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Sociodemographic characteristics and postpartum depression among mothers of neonates in intensive care, Peru, 2024

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Keywords:
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ABSTRACT

Objective. To determine the sociodemographic characteristics associated with postpartum depression among mothers of neonates admitted to the intensive care unit of Hospital Nacional Guillermo Almenara Irigoyen, Lima (Peru), 2024. **Methods.** A quantitative, non-experimental, comparative, cross-sectional study was conducted. The census sample consisted of 180 mothers of neonates in intensive care. The Edinburgh Postnatal Depression Scale (EPDS) was used as the measurement instrument. For inferential analysis, chi-square and Kendall's tau-b tests were applied. **Results.** Overall, 47.7 % of mothers were between 28 and 36 years old, 72.2 % were employed, 78.3 % were born in and resided in Lima, and 97.8 % reported having access to basic services. Postpartum depression was present in 60.6 % of the study population. There was a significant association between postpartum depression and age (p = 0.034) and place of residence (p = 0.001). **Conclusions.** Age and place of residence were the sociodemographic characteristics significantly associated with postpartum depression among mothers of neonates admitted to the intensive care unit of Hospital Nacional Guillermo Almenara Irigoyen.

Características sociodemográficas y depresión posparto en madres de neonatos en cuidados intensivos Perú, 2024

Palabras clave:
depresión; madres; neonato; cuidados intensivos; salud pública (fuente: DeCs-BIREME).

RESUMEN

Objetivo. Determinar las características sociodemográficas asociadas a la depresión posparto en las madres de los neonatos en cuidados intensivos del Hospital Nacional Guillermo Almenara Irigoyen, Lima (Perú), 2024. **Métodos.** Se llevó a cabo un estudio cuantitativo, no experimental, de alcance comparativo y medida transversal. La muestra fue censal y estuvo conformada por 180 madres de neonatos en cuidados intensivos. El instrumento aplicado fue la escala de depresión postnatal de Edimburgo. Para el análisis inferencial fueron usadas las pruebas chi-cuadrado y tau-b de Kendall. **Resultados.** El 47,7 % del total de madres tenían de 28 a 36 años, el 72,2 % laboraba, el 78,3 % procedían y residían en Lima; así mismo, el 97,8 % declaró tener servicios básicos. La depresión posparto se encontraba presente en el 60,6 % de la población estudiada. Existió asociación entre la depresión posparto y la edad (p = 0,034) y el lugar de residencia (p = 0,001) **Conclusiones.** Se determina que las características sociodemográficas (edad y lugar de residencia) se encuentran asociadas a la depresión posparto de madres de neonatos en cuidados intensivos del Hospital Nacional Guillermo Almenara Irigoyen.

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INTRODUCTION

Research on postpartum depression among mothers of neonates admitted to intensive care units is justified by the high emotional vulnerability inherent in this situation [1]. Physical separation, clinical uncertainty, and stress significantly increase the risk of depressive symptoms, affecting maternal mental health, emotional bonding, and the long-term development of the neonate [2]. From a global health perspective, generating empirical evidence is essential for designing timely interventions that mitigate this impact and promote a healthy multilevel environment for both mother and child [3].

Globally, various studies have examined the relationship between postpartum depression and sociodemographic characteristics, reporting heterogeneous results. For example, Yaqoob et al. [4] identified five major determinants: biological/physical, psychological, obstetric/pediatric, sociodemographic, and cultural factors ($p < 0.05$). In contrast, Zhang et al. [5] reported that the only variables associated with postpartum depression were family support, not working, and Internet use ($p < 0.05$). Additionally, Froeliger et al. [6] found that age, previous abortion, and psychiatric history were significantly associated with postpartum depression, underscoring the need to consider these factors when designing preventive interventions ($p < 0.001$).

In the Peruvian context, Leveau-Bartra et al. [7] noted that the most relevant sociodemographic characteristics were being younger than 20 years ($p = 0.001$), single civil status ($p < 0.001$), psychotropic drug use ($p < 0.001$), and being employed ($p < 0.001$). Similarly, Ramos and Rivera [8] found a significant inverse relationship between postpartum depression and emotional support, instrumental support, and informational support ($p < 0.05$), highlighting the important role of the affective partner. Likewise, Antúnez et al. [9], after conducting a literature review, indicated that the most prevalent risk variables were previous psychiatric history, perceived social support, and geographic location.

