Screening of Postpartum Depression and Its Correlates among Postpartum Women

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Abstract

Background: Postpartum depression (PPD) is a prevalent and significant mental health condition that affects both mothers and infants, with widespread implications for family dynamics. **Aim**: This study aims to screen and identify the correlates of PPD among postpartum women. **Design**: A descriptive correlational design was employed with a sample of 500 postpartum women from Kasr El Ainy University Hospital, Cairo, Egypt. Data were collected using a Maternal Interviewing Questionnaire and the Edinburgh Postnatal Depression Scale (EPDS). **Results**: according to The Edinburgh Postnatal Depression Scale, 58.0% of women at delivery were identified as high-risk for postpartum depression. Notably, this proportion decreased substantially to 25.6% by the fourth week postpartum. Factors significantly associated with increased the risk of postpartum depression in women in the correlation analysis were age; educational level; personal and family history of mental illness; obesity; obstetric factors such as gestational age, higher number of children, preterm birth, having a diseased baby, health problems during pregnancy, attitude toward pregnancy and antenatal follow-up; psychosocial factors such as social, husband and family support, exposure to stressful life events, domestic violence and financial distress. Conclusion: The study highlights the complex interplay of personal, familial, and medical factors in the development of postpartum depression. Recommendation: Design targeted interventions addressing modifiable risk factors identified in this study.

Keywords: Postpartum depression, screen, risk factors, Egypt, maternal mental health, early detection

Introduction

The postpartum period is considered one of the difficult life transitions, as depressive episodes can be twice higher than other times in a woman's life **(Johann & Ehlert, 2022).** Postpartum depression (PPD) is a highly prevalent psychological disorder characterized by a complicated mixture of physical, mental, and behavioral changes that have a significant influence on both the mother's and newborn's health and the family. A review of 565 studies from 80 different countries, estimated the global prevalence of PPD to be 17.2% **(Wang et al., 2021).**

Mughal, **Azhar, and Siddiqui (2022)** concluded that around one in seven women can develop PPD. Previous studies have reported that the prevalence of PPD ranged from 20-50% depending on location in Lower and Upper Egypt **(Salem, Thabet, Fouly & Abbas, 2017)** and in 33.5% from 257 mothers attending three primary healthcare

centers in Assiut City, Egypt **(Ahmed, Elbeh, Shams, Malek & Ibrahim, 2021).**

The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) defined PPD as "a form of major depression that begins within 4 weeks after delivery, It can also come on fast, even within the first 72 hours. In other cases, some symptoms might not appear until 6 months later or even up to a year after delivery" **(American Psychiatric Association, 2022).** Feeling overwhelmed most of the time, deep despair and a sense of powerlessness, crying a lot and for "no cause", feeling uninterested in, or separated from child, grief, experiencing anger without an apparent trigger, feeling guilt and shame, alterations in appetite, changes in sleep patterns, pains and aches in the body, experiencing severe anxiety attacks, feelings of loneliness even when people are present, difficulty concentrating, thoughts of harming oneself or the baby, and even suicidal thoughts are common symptoms of postpartum depression **(Bauman et al., 2020; Obeysekare et al., 2020).**

The exact cause of PPD is not known, but it is related to multiple factors: chemical, social, and psychological changes that occur upon having a baby. Some researches proposed that the sudden drop of hormones that occurred suddenly after birth may be the cause, other proposed increasing the risk of PPD is related to factors such as thyroid disorder or related medical conditions, or family history of depression, experiencing mental health problems during pregnancy, teen and high risk pregnancy, problems in (marital status, spouse care, gestational age, breast-feeding, pregnancy plan), receiving moderate social support, child mortality, financial difficulties, life stress, smoking, alcohol consumption, having at least 2-3 living children, experiencing conflicts with family members, the experience of intimate partner violence, marital women's employment, mother-in-law disputes, being the second wife, and socioeconomic burdens **(Elrassas et al.,**

2022; Xayyabouapha, Sychareun, Quyen, Thikeo & Durham, 2022; Alshikh Ahmad, Alkhatib & Luo, 2021).

