

# Perinatal depression. Prevalence, suicidal idea, and associated factors

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## Abstract

**Aim:** This study was aimed to investigate the prevalence of perinatal depression compared to non-pregnant women. Associating factors, suicidal idea and their association with pregnancy.

**Material:** This cross-sectional study included 684 Jordanian women attended pregnancy care department in Jordanian hospitals and the community women from April 2018 to September 2018. Edinburgh Postnatal Depression Scale (EPDS) is used to described depression symptoms.

**Results:** In pregnant women, the prevalence of depression was significantly higher than in single women ( $p=0.00812$ ), and a significant number of symptoms of depression experienced by pregnant women compared to post-partum women ( $p=0.037$ ). Higher depression symptoms were observed in male — bearing women ( $p=0.0436$ ), caesarean birth ( $p=0.0068$ ), and women with maternal complications ( $p=0.0072$ ). Furthermore, higher symptoms of depression ( $p=0.0097, 0076$ ) were associated with Gestational diabetic and anaemic women. The prevalence of depression is significantly higher for pregnant women with family problems ( $p=0.0097$ ). There was no significant variability between study groups in suicidal idea, although there was a higher percentage of self—harm in post-partum women (1.67 percent).

**Conclusions:** In pregnant women, there is a higher prevalence of depression compared to post-partum women. Perinatal depression is associated with male infants, cesarean birth, anemia, gestational diabetes, and social issues.

**Keywords:** Postnatal depression, Perinatal depression, Suicidal idea, Normal delivery, Cesarean delivery, EPDS score.

## INTRODUCTION

Depression is the most widely recognized state of psychological wellness in the all population (Cuijpers P and Smit F, 2002) [1], The World Health Organization (WHO) anticipates that Depression could be positioned second in the worldwide ailment load by 2020 [2]. In clinical investigations, females demonstrated a higher prevalence of depressive disorder than males, roughly one-fifth of females experienced during pregnancy and postpartum (Perinatal depression) [3].

Perinatal depression (PND), characterized as depressive symptoms effects women either during pregnancy "antenatal depression " (AND) or postpartum depression (PPD) [4]. Depressive symptoms were seen in 10 - 15 % in women of childbearing age [5] and Andersson et al. [2003] found that the major depression happened in around 3 percent and the minor depression happened in 7 percent of 1,795 pregnant women just as the larger part were undiscovered and untreated [6].

Risk factors for perinatal depression has been widely studied and classified into five categories, including physical/biological, mental, obstetric/pediatric, socio-demographic, and social components [8], financial hardship as the absolute most significant hazard factors for perinatal depression [9, 10]. The risk factors recognized in the advancement of PPD include: hormonal changes [11, 16], depression or nervousness during pregnancy, stressful life occasions during pregnancy or the early puerperium, low dimensions of social help, absence of dad support for the child, and an

individual or family history of depression and Women with a previous history of postpartum depression [12, 13], unintended pregnancy (9, 13) or unintended pregnancy in women with a medical disorder [3], likewise there is a connection between postpartum depression and sleep quality [14, 15].

Prenatal depression has been inferred marginally more as a risk factor for premature birth/low birth weight than unconstrained early labor and conveyance, gestation length, and low birth weight (LBW) premature birth (PTB) are driving reasons for newborn child morbidity and mortality. Additionally, Pregnant ladies with depression are increasingly susceptible to obstetric consequences like pre-eclampsia [17].

The prevalence of postpartum common mental disorders was higher in low-income countries than in high-income countries and up to 22% of women developed PPD within the months of the first year after delivery [7], while Haque A et al. indicated that the prevalence rate of PND has variation ranging from 10%-51.8% within the first few months of delivery (8). It was also estimated that only 30-50% of women with PND are identified in clinical settings, and about 14–16 % were treated for their symptoms [4].

