No.	%	No.	%	No.	%		
Male	59	50.9	14	56.0	4	44.4	7.015*	0.030*
Female	57	49.1	11	44.0	5	55.6		

Table (5) shows that insignificantly related with neonatal sex (p below 0.030*)

Table 6: Relation between EPDS Category and Preterm Labor (n=150)

Preterm Labour	EPDS Category						χ^2	FE p
	No Depression (n=116)		Mild (n=25)		Moderate-Severe (n=9)			
	No.	%	No.	%	No.	%		
No	103	88.8	16	64.0	2	22.2	17.763*	<0.001*
Yes	13	11.2	9	36.0	7	77.8		

FET: Fisher Exact test

p: p value for comparing between Associated EPDS

Category and Adverse Maternal

Table (6) shows that the preterm labor was significantly related with depression severity (p below 0.001*)

Table 7: Relation between EPDS Category and Risk Factors (n=150)

Risk Factors	EPDS Category						χ ²	FE p
	No Depression (n=116)		Mild (n=25)		Moderate-Severe (n=9)			
	No.	%	No.	%	No.	%		
Smoking	10	8.6	2	8.0	5	55.6	7.140*	0.017*
Alcohol Use	3	2.6	1	4.0	0	0.0	0.857	0.662
Drug Use	2	1.7	2	8.0	0	0.0	3.394	0.144
Caffeine Intake	94	81.0	22	88.0	7	77.8	4.595	0.085

Table (7) shows that the risk factors, smoking was significantly more prevalent in individuals with moderate-severe depression (55.6%) compared to the mild (8.0%) and no depression (8.6%) groups (p = 0.017*).

Table 8: Relation between EPDS Category and different parameters (n=150)

	EPDS Category						c ²	p
	No Depression (n=116)		Mild (n=25)		Moderate-Severe (n=9)			
	No.	%	No.	%	No.	%		
Breastfeeding Plans	96	82.8	21	84.0	7	77.8	0.248	FE p= 0.934
Contraception Plans	80	69.0	17	68.0	6	66.7	0.297	0.862
Domestic Violence	1	0.9	1	4.0	3	33.3	10.687*	FE p= 0.005*
Forced Sexual Activity	5	4.3	0	0.0	0	0.0	0.526	FE p= 1.000

Table (8) shows that the breastfeeding and contraception plans were consistently high across all groups with no significant differences (p = 0.934 for breastfeeding, p=0.862 for contraception).

DISCUSSION

In the current study, it was found that age (years) 25–<30 age group (42.0%), followed by those ≥30 years (35.3%), with a mean age of 27.91 ± 4.56 years. In terms of education, most had secondary education (36.7%), followed by tertiary education (35.3%), while 7.3% had no formal education. Regarding occupation, nearly half of the studied women were employed (49.3%). For further clarification, employed participants were subdivided into office-based employees (33.3%) and physically active employees (16.0%), while unemployed constituted 46.0% of the study population and students represented 4.7%.

In the current study, it was found that EPDS of individuals showed no signs of depression (77.3%), while (16.7%) experienced mild symptoms, and (6.0%) had moderate to severe depression. EPDS scores ranged from (0.0–18.0), with a mean of (6.97 ± 3.95) and a median (IQR) 7.0 (4.0–9.0).

Elashiry and his colleagues in their study, Proportion and Predictors of Postpartum Depression among Women Attending Fayoum University Hospitals, indicated that the prevalence of PPD exceeded that reported in the Sohag investigation, which documented an overall incidence of PPD at 7.32%.(11) and this consistent with the current study.

Conversely, the prevalence varied in various regions of Egypt, with study in Gharbia Governorate and El-Minia indicating a higher frequency of twenty percent. The prevalence in the Mansoura study was also 17.9%. The Assiut study exhibited the greatest frequency, recorded at 51.7% (12).

Furthermore, Ahmed and his colleagues in their study, Prevalence and predictors of postpartum depression in Upper Egypt, disclosed that the mean score of the EPDS among the examined sample was 10.3 ± 5.8. The investigation identified 171 females without postpartum depression and 86 females with probable PPD. (13)

In the current study, it was found that participants with no depressive symptoms were more likely to have tertiary or secondary education (36.0%), whereas those with moderate to severe depression had the highest proportion with no formal education (28.6%), showing a statistically significant association (p -value equal 0.023*).