Postpartum depression has multiple consequences on the mother and her baby; it can affect maternal physical health, psychological health, and the relationship. As well, it can impact infant development, mother-child bonding, family dynamics, and broader societal costs through decreased productivity and increased healthcare utilization **(Slomian, Honvo, Emonts, Reginster & Bruyère, 2019; Alshikh Ahmad et al., 2021).**

Nurses have a crucial role in the early detection of women suffering from PPD by identifying women at risk for postpartum depression for early referral and treatment. Because nurses interact with postpartum women frequently, they are in a good position to offer depression screening and support **(Martin, Norris & Martin, 2020; Segre, O'Hara, Arndt & Beck, 2010),** the detection and treatment of depression may prevent occurrence of negative consequences for mother, baby and family and ensure a positive outcome for mother and baby.

In Egypt, where cultural, socioeconomic, and healthcare system variables play a critical role in mental health outcomes, understanding the prevalence and determinants of postpartum depression is crucial for effective prevention and intervention strategies. So, the aim of this study is to screen the prevalence and identify the correlates of PPD among postpartum women, contributing to the broader field of maternal mental health.

Significance of the study

In order to prevent the negative effects of PPD, it seems crucial to identify and treat depression during the postnatal period as soon as feasible. Multiple studies recommend an increase of routine screening for depression during postpartum period **(Wang et al, 2021; Martin et al., 2020).** Furthermore, it is

necessary to support those women to prevent the occurrence of complications. Early identification of postpartum depression and its correlates could lessen the effects it has on postpartum women and their neonates. Also, Initiation of treatment or referral to mental health care providers after screening offers maximum benefit.

Based on the literature, there is scarce researches in Egypt, especially in Giza and Cairo governorates conducted for screening of PPD in postnatal period. So this study is conducted to overcome this gap. The finding will add to the body of nursing knowledge in this neglected area and allow for prompt recognition, early treatment and ensure safety to the mother and neonate.

Aim of the Study

The aim of the current study is to:
- Screen for prevalence and identify correlates of postpartum depression

Research Questions

1. What is the prevalence of postpartum depression among postpartum women?

2. What are the correlates of postpartum depression among postpartum women?

Methods

Design

A descriptive correlational design was used to collect data pertinent to the current study.

Setting

The study was conducted at the postpartum units (Sections 10 and 21) in Obstetrics and Gynecology Hospital at Kasr El Ainy University Hospital, affiliated with Cairo University. The capacity of the ward is 20 beds per ward. Postpartum ward serves the women who delivered vaginally and women who have C.S deliveries, 14108 is the approximate annual deliveries.

Sample

A convenient sample of 500 postpartum women was recruited, while women who were recently diagnosed with depression or were receiving antidepressants were excluded from the study. The sample size was calculated using the Cochran sample size formula (Cochran, 1977) as follows:

$$n = \frac{z^2 * p * (1-p)/e^2}{1 + \frac{z^2 * p * (1-p)}{e^2 * N}}, \quad n = \frac{1.96^2 * 0.5 * (1-o.2)/.o5^2}{1 + \frac{1.96^2 * 0.2 * (1-o.2)}{.05^2 * 14108}} = 500,$$

N = Population size, z = Critical value of the normal distribution at the required confidence level, z = 1.96, p = Sample proportion, p 0.2, and e = Margin of error, e =.05.

Tools for Data Collection

Data was collected by using the following tools:

Maternal Interviewing Questionnaire. It included two parts: 1) Demographic data as age, level of education, place of residence and occupation, marital status, and family type. 2) Data for assessing risk factors of PPD that included a) Medical factors e.g., a positive family history of psychiatric disorder, suffer from chronic disease, history of premenstrual syndrome, smoking, and obesity; b) Pregnancy-related factors e.g., parity, number of previous abortions, preterm labor and still birth, number and sex of living children, suffering from any health problems during pregnancy, attitude toward pregnancy and gender of the baby, mode of delivery, delivery experience, exposing to maternal complication during labor, baby having health problems and type of feeding; c) Psychosocial factors such as family and husband support, exposure to stressful life event, exposure to domestic violence, Suffer from financial distress. This tool was designed by the researchers after an extensive review of recent literature related to the risk factors of PPD (Naja, Al

Kubaisi, Singh, Abdalla & Bougmiza, 2021; Alasoom & Koura, 2014).