Moms with postpartum depression experience feelings of some of the most common symptoms, including feelings of sadness, loss of pleasure and enjoyment, loss of interest in their lives, feelings of guilt, poor appetite and sleep disturbance, feelings of fatigue, reduced concentration and suicidal tendencies [1].

Postpartum depression has severe consequences for the mothers as well as their children's quality of life. The quality of the relationship between the mother and her newborn baby can also have serious consequences [14].

Because postpartum depression has a potential impact on the quality of life of the mothers and their children and it represents risk factors for the quality of early mother-term and preterm infant interactions [14, 18], women who are at risk for postpartum depression should be identified as soon as possible during pregnancy so that appropriate follow-up and care can be initiated. [12].

Many of the drugs marketed for depression include selective serotonin re uptake inhibitors, serotonin-norepinephrine reuptake inhibitors, mirtazapine, bupropion, lithium, atypical antipsychotics, and lamotrigine. The risks and benefits of treatment during pregnancy and lactation, and the unique qualities of each drug should be evaluated (4). When antidepressant drugs are not an acceptable treatment option, several methods of psychotherapy have been shown to be effective in treating PPD, including interpersonal, cognitive-behavioral, and group and family therapies [19].

#### MATERIAL AND METHODS

This was a cross-sectional study. We recruit women from the Jordanian's hospitals and community through April to September 2018. This study involved 684 Jordanian women aged 20-40 years. Participants were arranged as non-pregnant women (n=174), prenatal women (n=211), and postnatal women (n=299). Pregnant women had more than eight weeks of gestation and postpartum women were less than six months after delivery. The trained assistant conducted an interview with a paper version of the questionnaire for the whole of the participant. The study's main outcome was described as depression symptoms assessed by the Edinburgh Postnatal Depression Scale (EPDS). The Edinburgh Postnatal Depression Scale (EPDS) is one of the most widely used screening tools for assessing symptoms of Perinatal Common Mental Disorders (PCMDs) of depression and anxiety, it consists of a set of 10 screening questions that may show if a parent has symptoms common in women with depression and anxiety during pregnancy and after birth, used with question number 10 used to indicate any suicidal idea. In an isolated room, the women's interview was conducted alone to avoid any impact on their response. The total score is calculated by adding together the scores for each of the ten items. Replies are scored according to the severity of symptoms. Individual items are summed up to give an overall score ranging from 0 to 30.

In developed countries, the 0-9 inclusive score indicates no risk of PPD symptoms; the 10-12 score shows a minor/major risk for the onset of PPD symptoms; the 13-19 score indicates a high risk of PPD symptoms, with more than 20 showing serious depression (20, 21). In these females, we have defined suicidal idea (SI) like the idea of "sometimes" or "quite often" harming oneself, as indicated in the response to question 10 from the EPDS (22). Score 0 is used where a woman does not have an idea of self-harm, score 1 is scarcely ever, score 2 is sometimes and 3

is quite often. Our participant found that the cutoff of 10 was the most appropriate.

Non —pregnant women were compared with antenatal women and the same questionnaire was used for evaluating depression potential (23). Wide ranges of independent variables have been studied as associating factors of perinatal depression, including the type of delivery (normal and cesarean), maternal education (less than high school, diploma and university graduate), relative partner, social problem, number of children, gender of delivered baby, problems throughout the pregnancy (infections, preeclampsia, preterm labor, miscarriage, severe persistent nausea and vomiting), anemia, hypertension, and gestational diabetes.

Excluded women that are already treated and not screened for depression.

Study groups with all variables have been compared. A medium and standard deviation compared quantitative variables. Comparison of categorical variables using Chi-square test. Statistically significant was a P value < 0.05. For statistical analysis, IBM SPSS version 22 has been used.

