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## Risk Factors for Postpartum Depression Among Egyptian Women

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### ABSTRACT

**Background:** Postpartum depression (PPD) is a severe health issue and is considered to have a negative effect on the wellbeing of mothers and on the physical and cognitive growth of children. Literatures on postpartum depression were confined in Egypt. The goals of this study are to establish the prevalence of postpartum depression as well as the underlying risk factors.

**Objective:** to assess the prevalence of postpartum depression and the risk factors that contributed to PPD.

**Subjects and methods:** From February 2019 to July 2019 a cross-sectional study was conducted involving 120 women whose youngest child(ren) was less than 1 year old from obstetric outpatient clinic in Al-Zahraa University Hospital, Cairo, Egypt. The PPD symptoms were measured using an Arabic version of the Edinburgh Postnatal Depression Scale (EPDS).

**Results:** Postpartum depression prevalence among 120 mothers (above the age of 18) was 27.5% in the first year after birth. Women who had suffered of domestic violence [OR: 6.4, 95% CI: 2.5, 15.3], previously diagnosed with postpartum depression [OR: 5.5, 95% CI: 1.6, 17.9], experienced stressful life events [OR: 3.6, 95% CI: 1.4, 8.1] and difficulty in interaction with others when struggling [OR: 4.1, 95% CI: 1.7, 9.1] had greater odds of reporting PPD.

**Conclusion:** Postpartum depression (PPD) is a widespread, postnatal mental illness. Many factors may cause PPD to occur. Early detection of such factors can help in predicting PPD development.

**Keywords:** *postpartum depression; Egyptian women; depression; domestic violence; postnatal depression.*

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### INTRODUCTION

Postpartum depression (PPD) in the first year of child birth is a common issue in maternal mental health<sup>1</sup> Beck described it as the thief that steals motherhood.<sup>2</sup>

PPD prevalence was 13-40%<sup>3</sup>, as shown in a 2017 report published in the British Journal of Psychiatry. Women from developing countries reported higher PPD levels as opposed to women from developed countries<sup>4</sup>.

There were few studies in Arab countries on the prevalence of PPD. The prevalence of PPD in Lebanon is 21%,<sup>5</sup> United Arab Emirates (UAE) 22%,<sup>6</sup> Tunisia 19.2%,<sup>7</sup> Jordan 22%,<sup>8</sup> and 37.1% in Bahrain.<sup>9</sup>

Postpartum depression leads to increased maternal mortality by adversely impacting the needs of physical wellbeing and more specifically by suicide<sup>10</sup>. As a result, the development of children and future lives are seriously impaired by a defect in mother child relationship,, a lack of breastfeeding and inadequate care<sup>11</sup>.

Domestic violence is a significant factor in the development of postpartum depression among women.<sup>12</sup> Violence has serious implications for the psychological, mental, physical, and reproductive health of women.<sup>13,14</sup>

Non-treatment or non-diagnosis of PPD may have a long term adverse effects<sup>15</sup>.

PPD is not well understood<sup>16</sup>, given its devastating impact in the low-income countries in particular. Consequently, an insight into and a strategy for implementing preventive approaches and early detection of the issue is essential.

### SUBJECTS AND METHODS

This is a cross-sectional research that was completed at AL Zahraa University Hospital, Cairo-Egypt from February 2019 to July 2019. This study included all women whose youngest child is under the age of 1 and are over 18 years old. 120 Postpartum women

were recruited from an obstetrical clinic at AL Zahraa Hospital and assessed at least twice by a psychiatrist and obstetrician: beginning at the first week after birth, then first, third, and twelfth month after delivery. Exclusion criteria were: (1) Associated neurological disease, eg, markedly affected cognitive function delirium or dementia;(2) Organic mental disorder, drug abuse and or mental retardation; (3) associated major medical problems; and (4) Severe Language or hearing difficulties. Consent was taken from all participants in this study and the importance of the study was explained and confidentiality of information was assured. This study and its protocol have been reviewed and approved by the Research Ethics Committee of faculty of medicine for girls. Cairo. Al-Azhar University (approval number 202005249, May 2020).