Edinburgh Postnatal Depression Scale (EPDS). It is a validated tool to be used in the antenatal and postnatal periods. It is a 10-item self-rating instrument, whereas each item has a 4-point Likert scale. The possible total score ranges from 0 to 30, a higher score indicates more severe depressive symptoms. A score of 13 is the cutoff indicating a woman is at high risk of developing postpartum depression and needs referral to a mental health specialist. Furthermore, a woman with a positive score on question 10 (having suicidal ideation) should be referred to a mental health specialist (Cox, Holden, Sagovsky, 1987). The study used the Arabic version of EPDS. The internal reliability of the scale was 0.84 **(Cronbach's alpha) (Ghubash, Abou-Saleh, Daradkeh, 1997; Matthey, Henshaw, Elliott, & Barnett, 2006).**

Ethical Consideration

An official ethical approval was obtained from the ethical committee of the Faculty of Nursing, Cairo University, "No 7/11/2022". Also, official permission was taken from the authoritative personnel at the Obstetrics and Gynecology Hospital, Cairo University hospitals, Kasr El Ainy, to conduct the study. The purpose and nature of the study were explained to women, and written consent was obtained from all study participants. Also, the researchers emphasized that the participation in the study is entirely voluntary and that anonymity and confidentiality are assured.

Procedures

The researcher met the women after delivery at the postpartum ward, clarified the purpose of the study, and obtained their written approval to participate in the study. Each woman was interviewed to collect demographic data and assess risk factors of PPD. Then, the Edinburgh Postnatal Depression Scale was administered to screen for postpartum depression symptoms on the day of delivery, then via phone call on the 2nd week and 4th week after delivery. The call took about 10 minutes. Women who screened positive on EPDS for postpartum depression or had a positive score on question 10 (having suicidal ideation) were offered an appointment with a psychiatrist.

Data Analysis

Descriptive statistics (frequency, percent, mean, standard deviation) were used to describe demographic characteristics, medical data, obstetric data, and scores on EPDS. Pearson's and Spearman's correlation (r.), independent t-test, and one-way Anova test were applied to assess the association of different variables with EPDS scores. The level of significance was at a P-value <0.05.

Results

The study sample consists of 500 postpartum women aged ranging from 17 to 47 years. The mean age was 28.78 years (SD = 7.01), indicating a predominantly young adult to middle-aged sample population. 22.2% of postpartum women could not read or write, while 23.4% had secondary education, and only 9.6% of them had university-level education, indicating that the majority of the sample had less than secondary education (67.0%). Nearly two-thirds of postpartum women (63.6%) resided in urban areas. The vast majority of them (90.2%) were housewives. Moreover, the study sample demonstrated that the participants were fairly distributed between nuclear (53.0%) and extended (47.0%) family structures, with a slight majority living in nuclear families.

Table (2) reported that nearly a fifth of postpartum women (19.4%) experienced mental illness in the past, among the 97 women who reported mental health problems, anxiety disorders were the most common (61.9%), followed by depression (38.1%). As

regards family history of mental illness, 7.6% of women indicated having a positive family history. Moreover, 13.6% reported having at least one chronic condition, and 18.2% of the study sample were obese.

As regards obstetric data, 37.8% of women reported experiencing menstrual symptoms, 34.6% experienced pregnancy loss, and 9.0% reported having at least one preterm birth. Moreover, nearly three-quarters (73.4%) were multiparous women, 27% did not attend antenatal care, and 21% experienced health problems during pregnancy. Furthermore, 12.8% of postpartum women gave birth prematurely, and 15.8% of them had babies with health problems and/or required NICU admission (Table 3).

As stated in table (4) slightly more than half of the postpartum women (55.0%, 51.0%) had vaginal deliveries and reported having a difficult delivery experience respectively. Regarding maternal complications during labor, 17.0% of participants reported experiencing complications (postpartum hemorrhage was the main complication, 49.4%).

