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Prevalence and Risk Factors of Postpartum Depression among Women in Southern Jordan: A Cross-sectional Study

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ABSTRACT

Introduction: Postpartum depression (PPD) is a common mental health problem. It impacts maternal health and the mother-infant relationships.

Objective: This study aims to determine the prevalence of PPD among southern Jordanian women and find its related factors.

Materials and Methods: This is a descriptive cross-sectional study that was conducted from August to December 2023 on 434 women aged 20-45 years attending medical centers for receiving obstetric and neonatal services in southern Jordan, who were selected using a convenience sampling method. They completed the Edinburgh Postnatal Depression Scale (EPDS) and a sociodemographic/obstetric form. Data were analyzed using descriptive statistics, independent t-test, one-way ANOVA, and Pearson's correlation test. $P<0.05$ was considered statistically significant.

Results: The mean EPDS score was 15.57±4.71. It was found that 74.7% of women were at risk of PPD (an EPDS score >13). The EPDS score had a significant positive correlation with the number of previous pregnancies ($r=0.44$, $P=0.001$) and age at marriage ($r=0.39$, $P=0.001$) and a negative correlation with educational level ($r=-0.15$, $P=0.012$). No significant associations were found between the EPDS score and the factors of age, occupation, income, smoking, abortion history, or family size ($P>0.05$).

Conclusion: The results highlight the need for targeted mental health screening for Jordanian women with higher parity, older age of marriage, and lower education. Further qualitative research is recommended to explore the underlying causes and develop culturally tailored interventions.

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Highlights

- PPD is a common mental health disorder affecting 74.7% of women in southern Jordan.
- A significant positive correlation was found between parity and PPD.
- A significant positive correlation was found between age at marriage and PPD.
- A significant negative correlation was found between educational level and PPD.

Plain Language Summary

Depression is a mental health condition in postpartum women, influencing their emotional well-being and their relationship with their infants. This study investigates the Prevalence of Postpartum Depression (PPD) and related factors among 434 women living in southern Jordan. Results revealed that about three-quarters of the women were at risk of PPD, indicating a significant public health concern. Women with a higher number of pregnancies, a higher age at marriage, or a lower level of education were at higher risk. These findings highlight the urgent need for early screening and supportive care for Jordanian women, particularly for those at higher risk. Tailored interventions may help reduce their depression and strengthen their family relationships.

Introduction

Postpartum Depression (PPD) is a common mental health disorder affecting 10–20% of women globally, with rates exceeding 30% in some low- and middle-income countries [1, 2]. In Jordan, the prevalence ranges from 22% to 30%, with approximately 45% of cases classified as moderate to severe [3, 4]. PPD negatively impacts maternal well-being, infant development, and family dynamics. Neurological and emotional changes associated with PPD can impair maternal bonding, increasing the risk of emotional, behavioral, and cognitive difficulties in children [4–6]. Several factors are associated with PPD, including unplanned pregnancies, low socioeconomic status, poor social support, and marital stress [7–9]. Adolescent mothers are at greater risk, particularly when experiencing family conflict or financial hardship [10-12]. Additionally, research suggests a potential link between parity and increased risk of PPD. A systematic review reported that women with more than one child were 1.5-2 times more likely to develop PPD symptoms [13, 14], while studies from Japan and Spain found that parity was associated with 30–50% higher rates of depressive symptoms [15, 16].

Despite international findings, the relationship between parity and PPD remains under-investigated in Jordan. Given the country's unique social and healthcare context, including limited access to mental health services, parity may play a distinct role in shaping maternal mental health outcomes [17, 18]. Therefore, this study aims to examine whether multiparous women in Jordan are at greater risk of developing PPD. The goal is to identify the risk factors associated with PPD among southern Jordanian women. Understanding this relationship is crucial for identifying at-risk groups and informing the development of targeted interventions that promote maternal and infant well-being.

Materials and Methods

This quantitative cross-sectional study was conducted in the southern governorates of Jordan, targeting postpartum women who attended maternal and child health clinics or those accessible through social media platforms, such as Facebook and WhatsApp. A total of 434 women participated in the study from August to December 2023. They were mothers aged 20-45 years, with at least one child, and no reported history of psychological symptoms prior to marriage. Women who reported a history of severe mental illness, inability to complete the questionnaires, or had medical conditions that could confound the results were excluded. The sample size was determined using G*Power software, version 3.1. Based on a medium effect size of 0.3, an alpha value of 0.05, and a test power of 0.80, the required sample size was calculated to be 384. To ensure sufficient data quality and to account for a 13% sample dropout rate, the sample size increased to 434.