Neonatal hospitalization—characterized by mother–infant separation, clinical uncertainty, and a perceived loss of the maternal role—constitutes a precipitating factor for affective disorders, with postpartum depression being one of the most prevalent and underdiagnosed manifestations [10]. This condition not only compromises the mother's psychological well-being but also interferes with early emotional bonding and active participation in neonatal care, which may potentially affect the infant's clinical course and later development [11]. The lack of systematic protocols for screening and addressing maternal mental health in neonatal intensive care settings reveals a critical gap in current perinatal care models, making rigorous research essential to inform effective and humanized intervention strategies [12].

In light of these findings, exploring the association between postpartum depression and the sociodemographic characteristics of mothers with infants in intensive care is highly relevant. Accordingly, the objective of this study was to determine the sociodemographic characteristics associated with postpartum depression in mothers of neonates admitted to the neonatal intensive care unit of the Hospital Nacional Guillermo Almenara Irigoyen.

METHODS

Study type and area

The research design was non-experimental with a comparative scope [13] as the aim was to determine the association between the variables under study. It was also a quantitative and cross-sectional investigation [14]. The study was conducted at the Hospital Nacional Guillermo Almenara Irigoyen (HNGAI), located in Lima, Peru, between July and December 2024.

Population and sample

The sample was census-based [15] and consisted of a total of 180 mothers of neonates in the intensive care unit. The inclusion criteria were: completing the informed consent form and being of legal age. The exclusion criteria were: not completing the measurement instrument, participating in another study, and receiving mental health treatment.

Variables and data collection instruments

For the variable "postpartum depression," the Edinburgh Postnatal Depression Scale, validated by Cox et al. [16], was used to screen for postpartum depressive symptoms. The instrument consisted of 10 items grouped into a unidimensional factor solution ($\alpha = 0.87$). Item responses followed a scale in which participants selected one of four options

with assigned scores: from "Yes, quite a lot" or "Yes, often" (3 points) to "No, not at all" or "No, never" (0 points). Thus, the instrument yielded a minimum score of 0 and a maximum of 30. Based on these scores, participants were categorized as having no postpartum depressive symptoms (0-12 points) or having postpartum depressive symptoms (13-30 points).

To verify construct validity, an exploratory factor analysis (EFA) was performed [17] after conducting the Kaiser-Meyer-Olkin test (KMO = 0.923) and Bartlett's test of sphericity (X^2 = 2319.198; df = 180; p < 0.000). The results supported the suitability of applying EFA. The items showed satisfactory communalities and a well-defined factor structure that explained 72.23 % of the total variance.

Regarding variable conceptualization, postpartum depressive symptoms refer to indicators of a mood disturbance affecting some women after childbirth, characterized by persistent feelings of sadness, fatigue, irritability, and loss of interest [5]. For the sociodemographic characteristics, a data collection sheet was used to inquire about age, employment status, place of origin, residence, and access to basic services.

Data collection techniques and procedures

Institutional authorization was obtained through Letter No. 1844-GRPA-ESSALUD-2024. Participation in the study took place only after each participant provided written informed consent in person. All participants received a clear, comprehensible, and truthful explanation of the study's objectives, benefits, risks, and related procedures. Subsequently, they were given a printed questionnaire, following the survey technique. Completion of the instrument took between 5 and 7 minutes; data collection occurred between 10:00 a.m. and 12:00 p.m., Monday through Sunday.

Data analysis

Once collected, the data were exported to SPSS version 26. A descriptive analysis was conducted for the sociodemographic characteristics and the variable "postpartum depression." Furthermore, since the variables were ordinal and nominal, cross-tabulations were performed. To assess the association between sociodemographic characteristics and postpartum depression, chi-square and Kendall's tau-b tests were applied.

Ethical considerations

The study was conducted in accordance with the ethical principles established in the Declaration of Helsinki, formulated by the World Medical Association. Accordingly, the four fundamental pillars of research ethics—respect for persons, beneficence, non-maleficence, and justice—were upheld. Informed consent was applied, ensuring that participation was free, voluntary, autonomous, and confidential. Additionally, the study received approval from the Institutional Research Ethics Committee of HNGAI (Letter No. 1844-GRPA-ESSALUD-2024) and from the Research Ethics Committee of the Faculty of Medicine of the Universidad Nacional Mayor de San Marcos (study code No. 0101-2024).

RESULTS

Regarding age, 47.7 % of the mothers of neonates were between 28 and 36 years old. Concerning employment status, the proportion of mothers who were employed was higher (72.2 %) compared with those who were not employed (27.8 %). With respect to place of origin, the category "Lima" was predominant (78.3 %). Similarly, 78.3% of the mothers of neonates reported living in Lima. Finally, 97.8 % of the study population had access to basic services (see Table 1).