As shown in Table 5, 17.0% of mothers and 12% of fathers indicated that the current pregnancy was undesired, while only a small percentage (5.6%) reported an undesired attitude toward the gender of the baby. Moreover, most women (87.0%, 89%) reported receiving support from their husbands and from their family members (father, mother, relatives), respectively. Additionally, more than half of the women (58.6%) reported exposure to stressful life events such as financial difficulties and family conflicts, while 17.0% of women reported experiencing domestic violence.

The Edinburgh Postnatal Depression Scale (EPDS) results reveal a significant trend in postpartum depression risk over time. At delivery, 58.0% of women (n = 290) were identified as high-risk for postpartum depression. Notably, this proportion decreased substantially to 25.6% (n = 128) by the fourth week postpartum, suggesting potential natural recovery or effective intervention strategies.

The socio-demographic analysis revealed statistically significant correlations between postpartum depression and women's characteristics as follows: regarding age, there is a weak positive correlation (r = 0.156, p < .001), suggesting that increasing maternal age may slightly increase depression risk. As regards educational level, a weak negative correlation (r = -0.146, p = .001) indicates that higher education might serve as a protective factor against postpartum depression. Non-significant factors included residence (p = .637), occupation (p = .226), and family type (p = .456), suggesting these variables do not substantially influence postpartum depression in this sample.

As shown in Table 8, medical history demonstrated significant associations with postpartum depression in relation to mental health history: Both personal (t = -2.534, p = .012) and family history of mental illness (t = -4.194, p < .001) were significantly correlated with increased depression risk. Obesity was significantly associated with postpartum depression (t = -3.686, p < .001), highlighting potential physiological influences. Smoking approached but did not reach statistical significance (t = -1.941, p = .053).

As stated in Table 9, obstetric factors revealed multiple significant correlations. In relation to gestational age, there is a positive correlation with depression risk (t = 2.941, p = .003). As regards parity and children, there were weak positive correlations (r = 0.138 and r = 0.117, respectively, both p < .01), suggesting increased depression risk with a higher number of children. In relation to preterm birth (t = -2.562, p = .011), having a diseased baby (t = -3.411, p = .001), and health problems during pregnancy (t = -4.408, p = .001) were significantly associated with

postpartum depression. Notably, attitude toward pregnancy (t = 3.122, p = .002) and antenatal follow-up (t = 3.456, p = .001) showed significant relationships.

Table 10) reported that psychosocial factors demonstrated strong correlations with postpartum depression, regarding social support: Husband support (t = 10.436, p = .001) and family support (t = 4.194, p = .001) were significantly associated with depression risk. Moreover, exposure to stressful life events (t = -5.090, p = .001), domestic violence (t = -11.821, p < .001), and financial distress (t = -5.535, p = .001) showed significant negative correlations with mental health.

Table 1.   Distribution of Study Sample according to Their Socio-Demographic Characteristic (n=500)

Items	No.	%
Age		
17-25 years	184	36.8
26-35 years	223	44.6
More than 35 years	93	18.6
Mean ± SD	28.7±7.01	
Educational level		
Cannot read or write	111	22.2
Can read and write	224	44.8
Secondary education	117	23.4
University level	48	9.6
Residence		
Rural	182	36.4
Urban	318	63.6
Occupation		
Housewife	451	90.2
Worker	49	9.8
Marital status		
Married	498	99.6
Divorced	2	0.4
Family type		
Nuclear	265	53
Extended	235	47

Table 2. Distribution of the Study Sample regards Their Medical History and Current Health Status (n=500)

	No.	%
Previous Mental health problem		
No	403	80.6
Yes	97	19.4
Type of mental health problems (n=97)		
Anxiety disorders	60	61.9
Depression	37	38.1
Family history of mental diseases		
No	462	92.4
Yes	38	7.6
Presence of chronic diseases		
No	432	86.4
Yes	68	13.6
Smoking		
No	493	98.6
Yes	7	1.4
Obesity		
No	409	81.8
Yes	91	18.2

Table 3. Distribution of the Study Sample according to Obstetric History and Current Pregnancy Data (n=500)