Methods : All women included in the study were subjected to the following:

- Sociodemographic characteristics, pregnancy and disease history (chronic diseases such as Hypertension, Diabetes Mellitus, Anemia and Cardiovascular Diseases) and Diseases during pregnancy ( Diabetes, preeclampsia and UTI) was taken.

- Family structure, Interpersonal skills and characteristics.

- Domestic violence, being the victim during the perinatal era if she mentioned any of the following encounters with a husband: being attacked or threatened with any weapon ; being kicked, or pushed ,or slapped, or beaten up; having something thrown at her; being physically paid to have sex and/or to perform any sexual relations when she has no desire.

- Edinburgh Postpartum Depression Scale (EPDS). The EPDS contains 10 items measured in a scale of 0-3. The Arabic version of the EPDS<sup>17</sup> was validated among Egyptian women and its psychometric accuracy is comparable to the original scale. Scores of 13 or more suggest significant depression.

Data analysis : Quantitative data were expressed as mean± standard deviation (SD). Qualitative data were expressed as frequency and percentage. All statistical analyses were performed using GraphPad

Prism software version 8 (GraphPad Software, Inc., La Jolla, CA, USA)

The following tests were done:

Chi-square ( $\chi^2$ ) test of significance was used in order to compare proportions between qualitative parameters.

The confidence interval was set to 95% and the margin of error accepted was set to 5%. So, the p-value was considered significant as the following:

Probability (P-value)

- P-value <0.05 was considered significant.

- P-value <0.001 was considered as highly significant.

- P-value >0.05 was considered insignificant.

## RESULTS

A total of 120 postpartum women answered all the questions in detail. This table indicates that the EPDS cut-off level was  $\geq 13$  and that postpartum depression prevalence was 27.5%.

Score of EPDS	N(120)	%
<13	87	72.5%
$\geq 13$	33	27.5%

**Table 1:** Scoring of EPDS

Socio-Demographic Characteristics

The respondents' mean age was 30 years, 6.7 SD. This table shows that there was a statistically significant difference between the depressive and non-depressive group as regard the work and education. The unemployed patients in the depressive group were 87.8% versus 68.9% in non-depressive group, and 48% were non-educated in the depressive group versus 16% in the non-depressive one.

Socio-demographic	Total (n=120)	%	Depression (n=33)	%	No Depression (n=87)	%	x <sup>2</sup>	p-value
<b>Residence</b>								
rural	77	64.17%	23	69.70%	54	62.07%	0.6054	0.4365
urban	43	35.83%	10	30.30%	33	37.93%		
<b>Work</b>								
employed	31	25.83%	4	12.12%	27	31.03%	4.467	0.0346*
unemployed	89	74.17%	29	87.88%	60	68.97%		
<b>Education</b>								
primary	1	0.83%	0	0.00%	1	1.15%	13.96	0.0158*
preparatory	12	10.00%	2	6.06%	10	11.49%		
secondary	3	2.50%	1	3.03%	2	2.30%		
faculty	34	28.33%	6	18.18%	28	32.18%		
technical	40	33.33%	8	24.24%	32	36.78%		
non educated	30	25.00%	16	48.48%	14	16.09%		
<b>Age</b>								
<24	27	22.50%	6	18.18%	21	24.14%	0.4867	0.4854
>24	93	77.50%	27	81.82%	66	75.86%		

x<sup>2</sup>: Chi-square test , p-value>0.05 NS; \*p-value <0.05 S

**Table2:** Socio-demographic characteristics among women in postpartum period

Pregnancy and disease related factors :This table indicates statistically significant differences between the two groups as regard the presence of chronic diseases ( 39% in depressive vs 16% in non-depressive) , diseases during pregnancy ( 54.5% in depressive vs 34.4% in non-depressive) , planned pregnancy ( 42.4% in depressive vs 67.8% in non-depressive) , parity ( 87.8% multiparous in depressive vs 68.9% in non-depressive) , previous psychiatric disorder ( positive in 21.2% in depressive vs 4.6% in non-depressive) and type of the newborn ( 60% female in depressive group vs 40.2 % in non-depressive group).