Table 1. Sociodemographic characteristics of mothers of neonates in the intensive care unit of HNGAI

Sociodemographic characteristics	n = 180	
	fi	%
Age group		
18–27 years	37	20.6
28–36 years	86	47.7
37–46 years	57	31.7
Employment status		
Not employed	50	27.8
Employed	130	72.2
Place of origin		
Lima	141	78.3
Province	39	21.7
Residence		
Lima	141	78.3
Province	39	21.7
Basic services		
No	4	2.2
Yes	176	97.8

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Table 2. Descriptive statistics of postpartum depression by item

Postpartum depression	n = 180			
	Yes		No	
	fi	%	fi	%
Have I been able to laugh and see the funny side of things?	68	37.8	112	62.2
Have I looked forward to the future with enjoyment?	81	45.0	99	55.0
Have I blamed myself unnecessarily when things went wrong?	126	70.0	54	30.0
Have I been anxious or worried for no good reason?	94	52.2	86	47.8
Have I felt scared or panicky for no very good reason?	108	60.0	72	40.0
Have things been getting on top of me?	119	66.1	61	33.9
Have I been so unhappy that I have had difficulty sleeping?	104	57.8	76	42.2
Have I felt sad or miserable?	113	62.8	67	37.2
Have I been so unhappy that I have been crying?	121	67.2	59	32.8
Have I thought of harming myself?	99	55.0	81	45.0

Regarding the variable "postpartum depression," it is important to clarify that the percentages reported correspond to positive screening results for postpartum depressive symptoms and not to confirmed clinical diagnoses. With this in mind, the highest positive frequencies were observed in the item "Have I blamed myself unnecessarily when things went wrong?" (fi = 126; % = 70.0) and in "Have I been so unhappy that I have been crying?" (fi = 121; % = 67.2).

Among the negative frequencies, the highest values appeared in "Have I been able to laugh and see the funny side of things?" (fi = 112; % = 62.2) and "Have I looked forward to the future with enjoyment?" (fi = 99; % = 55.0). Regarding the presence of

Table 3. Cross-tabulation of postpartum depression and sociodemographic characteristics

Characteristics	Postpartum depression				Kendall's tau-b coefficient	*p*-value
	Yes		No			
	fi	%	fi	%		
Age group					0.231	0.034*
18-27 years	22	12.2	15	8.3		
28-36 years	52	28.9	34	18.9		
37-46 years	35	19.4	22	12.2		
Employment status						0.072**
Not employed	30	16.7	20	11.1		
Employed	79	43.9	51	28.3		
Place of origin						0.054**
Lima	85	47.2	56	31.1		
Province	24	13.3	15	8.3		
Residence						0.001**
Lima	85	47.2	56	31.1		
Province	24	13.3	15	8.3		
Basic services						0.132**
No	2	1.1	2	1.1		
Yes	107	59.4	69	38.3		

* Test used: Kendall's tau-b
** Test used: chi-square

postpartum depression, the most prevalent response category was "yes" (fi = 109; % = 52.5), followed by "no" (fi = 71; % = 39.4) (see Table 2).

Regarding the verification of the association between "postpartum depression" and the "sociodemographic characteristics" of mothers of neonates in intensive care, significant associations were found for the categories "age" (p = 0.034) and "place of residence" (p = 0.001) (see Table 3).

DISCUSSION

This study addresses a critical and often overlooked issue in the field of maternal–infant health: postpartum depression among mothers of neonates admitted to intensive care units—a condition in which the psycho-emotional challenges of the postpartum period intersect with the acute stress generated by the infant's hospitalization in a highly medicalized environment [18]. This situation is further exacerbated by sociodemographic characteristics such as low educational level, job insecurity, residence in areas with limited access to mental health services, and a weak family support network, all of which may act as risk indicators that heighten mothers' psychological vulnerability [19]. In this context, the study highlights the need to understand the phenomenon from a biopsychosocial perspective by identifying risk profiles that can guide preventive interventions and public policies aimed at promoting emotional well-being among mothers facing complex neonatal scenarios [20].

Analysis of the association between variables revealed a significant relationship between maternal age and the presence of postpartum depression (p = 0.034). Numerous studies have supported this finding. For example, Bradshaw et al. [21], in a study involving more than 1 million women from 138 countries, concluded that postpartum depression decreased with increasing age (p < 0.05). They also reported that 11% of mothers presented postpartum depression—a considerably lower figure than that found in the present study (60.6 %). Similarly, Agrawal et al. [22] found that young mothers under 25 years of age are at higher risk of experiencing postpartum depression, noting that the risk in this age group is three times greater.