With regard to Elrassas & Alharbi in their study, they stated that education isn't a factor in the progress of postpartum depression (14,15). The results of Elashiry and his colleagues in their study illustrated that maternal education is a risk factor for postpartum depression, with depression being lower at elevated educational levels (2ry or universal education) (11)

Additionally, Mohammed and his colleagues in their study, Predictors of postpartum depression among rural women in Minia, Egypt, observed that postpartum depression frequency is highly influenced by education level (16)

Many other investigations described statistically significant association between mother's education & PPD like Alem's study in Egypt, Dorheim's study in Nepal (17) and this consistent with the current study.

In terms of occupation, we found that employment was most common across all groups (up to 50.0%), but unemployment was more prevalent among those with moderate to severe depression (42.9%), although this

variance was statistically insignificant (p-value equal 0.890).

The findings of the Elashiry study also suggest that unemployed have a diminished risk of postpartum depression compared to employed females. (11)

With regard to obstetric history, it was found that gravidity was highest among participants with moderate-severe depression (median = 3.0) compared to the other groups (median = 2.0), though the variance wasn't statistically significant (p = 0.691). Parity was similar across all groups (median= 2.0), with no significant differences observed (p = 0.724).

The data corresponded well with those of Salem and his colleagues' study, Factors affecting the occurrence of postpartum depression among puerperal women in Sohag city in Egypt (17)

Regarding neonatal sex distribution, male infants were more prevalent among mothers with mild depression (72.7%), while female infants were more common in the moderate-severe depression group (71.4%). the variance was statistically significant (p = 0.030*).

Elashiry's study indicates that female who delivered female infants exhibited a higher propensity for postpartum depression (11)

Al Dallal's study in Bahrain, Pocan's study in Turkey & Sylvén's study in Sweden found no correlation between male gender & the possibility of postpartum depression (18).

In the current study, it was found that preterm labour was significantly related to depression severity (p<0.001*), with the highest prevalence among individuals with moderate-severe depression (77.8%), followed by those with mild depression (36.0%), while the lowest prevalence was observed among participants without depression (11.2%).

Elashiry's study also demonstrated that the preterm birth is a risk factor for depression, with the likelihood of experiencing depression being greater in females post-delivery. (11)

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In the current study, it was found that smoking was significantly more prevalent in individuals with moderate-severe depression (35.7%) compared to the mild (9.1%) and no depression (8.8%) groups (p = 0.017*). Caffeine intake was highest in the mild depression group (95.5%), followed closely by the moderate-severe group (92.9%), yet the variance wasn't statistically significant (p = 0.085). Alcohol and drug use were observed at low rates across all groups, with no significant differences detected (p = 0.662) for alcohol, p = 0.144 for drug use).

In the current study, it was found that breastfeeding and contraception plans were consistently high across all groups with no significant differences (p = 0.934 for breastfeeding, (p=0.862 for contraception).

The results of the current study indicate no correlation between PPD & the method of feeding (breastfeeding or formula feeding). These similarities the results presented by Kossakowska and his colleagues study (7)

Also, Ahmed and his colleagues study showed that about 67.3 percent of females based on breast feeding reported no PPD while 32.7% only had PPD. However, this was statistically insignificant (P > 0.05) (13)

CONCLUSION

Several risk factors were significantly associated with higher depression scores, including lower educational attainment, smoking, and experiences of domestic violence. Depression severity was also linked to adverse neonatal outcomes, particularly preterm birth. Although the overall rate of neonatal sex, contraception use and breastfeeding did not differ significantly between depression groups. These findings underline the importance of early identification of PPD and giving medical support for at-risk mothers during the perinatal period.

RECOMMENDATIONS

Healthcare systems should invest in mental health education and support services for pregnant and postpartum women, particularly those with known risk factors. Strengthening referral pathways and multidisciplinary collaboration between obstetricians and mental health professionals will be essential in improving maternal wellbeing.

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