Data collection was performed using a structured, self-administered questionnaire that included two sections: a sociodemographic/obstetric form and the Edinburgh Postnatal Depression Scale (EPDS). The sociodemographic/obstetric form surveyed age, parity, educational level, employment status, family income, history of smoking, age at marriage, number of previous pregnancies and abortions, and number of children living with parents. The EPDS is a valid 10-item scale developed by Cox et al. [19], with each item rated on a four-point Likert scale and a total score ranging from 0 to 30. A cut-off point of 13 was used to indicate probable PPD. In this study, the validated Arabic version of EPDS was used. The translation was done by two independent translators and reviewed by a bilingual expert panel specialized in mental health. A pilot test was conducted on 15 Jordanian women (not included in the final sample) to assess clarity and cultural adaptability. The internal consistency of the Arabic EPDS was found to be high (Cronbach's α coefficient=0.82). Previous studies have confirmed the validity of the Arabic EPDS in other Arab countries [20]. Data collection was conducted in-person (for women attending maternal and child health services) or online (for women reachable through social media platforms).

Statistical analysis was performed in IBM SPSS software, version 29. Descriptive statistics were used to present participants' characteristics. Categorical variables were expressed as frequency (percentage), while continuous variables were reported as Mean±SD. Independent t-tests and one-way Analysis of Variance (ANOVA) were used to compare the groups based on depression levels. Pearson's correlation test was used to explore associations between continuous variables. The assumptions of normality were tested using the Shapiro–Wilk test. P<0.05 was considered statistically significant.

Results

The socio-demographic and obstetric characteristics of participants are presented in Table 1. The majority were aged 36–40 years (29.6%), and more than half were employed (52.5%). Most participants reported a monthly income of <500 Jordanian dinar (61.3%), and 38.7% had a diploma. Regarding health behaviors, the majority were non-smokers (88.5%), with no history of abortions (64.5%), and their mean number of previous pregnancies was 4±1.58. Their mean age at marriage was 22.91±3.97 years, and the median family size was 5 (Table 1).

The mean EPDS score was 15.57±4.71. A total of 324 women (74.7%) scored 13 or above, indicating that they were at risk of PPD development, whereas 110 women (25.3%) were not at risk (Table 2). The independent t-test results revealed a statistically significant difference in the EPDS score between the two groups at risk and at no risk of PPD development (P=0.001).

The ANOVA results showed that the EPDS score was significantly different based on educational level (P=0.009), where women with secondary education or lower level had higher scores than those with higher education levels. The EPDS score was not significantly different based on the number of previous abortions, age, occupation, monthly income, or smoking (Table 3).

The results of Pearson's correlation test for the association of socio-demographic and obstetric variables with the EPDS score are presented in Table 4. The results revealed moderate positive associations between the EPDS score and number of previous pregnancies (r=0.448, P=0.001), and age at marriage (r=0.393, P=0.001) and negative associations between the EPDS score and educational level(r=-0.152, P=0.012). These findings suggest that parity and maternal age at marriage are moderately related to the severity of PPD symptoms. Other socio-demographic factors showed no significant relationship with the EPDS score.

Discussion

This study examined the prevalence and factors associated with PPD among Jordanian women. The results indicate that the number of previous pregnancies, age at marriage, and educational level in women were significantly associated with their EPDS score. These results are consistent with the results of other similar studies [21, 22]. Women with higher parity and older age at marriage exhibited higher EPDS scores, suggesting a moderate positive relationship with PPD symptoms. These findings are consistent with the results of a study conducted in Japan [23]. Educational level was also significantly associated with PPD, where women with secondary education or lower level showed higher EPDS scores compared to those with higher education, which is consistent with the findings of Miyake et al. [24], and findings of studies conducted in Japan and Iran, where lower education was reported as a risk factor for PPD [23, 25], suggesting that cultural and societal expectations may modulate the relationship between education and maternal mental health. Although those with low monthly income had higher EPDS scores compared to those with higher income, the difference was not statistically significant. This contrasts with the results of Segre et al. [26]. No significant association was found between smoking or history of abortion and the EPDS score. These findings contrast with the results of Dindar et al. [27].