#### RESULTS

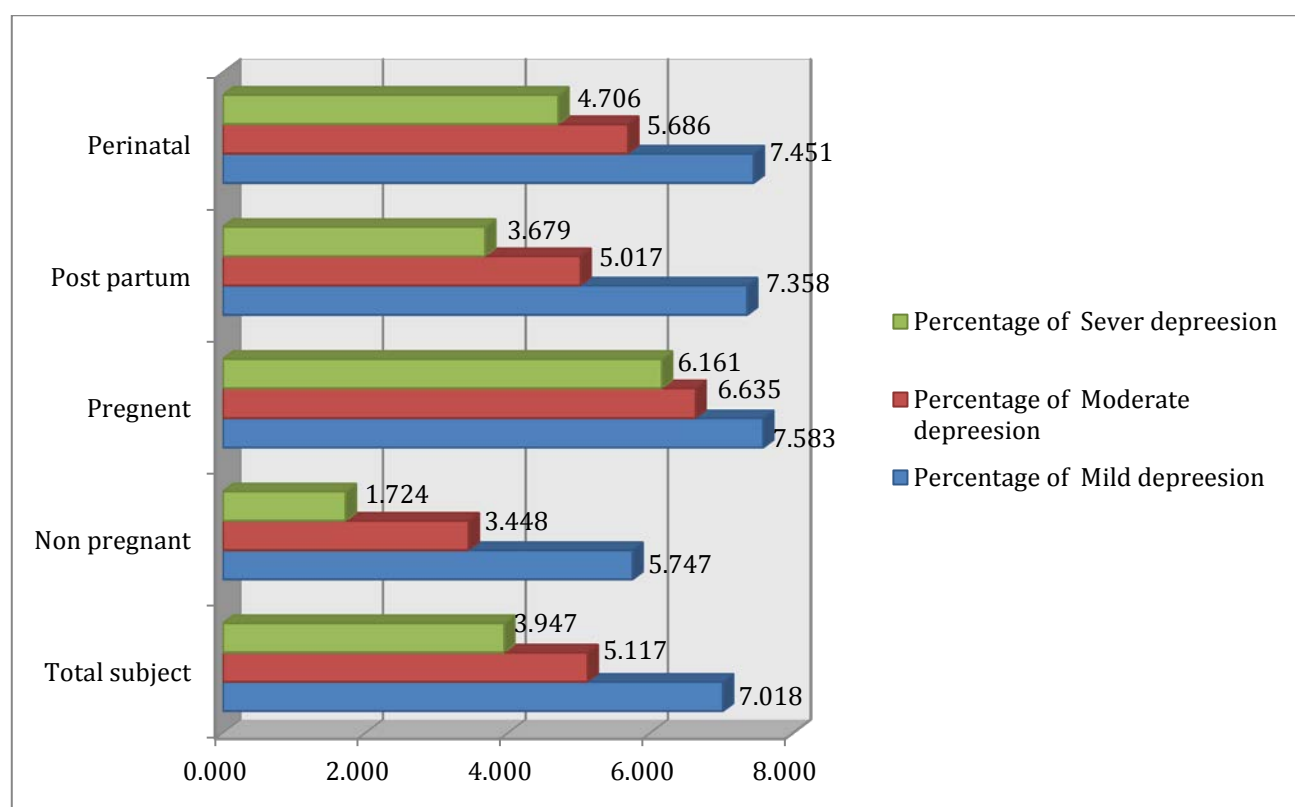
This study was attended by six hundred and eighty — four respondents. The age ranged from 20 to 40 years (mean  $\pm$  SD = 31.259  $\pm$  5.362). 74.56 % of respondents were married, 41.37 % of them were pregnant and the remainder (58.63 %) were under 6 months after delivery. Women not pregnant (single) accounted for 25.44 %. The age and educational level of the single and perinatal women were not significantly different ( $p=0.278$ ,  $p = 0.416$ ), which indicated that the population studied had been adequately randomized as shown in Table 1. The prevailing severity of depression among groups is shown in Figure 1. For all (n=684) patients 110 (16.082 %) women had mild or severe symptoms of depression, of which 48 (7.018 %) had mild symptoms, 35 (5.117 %) and 27 (3.947 %) had moderate and severe symptoms. The lowest rate of depression was found in non-pregnant women (n= 174) 19 (10.92 %), with a mild to severe symmetry. Three (1.724 %) cases have shown severity; six (3.448 %) have moderate; ten (5.747 %) have mild depression. For pregnant women (n=211), depression symptoms ranged from mild to severe in 43 (20.38 percent) women in the study groups. Mild, moderate and severe depression was found respectively in 16 (7.583 percent), 14 (6.635 percent) and 13 (6.161 percent) women (Figure 1). In post-partum women (n=299), the rate of symptoms of depression in post-partum women (n= 299) was lower than in pregnant women. The number of women experienced depression symptoms ranged from mild to severe was 48 (16.053%). Women with mild, moderate and severe depressive symptoms were 22 (7.358%), 15 (5.017%) and 11 (3.679%) respectively (Figure 1). Table 1 shows the distribution of Edinburgh score of depression among single, prenatal and post-partum women. The prevalence of depression in pregnancy was significantly higher in comparison to single women ( $p=0.00812$ ). Although a higher prevalence of