Pregnancy history	Total (n=120)	%	Depressive (n= 33)	%	Non Depressive (n=87)	%	x <sup>2</sup>	P-value
<b>Chronic Diseases</b>								
yes=1	27	22.50%	13	39.39%	14	16.09%	7.45	0.0063**
no=0	93	77.50%	20	60.61%	73	83.91%		
<b>Newborn Type</b>								
male=1	65	54.17%	13	39.39%	52	59.77%	4.001	0.0455*
female=2	55	45.83%	20	60.61%	35	40.23%		
<b>Diseases during pregnancy</b>								
yes=1	48	40.00%	18	54.55%	30	34.48%	4.013	0.0452*

no=0	72	60.00%	15	45.45%	57	65.52%		
<b>past history of abortion</b>								
yes=1	23	19.17%	10	30.30%	13	14.94%	3.644	0.0563
no=0	97	80.83%	23	69.70%	74	85.06%		
<b>Breast-Feeding</b>								
yes=1	103	85.83%	25	75.76%	78	89.66%	3.8	0.0512
no=0	17	14.17%	8	24.24%	9	10.34%		
<b>Planned Pregnancy</b>								
yes=1	73	60.83%	14	42.42%	59	67.82%	6.474	0.0109*
no=0	47	39.17%	19	57.58%	28	32.18%		
<b>Nullipara or Multipara</b>								
Nullipara=1	31	25.83%	4	12.12%	27	31.03%	4.467	0.0346*
Multipara=2	89	74.17%	29	87.88%	60	68.97%		
<b>Previous psychiatric disorder</b>								
yes=1	11	9.17%	7	21.21%	4	4.60%	7.932	0.0049**
no=0	109	90.83%	26	78.79%	83	95.40%		

**Table 3:** Pregnancy and psychiatric history among women in postpartum period

#### Family life, Interpersonal skills and Domestic violence

This table shows that 63% of patients in depressive group lived in extended family and 81% had arguments with the husband (unsatisfactory life). In addition, 87.8% of the women described their communication with others as limited than before and 57.5% had difficulty in interaction when struggling. Nearly 60.6% of the women in depressive group had stressful life events in the form of family member who died or had critical illnesses, injuries, and adverse conditions. Regarding Domestic violence 45.4% of the participants in depressive group were being a victim of domestic violence and all these data showed highly statistically significant difference when compared with the corresponding data in non- depressive group.

Family life, interpersonal skills and Domestic violence	Total (n=120)	%	Depression (n=33)	%	No depression (n=87)	%	x2	P-value
<b>Family Structure</b>								
Extended=1	56	46.67%	21	63.64%	35	40.23%	5.266	0.0217*
nuclear=2	64	53.33%	12	36.36%	52	59.77%		
<b>Satisfaction about family life</b>								
feeling happy=1	68	56.67%	6	18.18%	62	71.26%	27.45	<0.0001****
having arguments=2	52	43.33%	27	81.82%	25	28.74%		
<b>Communicate and interact with other</b>								
as before=1	59	49.17%	4	12.12%	55	63.22%	24.99	<0.0001****
limited than before=2	61	50.83%	29	87.88%	32	36.78%		
<b>Tell with others when struggling</b>								
yes=1	41	34.17%	19	57.58%	22	25.29%	11.09	0.0009***
no=0	79	65.83%	14	42.42%	65	74.71%		
<b>Having stressful life events</b>								

<b>yes=1</b>	46	38.33%	20	60.61%	26	29.89%	9.552	0.002**
<b>no=0</b>	74	61.67%	13	39.39%	61	70.11%		
<b>Domestic Violence</b>								
<b>yes=1</b>	25	20.83%	15	45.45%	10	11.49%	16.73	<0.0001****
<b>no=0</b>	95	79.17%	18	54.55%	77	88.51%		

**Table 4:** Family life, Interpersonal skills and Domestic violence among women in postpartum period

#### Factors associated with postpartum depression

The findings of the multivariate analysis showed in this table that domestic violence, prior history of mental health problems and extended type of family structure, stressful life events, interpersonal skill difficulties, chronic diseases and diseases during pregnancy have been positively correlated with postpartum depression symptoms.