Table 1. Participants' socio-demographical and maternal data (n=434)

Variables	Categories	No. (%)/Mean±SD
Age groups (y)	20–25	104(24)
	26–30	97(22.4)
	31–35	104(24)
	36–40	129(29.6)
Occupation	Worker	228(52.5)
	Not worker	206(47.5)
Monthly income	<500 JOD	266(61.3)
	500–1000 JOD	146(33.6)
	>1000 JOD	22(5.1)
Education level	Secondary education or lower	84(19.4)
	Diploma	168(38.7)
	Bachelor's degree	147(33.9)
	Higher degrees	35(8)
Smoking status	No	384(88.5)
	Yes	50(11.5)
Number of previous abortions	0	280(64.5)
	1	97(22.4)
	2	35(8.1)
	≥3	22(5)
Number of previous pregnancies	-	4±1.58
Age at marriage (y)	-	22.91±3.97
Median family members	-	5

JOD: Jordanian dinar.

Table 2. Level of PPD among participants

Level	No. (%)	Mean±SD	P*	Mean±SD
				Total
No risk of depression	110(25.3)	9.54±2.1	0.001	15.57±4.71
At risk of depression	324(74.7)	17.61±3.4		

*Independent t-test.

Table 3. Mean EPDS scores based on sociodemographic/obstetric variables

Variables		Mean±SD	P*
Age (y)	20–25	15.82±5.01	0.230
	26–30	15.81±4.42	
	31–35	15.97±5.02	
	36–40	14.85±4.35	
Occupation	Worker	15.2±4.79	0.085
	Not worker	15.98±4.58	
Monthly income	<500 JOD	15.65±4.62	0.727
	500–1000 JOD	15.53±4.66	
	>1000 JOD	14.82±6.02	
Education level	Secondary education or lower	16.92±4.54	0.009
	Diploma	15.57±4.88	
	Bachelor's degree	15.14±4.67	
	Higher degrees	14.11±3.65	
Smoking status	No	15.54±4.71	0.758
	Yes	15.76±4.68	
Number of previous abortions	0	15.32±4.82	0.491
	1	15.9±4.67	
	2	16.31±4.56	
	≥3	16.09±3.34	

JOD: Jordanian dinar, EPDS: Edinburgh Postnatal Depression Scale.

*ANOVA.

Table 4. Pearson's correlation coefficients between the EPDS score and sociodemographic/obstetric variables

Variables	r	P
Number of previous pregnancies	0.448	0.001
Age at marriage	0.393	0.001
Educational level	-0.152	0.012
Age	0.054	0.210
Occupation	0.032	0.450
Monthly income	-0.041	0.350
Smoking	0.022	0.600
Number of previous abortions	0.011	0.800
Number of family members	0.061	0.180

EPDS: Edinburgh Postnatal Depression Scale.

Limitations of this study included the use of a convenience sampling method and an online survey method, which may limit generalizability. Future studies with a longitudinal design and larger, more diverse populations are recommended to confirm the reported associations. Our findings underscore the importance of early identification of women at higher risk of PPD in Jordan, particularly those with higher parity, older age of marriage, or lower educational levels, to facilitate timely interventions. The study emphasizes the need for targeted postpartum care, including educational programs and supportive interventions, to mitigate the impact of PPD, especially among women at higher risk. Additional qualitative studies should be conducted to explore the specific challenges faced by Jordanian women. Applying targeted interventions and policies may help alleviate the burden of PPD and enhance maternal well-being in this population.

Ethical Considerations

Compliance with ethical guidelines

The study was approved by the Ethics Committee of Al-Balqa Applied University, Karak, Jordan. Written informed consent was obtained from all participants prior to the study.

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Authors' contributions

Data collection and data analysis: Ehoud Garaleah; Draft preparation: Ehoud Garaleah and Ghayda Alkhotoba; Supervision: Nooralhuda Alma'aytah and Ehoud Garaleah; Final approval: All authors.

Conflict of interest

The authors declared no conflict of interest.

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