Items	No.	%
Experiencing premenstrual symptoms		
No	311	62.2
Yes	189	37.8
Previous Pregnancy Loss		
No	327	65.4
Yes	173	34.6
Pervious Preterm baby		
No	455	91.0
Yes	45	9.0
Parity		
1	133	26.6
2-3	217	43.4
More than 3	150	30.0
Gestational Age		
<37 weeks	64	12.8
≥37 weeks	436	87.2
Antenatal follow-up		
No	135	27.0
Yes	365	73.0
Presence of health problems during pregnancy		
No	387	77.4
Yes	105	21.0
Having a diseased baby/NICU admission		
No	79	15.8
Yes	421	84.2

Table 4. Distribution of Studied Women Regarding Childbirth Data (n=500)

Items	No.	%
Mode of delivery		
Vaginal	276	55.2
Cesarean Section	224	44.8
Delivery Experience		
Easy	78	15.6
As expected	167	33.4
Difficult	255	51.0
Maternal complications during labor		
No	415	83.0
Yes	85	17.0
Types of complications (n= 85)		
Bleeding	42	49.4
Premature contraction	26	30.6
Cardiac arrest	4	4.7
Perineal tearing	13	15.3

Table 5. Distribution of the Study Sample according to Psychosocial Characteristics (n-500)

	No.	%
Mother's Attitude Toward Pregnancy		
Undesired	85	17.0
Desired	415	83.0
Father's Attitude Toward Pregnancy		
Undesired	439	87.8
Desired	61	12.2
Parents' attitude toward gender		
Desired	392	78.4
Undesired	28	5.6
No difference	80	16.0
Husband's support		
No	65	13.0
Yes	435	87.0
Family Support		
No	55	11.0
Yes	445	89.0
Exposure to stressful life events		
No	207	41.4
Yes	293	58.6
Exposure to domestic violence		
No	415	83.0
Yes	85	17.0

Table 6. EPDS readings among the study sample (n=500)

*EPDS readings EPDS Classification	1st reading of EPDS on the day of delivery		2nd reading of EPDS after two weeks of delivery		3rd reading of EPDS after 4 weeks of delivery	
	No	%	No	%	No	%
Depression not likely	210	42.0	199	39.8	372	74.4
High risk of postpartum depression	290	58.0	301	60.2	128	25.6

EPDS: Edinburgh postpartum depression scale

Table 7. Socio-demographic Correlates of Post-partum Depression among the study sample (n=500)

Variable	EPDS	
	Test	P
Age	$r= 0.156**$	.000
Educational level	$r= -.146-**$	.001
Residence	$t= .472$	.637
Occupation	$t= -1.212-$	.226
Family type	$t= .746$	.456

Note. *N = 500. $p < .05$ (*); $p < .01$ (**); r correlation; t independent-test*

Table 8. Medical Correlates of Post-partum Depression among the study sample (n=500)

Variable	EPDS	
	T-Test	**P**
Personal history of mental illness	2.534- **	.012
Family history of mental illness	4.194-**	.000
Suffer from medical diseases	2.258-	.024
Smoking	1.941-	.053
Obesity	3.686-**	.000

Note. N = 500. p < .05 (*); p < .01 (**); r correlation; t independent-test

Table 9. Obstetric Correlates of Post-partum Depression among the study sample (n=500)

Variable	EPDS	
	Test	**P**
Gestational Age	t= 2.941**	.003
Parity	r= 0.138**	.002
Previous pregnancy Loss	t= -1.522-	.129
Number of Children	r= 0.117**	.009
Preterm birth	t= -2.562-*	.011
Having a diseased baby	t=-3.411-**	.001
History of the menstrual cycle	t=-1.565-	.118
Premenstrual symptoms	t=-4.998-	.000
Antenatal follow-up	t= 3.456**	.001
Having a health problem during pregnancy	t=-4.408-**	.001
Attitude toward pregnancy	t=3.122**	.002
Attitude toward the gender of the baby	f=.999	.369
Mode of delivery	t=.488	.626
Delivery experience	f=1.570	.209
Exposure to maternal complications during labor	t=-3.202-**	.001

Note. *N = 500. p < .05 (*); p < .01 (**); r correlation; t independent-test; f ANOVA test*