Domestic violence has been shown to affect postnatal depression. Study participants suffering from domestic violence had six [OR: 6.4, 95 % CI: 2.5, 15.3] times the odds of experiencing postpartum depression as compared to those with no history of domestic violence. Similarly, participants who had traumatic life events had around three [OR: 3.6, 95% CI: 1.4, 8.1] times the risk of developing postpartum depression than their counterparts. Furthermore, the prior history of postpartum depression has also been shown to be associated to with the re-attack of postpartum depression. Respondents who had previously been diagnosed with depression had five [OR: 5.5, 95% CI: 1.6, 17.9] times more likely to report symptoms of depression than those who had no past history. Difficulty in interaction with others when struggling had four [OR: 4.1, 95% CI: 1.7, 9.1] times the risks of reporting postpartum depression in contrast to those who had no difficulties. Variables such as work, neonatal type, planned pregnancy, nullipara or multipara and family life satisfaction showed no correlation with postpartum depression symptoms.

Variables	Odd Ratio	95% C.I.	
		Lower	Upper
<b>Work</b>	0.3065	0.1081	0.8872
<b>Chronic Diseases</b>	3.389	1.429	8.031
<b>Newborn Type</b>	0.4375	0.1878	1.022
<b>Diseases during pregnancy</b>	2.28	1.037	5.121
<b>Planned Pregnancy</b>	0.3497	0.1509	0.7962
<b>Nullipara or Multipara</b>	0.3065	0.1081	0.8872
<b>Previous psychiatric disorder</b>	5.587	1.55	17.83
<b>Family Structure</b>	2.6	1.105	5.69
<b>Satisfaction about family life</b>	0.08961	0.03368	0.2412
<b>Communicate and interact with other</b>	0.08025	0.02885	0.2509
<b>Tell with others when struggling</b>	4.01	1.78	9.095
<b>Having stressful life events</b>	3.609	1.499	8.059
<b>Domestic Violence</b>	6.417	2.583	15.37

**Table 5:** Factors associated with postpartum depression in multivariate analysis

### DISCUSSION

Postpartum depression is a major problem for maternal wellbeing in the first year after childbirth. The PPD prevalence in this study was 27.5 percent, as estimated by the EPDS with a cut-off point  $\geq 13$ . This corresponds with the prevalence range recorded in Asian countries, which revealed that PPD prevalence fluctuated from 3.5% to 63.3%.<sup>18</sup> This was also consistent with the research

conducted by Do et al.<sup>19</sup> who studied 116 postpartum women in Hanoi and reported that the prevalence of PPD was 27.6% as assessed by EPDS with a cut-off point  $\geq 12$ .

Our analysis reported that the rate of PPD was larger than anticipated in Sohag<sup>20</sup> that PPD was 7.32% overall. The other sites in Egypt, however, reflected different prevalence, as the studies of Gharbia Governorate<sup>21</sup> and El-Minia<sup>22</sup> reflected a higher prevalence of 20%. The prevalence was also 17.9% in

Mansoura study<sup>23</sup>. However, the prevalence was the largest in Assiut study<sup>24</sup> being 51.7 %.

Our study results did not correlate with other research related to PPD's relationship with geographical (rural and urban) inequalities and other cultural issues. These variations can be influenced by the characteristics of the mothers (demographic, pregnant experience and interpersonal characteristics) and the form of the test (sample, study time, cut-off point and method).

The current study observed that the mean age of PPD were  $30.23 \pm 6.7$ , our study did not find an association between age and PPD. This finding was consistent with Salah et al.<sup>23</sup> and with Cantilino et al.<sup>25</sup> who did not find any difference in age between depressed and non-depressed Brazilian mothers. However, some findings have found that there is a significant relation between younger age and increased EPDS scores.<sup>26</sup> Teenage mothers experience challenges during the post-partum era due to their inability to cope with emotional and financial pressures, as well as the burden of motherhood.<sup>27</sup> Cultural influences and the social experiences of young mothers in various countries may be an explanation for this disparity.