single women compared to post-partum women; there was no statistical difference (p= 0.0814). For both prenatal and post-partum depression, single women experience a significant lower symptom of depression (p= 0.00812). A significant number of pregnant experience symptoms of depression in comparison to post-partum women (p= 0.037) (Table 2). In this study, the associated factors of depression were compared between prenatal and post-partum women as a result of a higher prevalence of depression in pregnancy. Higher symptoms of depression were seen in male bearing women (p= 0.0436), caesarean birth (p = 0.0068), and women with maternal

complications (p= 0.0072) (Table 3). Also, Gestational diabetic and anaemic women were associated with higher symptoms of depression (p= 0.0097, 0076, respectively). Women with a family problem have a significantly higher prevalence of depression (p= 0.0097) (Table 3). There was no significant association in depression symptoms regarding maternal education, consanguineous parents, and gestational hypertension (Table 3). There was no significant variability in suicidal ideation between study groups although a higher percentage (1.67%) of self-harm ideation in post-partum women (Table 4).

**Table 1: Comparison of Socio- demographic parameters between single and perinatal women (N=684).**

Parameter		Single	Married	P- value
Age		30.854± 5.943	32.324 ± 5.243	0.278
Education	Diploma and university graduate	143 (82.19%)	442 (86.67%)	0.416
	Less than high school	31 (17.81%)	68 (13.33%)	



**Fig. 1: Prevalence of depression severity between groups**

**Table 2: Comparison of prevalence of depression between study groups in study population (N=684).**

Group	N=	Prevalence	Mean	± SD	Z-test
Single	174	10.92 %	10.733	4.981	0.0081*
Pregnant	211	20.38%	13.701	3.996	
Single	174	10.92 %	10.733	4.981	0.0814
Postpartum	299	16.053%	11.446	4.694	
Single	174	10.92 %	10.733	4.981	0.0376*
Perinatal	510	17.84 3%	11.986	4.190	
Pregnant	211	20.38%	13.701	3.996	0.0379*
Postpartum	299	16.053%	11.446	4.694	

**Table 3: Associated factors of depression in perinatal women in study population (N=510).**

Associated factors	Group	N=	Mean	±SD	Z-test
Gender of infant	Male	279	11.775	5.078	0.0436*
	Female	231	10.527	4.956	
Delivery	Cesarean birth	164	12.483	4.111	0.0068*
	Normal birth	346	11.019	5.0004	
Maternal education level	Bachelors	384	10.997	5.076	0.1316
	Secondary school	126	11.944	5.106	
Maternal complications	Complication	97	12.986	4.727	0.0072*
	No complication	386	10.948	5.060	
Consanguineous parents	Consanguineous parents	138	12.324	4.255	0.0576
	Non-consanguineous parents	372	11.139	5.246	
Anemia	Anemic	186	12.238	5.772	0.0076*
	Non anemic	324	11.090	4.765	
Gestational Hypertension	Hypertensive	65	11.897	5.428	0.6060
	Normotensive	445	11.284	4.997	
Gestational diabetes	Diabetic	98	13.454	5.942	0.0097*
	Non diabetic	416	11.158	4.918	
Social problems	Associated family problems	106	14.911	4.679	0.00001*
	No family problem	404	11.060	4.866	