However, other studies have not confirmed this association. For instance, Tsai et al. [23] showed—using logistic regression—that the associated factors were having a secondary-level education or less, being single, being unemployed, and experiencing an unplanned pregnancy (p < 0.05). Meanwhile, Dubey et al. [24] found no significant differences in postpartum depression prevalence across age groups, indicating that contextual characteristics such as lower educational attainment, higher parity, and preterm birth carried greater predictive weight (p < 0.01). Correspondingly, Liu et al. [25], after analyzing 33 studies across 33 countries with a sample of 133,313 mothers, reported that although age may be a relevant factor, its effect is overshadowed by determinants such as gestational diabetes, depression during pregnancy, history of depression, and epidural anesthesia during childbirth (p < 0.05). From a global health perspective, these findings underscore the importance of interpreting the relationship between age and postpartum depression within a multicausal framework, in which psychosocial variables play a critical mediating role.

With regard to the analysis of associations between variables, a significant relationship was also found between geographic residence and postpartum depression (p = 0.001). Although many studies agree that place of residence significantly influences maternal mental health during the postpartum period, the broader literature remains heterogeneous. For example, the review by Dubey et al. [24] reported a higher prevalence of postpartum depression in rural areas, suggesting that this difference may stem from disparities in socioeconomic status, education, awareness, and stigma associated with mental health conditions. Similarly, Putri et al. [26] found that urban and rural mothers experienced different risk patterns: in urban settings, living without a spouse, experiencing preterm birth, and having childbirth-related complications were prominent factors (p < 0.05), whereas in rural areas, the main predictors were unwanted pregnancy, small household size, and complications during pregnancy (p < 0.05).

However, other findings do not support this association. For instance, Chen and Shi [27], in a study conducted in China, found no significant differences in postpartum depression between urban and rural women, attributing depressive symptoms instead to cross-cutting factors such as poor family relationships, pregnancy complications, and mother–infant separation (p < 0.05). Likewise, Handelzalts et al. [28] reported that regardless of residence or other sociodemographic characteristics, the presence of a strong emotional support network was the most powerful predictor of postpartum emotional

well-being. These results suggest that although residence may be an associated factor, its influence is conditioned by intervening social, economic, and family-related variables that must be considered holistically [29].

One of the main strengths of this study lies in the use of a census sample, which provides high representativeness and statistical power to the findings by including all mothers of neonates in intensive care at the hospital in question. Additionally, the use of a validated and standardized instrument, such as the Edinburgh Postnatal Depression Scale, strengthens the reliability of the results. The quantitative, non-experimental, cross-sectional design allows for the identification of relevant associations at a critical moment in the postpartum period, thereby contributing useful empirical evidence for clinical intervention. In a similar vein, the use of appropriate statistical tests, such as the chi-square and Kendall's tau-b tests, supports the analytical robustness of the study, particularly in establishing significant links between postpartum depression and key sociodemographic variables such as age and place of residence.

Among the main limitations of the present study is the absence of a longitudinal design, which prevents an analysis of the temporal evolution of postpartum depressive symptoms and the distinction between transient episodes and persistent clinical conditions. Similarly, the exclusive use of a screening scale, although valid and reliable, may fail to capture the full emotional complexity of mothers by overlooking potential comorbidities such as anxiety, perinatal grief, or post-traumatic stress. Data collection in a hospital setting also presents a limitation, as the emotionally sensitive environment and the potential influence of healthcare personnel may have conditioned responses, contributing to underreporting biases. Furthermore, the study did not include structural contextual variables, such as effective access to mental health services, housing conditions, or caregiving burden, which may act as moderating determinants of maternal emotional health. Finally, the sample was limited to a single healthcare institution, restricting the generalizability of the findings to other geographic, cultural, and socioeconomic contexts, particularly in rural or highly vulnerable populations.

Regarding recommendations, future research could explore inequalities in access to and quality of perinatal mental health services between urban and rural settings or across countries with different levels of development. It is also relevant to examine the impact of maternal mental health on the neurodevelopment of hospitalized neonates, as well as the ethical and emotional implications for healthcare personnel involved in their care. This approach would strengthen the humanization of neonatal care and promote training in psycho-emotional competencies among the healthcare team. Finally, an emerging line of inquiry involves examining public policies that integrate maternal mental health into neonatal care standards from a human rights and global equity perspective.

Conclusions

The sociodemographic characteristics associated with postpartum depression among mothers of neonates in the intensive care unit of the Hospital Nacional Guillermo Almenara Irigoyen, in Lima (Peru), in 2024, were age and place of residence.