In our study, women with chronic diseases and gestational diseases have a higher risk factor of PPD (twofold and threefold respectively) than women who have not. This was consistent with Abdollahi et al.<sup>28</sup> reported that women with gestational diabetes had almost three times higher risk of postpartum depression when compared with women who did not.

Also, our study was coherent with Kozhimannil et al. study that found a significant increase in depressive symptoms among women with gestational diabetes.<sup>29</sup> Approximately 20–25 per cent of diabetic patients are affected by depression, which is twice that of the general population.<sup>30</sup> Although the associations and causes of disease factors (gestational diabetes, recurrent urinary tract infection, hypertension or hypotension, and hepatitis) are not clear regarding PPD<sup>31,32</sup>. But it can be clarified that the pregnancy diseases continue to be a psychological load on mothers, with major effects on postpartum depression incidence. Additionally, among postpartum women in general, depression may be associated with lack of commitment to healthy lifestyle habits.

In this research, 21% of postpartum depression women had previous psychiatric problems prior to onset of PPD. Psychiatric symptoms prior to the development of PPD have been identified as a trigger of PPD by fivefold [OR: 5.5, 95% CI: 1.6, 17.9] and highly statistical significant according to P value. This is concordant with O'Hara et al.<sup>33</sup>, who identified depressive symptoms as the best predictor of PPD during pregnancy. Dean and Kendall<sup>34</sup> found that most PPD patients whose symptoms started during pregnancy had worsened symptoms within 2 weeks of delivery. However, there was no correlation between previous medical history and PPD in other studies<sup>35,36</sup>.

As indicated in this study, domestic violence has been a critical indicator of postpartum depression [OR: 6.4, 95% CI: 2.5, 15.3]. Despite the variations in criteria and definitions of abuse, studies from different parts of the world have shown a strong relationship between violence and risk of postnatal depression. In this review, aggression was usually physical and verbal (insulting) harassment. This was in line with Adamu and Adinew<sup>37</sup> that domestic violence was found to have an impact on postnatal depression {AOR: 3.1, 95 % CI: 1.6, 5.9}. Furthermore, other Canadian studies<sup>38</sup>, Chili<sup>39</sup>, China<sup>40</sup>, and Pakistan<sup>41</sup> indicated that participants with some kind of intimate partner abuse prior to or during pregnancy were at risk of postpartum mental health issues. In a longitudinal study from Iran, 42 women who were tested positive for postnatal depression were abused.

In our study, stressful life events is a strong predictor of developing PPD about three [OR: 3.6, 95% CI: 1.4, 8.1] times the odds. This is in agreement with Roumieh et al.<sup>43</sup> who perceived that vulnerability to a lot of life stressors (OR = 5.04; 95% [CI]: 2.4–10.5) had an impact factor on developing PPD. Traumatic life events may be linked with depressive episodes that can trigger depressed emotions and increased feelings of hopelessness that cause a depressive episode to occur after a stressful life event has occurred. As a result, depressed subjects were expected to experience more traumatic life experiences from the beginning of pregnancy and after childbirth compared to non-depressed subjects..

In this study, difficulty in interaction with others when struggling was a predictor of PPD [OR: 4.1, 95% CI: 1.7, 9.1]. This was consistent with Do et al.<sup>19</sup> who found that restricted communication / interaction with others when struggling would lead to the symptom of PPD [OR: 3.7, 95 % CI: 0.9, 14.8]. So women who communicate during the postpartum period and engage with others are at a lower risk of increasing postpartum depression.

## CONCLUSION

Many factors had a contribution to the development of PPD, so this study made a valuable addition to knowledge about PPD prevalence and its related risk factors. At Psychiatrist and social worker should visit post-natal care unit to counsel mothers at risk of developing not only PPD but also other mental conditions as well. Screening for PPD should become standard by using EPDS postpartum for early detection and management.

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