**Table 4: Comparison of prevalence of suicidal ideation between study groups by response to EPDS item 10 (N=684)**

Group	N=	Quite often	Sometimes	Hardly ever	Never	Z-test
Single	174	0.58%	10.35%	6.89%	82.18%	0.325
Pregnant	211	0%	5.21%	10.90%	83.89%	
Postpartum	299	1.67%	3.34%	8.03%	86.96%	

### DISCUSSION

In this study, we investigate the prevalence of perinatal depression as a comparison with non-pregnant Jordanian women, factors associate, suicidal ideation and their association with pregnancy. This is a cross-sectional study of depression between pregnant, post-partum and single women by using Edinburgh Postnatal Depression Scale (EPDS), which can show whether a parent has symptoms that are common in women with depression and anxiety during pregnancy and after delivery. Adequate randomization of the studied population was suggested by no significant difference in age and education level. This study has produced four main findings: 1- the prevalence of depression was higher in pregnant compared to single women; 2- the prevalence of depression was higher during pregnancy compared to post-partum; 3- depression is highly associated with caesarean section, maternal complication, and social problems, but slightly predisposed by child gender; 4- metabolic abnormality was observed by anaemia and gestational diabetic shown to have a direct effect on depressive behaviour among pregnant women. Family history, education level, and gestational hypertension did not increase the possibility of depression in pregnancy. In this study, more than 20% of pregnant women have experiences of depressive disease as described by EPDS as a screening tool for perinatal depression. This is consistent with Shaunak Ajinkya et al., which describes that Pregnancy and the transition to parenthood involve major psychological and social changes, which have been linked to symptoms of anxiety

and depression, and that depression can affect 20% of women during their lives, with pregnancy being a period of high vulnerability [24]. The prevalence of depression in this study was greater than that reported by Silva MM Jet al., which concluded that depression occurs in 14.8% of the pregnant women, but it similar to its association with pregnancy and was more frequent during the second trimester of gestation [25]. In our study, the rate of depressed mood during pregnancy was higher than post-partum women, which could be associated by other factors including maternal anxiety, life stress, previous depression, lack of social support, domestic violence, unintended pregnancy, relationship factors, and public insurance, this is in line with Lancaster, C. A et al. confirm the effect of life stress, lack of social support and domestic violence continued to be associated with antepartum depressive symptoms in multivariate analyses [26]. In fact, many studies have found a significantly high risk of depression during pregnancy, which is not considered to be a predictor of post-Partum depression symptoms [27] and similar results showed by Verreault N et al. stated that the rate of depressed mood during pregnancy was 28.3% and 16.4% at 3 months post-partum [28]. In addition, perinatal depression was linked to literacy level, age, maternal status and parity [29, 39]. Furthermore, Herrero et al. believed that stress is very common among women during pregnancy and it can lead to adverse birth outcomes [31]. On the other hand, depressive symptoms that occur during pregnancy often persist after delivery, indicating an important role of antenatal symptoms in predicting post-