Table 10. Psychosocial Correlates of Post-partum Depression among the study sample (n=500)

Variable	EPDS	
	Test	**P**
Husband support	t= 10.436**	.001
Family support	t= 4.194**	.001
Exposure to stressful life events	t= -5.090-**	.001
Exposure to domestic violence	t= -11.821-**	.000
Suffer from financial distress	t= -5.535**	.001

Note. *N = 500. p < .05 (*); p < .01 (**); t independent-test*

Discussion

The current study findings revealed that 25.6% (n = 128) of the sample (N = 500) exhibited a high risk of postpartum depression at four weeks after delivery according to Edinburgh Postnatal Depression Scale (EPDS) screening results. This prevalence rate requires careful interpretation within both the Egyptian context and global literature. The observed prevalence of 25.6% aligns with recent Egyptian studies. **El-Sayed, Abdelhamid, & Ibrahim (2022)** reported a similar postpartum depression prevalence of 23.8% among women in Alexandria at 4-6 weeks postpartum, while **Abdelwahid, Wahdan, Madian, & Mohammed (2023)** found a slightly higher rate of 29.4% in a rural Upper Egypt sample. Our findings thus appear consistent with the national pattern, falling within the 20-30% range documented across recent Egyptian investigations. As noted by **Khalifa, Glavin, Bjertness, & Lien. (2021),** these rates exceed global averages, potentially reflecting unique sociocultural and healthcare system factors specific to Egypt.

When compared to international literature, our findings demonstrate both similarities and differences. A systematic review by **Shorey et al. (2021)** found global postpartum depression prevalence ranges of 13-19% in high-income countries versus 18-33% in low- and middle-income countries. Our observed rate of 25.6% thus falls within expected parameters for middle-income countries. However, it exceeds rates reported in recent European studies – **Cena et al. (2020)** found a 15.7% prevalence in Italy, while **Motrico et al. (2022)** documented a 17.2% rate across eight European countries at the same four-week timepoint.

In contrast, the prevalence in our study was notably lower than rates reported in some comparable regional contexts. **Alhasanat-**
Khalil, Fry-McComish, & Dayton (2020) documented rates of 31-38% across several Middle Eastern countries, while **Abdollahi, Etemadinezhad, & Lye (2021)** found a 34.8% prevalence in Iran at 4-6 weeks postpartum. These differences may reflect methodological variations or specific protective factors within our sample population.

The substantial proportion (74.4%) of women not meeting the threshold for depression risk at four weeks postpartum supports the phenomenon of natural recovery for many women experiencing initial postpartum emotional difficulties. This aligns with **Khalil, Mansour, & Fawzy (2023),** who tracked Egyptian women longitudinally and found that approximately 60% of those with elevated EPDS scores in the immediate postpartum period experienced resolution of symptoms by the 4-6 week assessment without formal intervention. Similarly, **Osman, Idris, & Abdalla (2024)** documented natural recovery patterns among Egyptian women, noting that social support, particularly from female relatives, appeared to facilitate emotional resilience during this period.

Socio-demographic Correlates

Age as a Risk Factor

The current study revealed a significant positive correlation between maternal age and postpartum depression risk (r = 0.156, p < .001), suggesting that older mothers in our sample experienced slightly higher vulnerability to depressive symptoms. This finding contributes to the ongoing scholarly discourse regarding age as a risk factor, where evidence remains mixed within both Egyptian and international contexts.

Our results align with research by **Ibrahim, Ahmed, & Ahmed (2022),** who documented a similar positive association (r = 0.143, p < .01) among women in Cairo,

attributing this relationship to increased pregnancy complications and heightened adjustment challenges among older Egyptian mothers. Similarly, **Abdelhamid, Hassan, & Mohamed (2023)** found that women over 35 years in Alexandria demonstrated a 1.7-fold increased risk for postpartum depression compared to younger counterparts, potentially related to biological vulnerabilities and motherhood role transition difficulties at advanced maternal age.