partum depression [32] and that approximately half of post-partum depression cases have onsets during pregnancy [33]. The American Psychiatric Association recently proposed the term "pericardium onset" as a specified for major depressive episodes that occur during pregnancy and/or in the post-partum period [34]. In this study, we conclude that the risk of post-partum depression is increased in Jordanian women who give birth to a female child as compared to those who gave birth to a male child. We suspected that this was the result of negative reactions of family members towards the birth of a female baby. A similar result from Navpreet Dhillon et al. study for the prevalence of antenatal depression among Asian women living in the UK which found that maternal male gender preference was not common and was not associated with antenatal depression [35]. Risky pregnancy is also associated with an increased possibility of post-partum depression. These risks include conditions that lead to performing emergency caesarean section or hospitalization during pregnancy. Post-partum complications are also effective on the prevalence of post-partum depression as much as during labor complications, such as meconium passage, umbilical cord prolapse, and obstetric haemorrhages [36, 37]. In our study, antenatal depression is much more common in women with caesarian sections and suffering from maternal complications than in normal vaginal deliveries. These results were comparable with the results of Patel RR et al. and Farhat Rehana Malik et al. [38, 39]. This suggests an alarm to concentrate on the patients more with caesarean sections by providing good advice, better medication and positive environment in each stage during and after pregnancy, although some researchers have suggested that there is no reason for women at risk of postnatal depression to be treated differently with regard to mode of delivery [40]. Although the consanguinity of marriage has a higher risk associated with depression, which may be genetically driven [41], in this study higher rate of depression between consanguineous parents but statistically not significant, this was due to relatively small data in our study regarding the consanguineous parents and extension of study to large scale required to confirm the result. Antenatal women are at high risk of iron deficiency and it is associated with impaired quality of life, reduced cognitive abilities, emotional instability, and depression and represents a significant health problem in women of reproductive age [42, 43]. Factors such as peripartum blood loss, post-partum haemorrhaging, increased nutritional demands to support fetal developmental and breastfeeding, may cause iron-deficiency, which may interfere with the functioning of neurotransmitters which implicated in a mood [44]. These studies are consistent with our results from anaemic women experienced a higher risk of depressive illness compared to the women with normal iron blood level. Several earlier studies have shown that diabetes mellitus is more prevalent among women suffering from perinatal depression [45,46]. Among women with gestational diabetes, the reported prevalence of depression during or after pregnancy ranged widely, from 4.1% to 80% 6 studies [47, 48, 49, 50, 51,

52], similar to our results. In this study, women with social problems were at high risk of depression and this is well described by Ann M et al. as antenatal depression is highly suspected in women experiencing adversity during pregnancy predicts subsequent patterns of maternal depression over an extended period of women's reproductive life course [53]. The severity of gestational hypertension among our subjects was mild to moderate, which explained as a non-associative factor for depression. This needs further investigation In our study, there was no significant variability in the prevalence of suicidal ideation between study groups due to the Islamic religion, which prohibited self-harm. In fact, several studies have demonstrated that maternal injury is a leading cause of maternal mortality and is one of the leading causes of death in post-partum women. [54]. Many studies suggest that, within 6 months of delivery, suicide is the seventh leading cause of maternal death. It is a public health priority to identify modifiable factors related to the risk of suicide in mothers after delivery [55].

#### LIMITATIONS

There are some limitations to this study. Women lost to follow — up make less than half of the original sample and the sample of this study was further reduced by a number of missing records of depression measures at a different time — points of the survey. Other limitations previously raised include authors who were unaware of the mental health of women prior to pregnancy, early life experiences or subsequent episodes of adversity. Episodes of depression and anxiety prior to pregnancy strongly predict episodes of depression and anxiety perinatal. Moreover, factors that may affect different types of anxiety disorders or the recurrence or persistence of depression or anxiety from pregnancy to the post-partum period are not specifically examined.

#### CONCLUSION

This review shows a high prevalence of depression among pregnant Jordanian women. Perinatal depression is significantly linked to the male gender of an infant, caesarean birth, maternal complications, anaemia, gestational diabetes, and social problems. The suicidal ideation is not significant among perinatal Jordanian women. Hence, This suggests an alarm to focus more on patients to give good counselling, better medication, and positive environment in each stage during and after pregnancy and follow-up to reduce the consequent risk of depression and its recurrence. Further research is recommended to assess other possible associated factors for the high prevalence of perinatal depression in Jordanian women.

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#### Authors' Contribution

All authors have contributed to thus study

**Conflict Of Interest**

Authors have no conflict of interest.

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