From an international perspective, our findings parallel those of **Rodriguez-Lopez, Zhao, & Navaratne (2022),** who observed that older first-time mothers in Spain demonstrated heightened depression risk, particularly when pregnancy occurred after established career trajectories. Similarly, **Nakamura et al. (2020)** documented a weak but significant positive correlation (r = 0.129, p < .05) between maternal age and depressive symptoms in their Japanese cohort, suggesting potential cross-cultural consistency in this association.

However, these results contrast with other recent investigations. El-Sayed and **Sabry (2021)** found no significant age-related differences in postpartum depression prevalence in their Mansoura-based sample, while **Huang et al. (2021)** observed an inverse U-shaped relationship in their Chinese cohort, with both very young (< 20 years) and older (> 40 years) mothers showing elevated risk compared to those in middle age ranges. These inconsistencies highlight the complex, potentially context-dependent relationship between maternal age and emotional well-being.

Educational Level and Protective Effects

Our study demonstrated a significant negative correlation between educational attainment and postpartum depression risk, suggesting that higher education may serve as a protective factor against perinatal mood disturbances. This finding is consistent with recent literature from both Egyptian and international contexts.

Within Egypt, **Hamed and Abbas (2023)** documented similar protective effects of education in their Assiut sample, proposing that educated women possessed greater health literacy, problem-solving skills, and access to information resources that facilitated adaptation to motherhood challenges. Correspondingly, **El-Rafie, Khattab, & El-Batrawy (2022)** found that women with university education in Damietta demonstrated significantly lower depression scores compared to those with only primary education.

These patterns align with international findings. **Luo et al. (2021)** conducted a comprehensive meta-analysis including 23 studies and concluded that higher education consistently predicted lower postpartum depression risk across diverse cultural contexts. Similarly, **Smorti, Ponti, Ghinassi, & Rapisardi (2022)** found that educational level moderated the relationship between childbirth experiences and psychological outcomes in their Italian sample, with higher education buffering against negative emotional responses to challenging births.

Our analysis revealed no significant associations between postpartum depression and residence, occupation, or family type. These non-significant findings merit careful interpretation within the broader literature. The lack of urban-rural differences in our sample contrasts with some Egyptian research. **Abdelwahid et al. (2023)** documented significantly higher depression rates among rural women in Upper Egypt compared to urban counterparts, attributing this disparity to reduced healthcare access and stronger traditional gender expectations in rural settings. Similarly, **Zaki Albatrawy, & El-Shal (2021)** found a rural-urban divide in Lower Egypt, with rural residence conferring 1.8 times higher depression risk. Our contradictory finding may reflect regional

variations or potential improvements in rural healthcare access in our study region compared to those investigated by other researchers.

Medical and Physiological Risk Factors

The findings revealed significant associations between PPD and several medical and personal factors.

A statistically significant association was found between a personal history of mental illness and postpartum depression (t = -2.534, p = .012). This finding aligns with previous research conducted in Egypt by **El-Danaf, Mahmoud, & El-Gilany (2022),** who found that women with a prior psychiatric history were at a substantially higher risk of developing postpartum depression. Similarly, an international study by **Wilson, Walker, & Earnhart (2021)** corroborated that a history of mental health disorders is one of the strongest predictors of PPD onset.

Family history of mental illness also showed a highly significant relationship with postpartum depression (t = -4.194, p = .000). This supports the results from an Egyptian study by **Fathi, Salem, & Kamal (2023),** which reported that genetic predisposition plays a crucial role in postpartum psychiatric disorders. Additionally, a global systematic review by **Green, Tait, & Leach (2022)** emphasized that family history is a robust risk factor across diverse populations, further validating the current findings.

The presence of medical diseases was another significant correlate (t = -2.258, p = .024). Chronic illnesses can contribute to psychological stress and hormonal imbalances, thus predisposing women to PPD. This is in line with research from **Ibrahim and Salem (2021)** in Egypt, who found that comorbid medical conditions, particularly diabetes and hypertension, were significantly linked to higher PPD rates. Internationally, **Chang, Zhang, &**

Zhu (2020) reported similar findings, emphasizing the biopsychosocial interplay in postpartum mental health.

Smoking was marginally associated with PPD (t = -1.941, p = .053), suggesting a potential trend that may warrant further investigation with larger samples. Although not statistically significant at the conventional level, the trend observed is consistent with the findings of a study by **Saleh, Nour, & Hassan (2024)** in Egypt, who noted that smoking was associated with a higher risk of depression during the postpartum period. Internationally, research by **Brown, McDonald, & Wilson (2021)** indicated that smoking may contribute to postpartum mood disorders through neurochemical alterations.

Obesity showed a strong and significant association with postpartum depression. This finding echoes the work of Ahmed, **Mohamed, & Hassan (2023)** in Egypt, who found that overweight and obese women were more prone to depressive symptoms postpartum. Globally, a meta-analysis by Santos Tavares, **Munhoz, & Matijasevich (2021)** confirmed that obesity is a significant risk factor for postpartum depression, potentially due to inflammatory processes and body image dissatisfaction.

Obstetric Factors

Multiple obstetric variables showed significant associations with postpartum depression, supporting a multifactorial model of risk. Gestational age, parity, and number of children all demonstrated significant correlations with depression risk. These findings align with the "cumulative stress model" proposed by **Guintivano, Sullivan, Stuebe, & Penders (2023),** suggesting that reproductive and caregiving demands may incrementally increase vulnerability to mood disturbances.

Pregnancy and birth complications—including preterm birth, having a diseased

baby, health problems during pregnancy, and maternal complications during labor all showed significant associations with depression risk. This pattern is consistent with research by Lebel et al. (2020), who documented that birth trauma and complications increase postpartum depression risk through both psychological mechanisms (e.g., violated expectations, perceptions of failure) and physiological pathways (inflammatory responses, pain, disrupted bonding opportunities).

Notably, premenstrual symptoms showed a strong association with postpartum depression, supporting recent research on shared vulnerability factors between premenstrual dysphoric disorder and perinatal mood disorders **(Payne & Maguire, 2022).** This finding supports hormone sensitivity theories and suggests that women with pronounced cycle-related mood symptoms may benefit from enhanced monitoring during the perinatal period.

The significant associations between depression risk and both attitude toward and antenatal follow-up highlight the importance of psychological preparation and engagement with healthcare services during pregnancy, consistent with findings by **Sockol and Battista (2022)** on the protective effects of pregnancy acceptance and regular prenatal care.

Psychosocial Determinants

Psychosocial factors demonstrated particularly robust associations with postpartum depression risk in our sample. Husband support and family support showed strong protective effects, consistent with recent systematic reviews highlighting social support as one of the most robust protective factors against perinatal mental health difficulties (Dennis, Marini, Dick, & Atkinson, 2024). These findings emphasize the potential value of partner-inclusive interventions and family-based approaches to postpartum care.

Negative life circumstances—exposure to stressful life events, domestic violence, and financial distress all showed substantial negative impacts on maternal mental health. The particularly strong association with domestic violence underscores recent work by Román-Gálvez et al. (2021), who identified intimate partner violence as one of the strongest predictors of severe postpartum depression and documented compounding effects when combined with financial insecurity. These findings highlight the critical importance of routine screening for violence and social determinants of health in perinatal care settings.

Conclusion

This study corroborates the multifactorial nature of postpartum depression risk, with significant contributions from socio-demographic, medical, obstetric, and psychosocial domains. The findings highlight the particular importance of psychosocial factors—especially social support and exposure to stressors—while also confirming established biological and obstetric risk factors. The substantial reduction in depression risk by four weeks postpartum suggests natural recovery processes for many women but underscores the need for extended support for those with persistent symptoms.

In conclusion, the study highlights the complex interplay of personal, familial, and medical factors in the development of postpartum depression. These findings underscore the importance of screening and preventive strategies targeting at-risk women, particularly those with a personal or family history of mental illness, medical comorbidities, obesity, and potentially smoking behaviors.

Recommendations

Future research should focus on several key areas: (1) distinguishing transient

"postpartum blues" from clinically significant depression through extended longitudinal follow-up; (2) investigating potential biomarkers to complement psychosocial risk assessment; (3) examining interactions between identified risk factors to develop more nuanced risk profiles; and (4) testing targeted interventions addressing modifiable risk factors identified in this study.

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