BIBLIOGRAPHIC REFERENCES

1. Dimcea DA-M, Petca R-C, Dumitrașcu MC, Șandru F, Mehedințu C, Petca A. Postpartum Depression: Etiology, Treatment, and Consequences for Maternal Care. Diagnostics [Internet]. 2024 [cited 2025 Jun 12];14(9):865. doi:10.3390/diagnostics14090865
2. Tambelli R, Tosto S, Favieri F. Psychiatric Risk Factors for Postpartum Depression: A Systematic Review. Behavioral Sciences [Internet]. 2025 [cited 2025 Jun 12];15(2):173. doi:10.3390/bs15020173
3. Dessì A, Pianese G, Mureddu P, Fanos V, Bosco A. From Breastfeeding to Support in Mothers' Feeding Choices: A Key Role in the Prevention of Postpartum Depression? Nutrients [Internet]. 2024 [cited 2025 Jun 14];16(14):2285. doi:10.3390/nu16142285
4. Yaqoob H, Ju X, Bibi M, Anwar S, Naz S. A systematic review of risk factors of postpartum depression. Evidence from Asian culture. Acta Psychologica [Internet]. 2024 [cited 2025 Jun 16];249:104436. doi:10.1016/j.actpsy.2024.104436
5. Zhang Y, Liu X, Liu M. Multidimensional influencing factors of postpartum depression based on the perspective of the entire reproductive cycle: evidence from western province of China. Soc Psychiatry Psychiatr Epidemiol [Internet]. 2024 [cited 2025 Jun 16];59:2041–2048. doi:10.1007/s00127-024-02686-2
6. Froeliger A, Deneux-Tharaux C, Loussert L, Bouchghoul H, Madar H, Sentilhes L. Prevalence and risk factors for postpartum depression 2 months after a vaginal delivery: a prospective multicenter study. American Journal of Obstetrics and Gynecology [Internet]. 2024 [cited 2025 Jun 16];230:S1128-S1137. doi:10.1016/j.ajog.2023.08.026
7. Leveau-Bartra H, Chávez-Navarro J, Calle-Vilca L, Guerrero-Ortiz H, Mejia-Lengua C, Luján-Divizzia B, Leveau-Vásquez I, Medina-Vásquez N, Leveau-Vásquez H, Medina-Vásquez F. Factores asociados a la depresión posparto en puérperas de un hospital peruano. Clínica e investigación en Ginecología y Obstetricia [Internet]. 2024[cited 2025 Jun 17];51:100986. doi:10.1016/j.gine.2024.100986

8. Ramos M, Rivera L. Asociación entre depresión postparto y apoyo de la pareja en un centro materno infantil de Lima. Anales de la Facultad de Medicina [Internet]. 2022 [cited 2025 Jun 17];83:19-24. doi:10.15381/anales.v83i1.20562

9. Antúnez M, Martín N, Casilari J, Mérida F. Depresión posparto, análisis de los factores de riesgo y la intervención de Enfermería. Revisión bibliográfica. Enfermería Cuidándote [Internet]. 2022 [cited 2025 Jun 17];5:19-29. doi:10.51326/ec.5.3.2558670

10. Alhaj Ahmad M, Al Awar S, Sayed Sallam G, Alkaabi M, Smetanina D, Statsenko Y, Zaręba K. Biopsychosocial Predictors of Postpartum Depression: Protocol for Systematic Review and Meta-Analysis. Healthcare [Internet]. 2024 [cited 2025 Jun 17];12(6):650. doi:10.3390/healthcare12060650

11. Kim H. Predictive Analysis of Postpartum Depression Using Machine Learning. Healthcare [Internet]. 2025 [cited 2025 Jun 18];13(8):897. doi:10.3390/healthcare13080897

12. Cho M, Lee MH. Predictors of Postpartum Depression in Korean Women: A National Cross-Sectional Study During the COVID-19 Pandemic. Healthcare [Internet]. 2025 [cited 2025 Jun 18];13(10):1128. doi:10.3390/healthcare13101128

13. Schenker J, Rumrill, Jr. P. Causal-comparative research designs. Journal of Vocational Rehabilitation [Internet]. 2004 [cited 2025 Jun 18];21(3):117-121. doi:10.3233/JVR-2004-00260

14. Savitz D, Wellenius G. Can Cross-Sectional Studies Contribute to Causal Inference? It Depends. American Journal of Epidemiology [Internet]. 2023 [cited 2025 Jun 19];192:514-516, doi:10.1093/aje/kwac037

15. Rahman MM. Sample size determination for survey research and non-probability sampling techniques: A review and set of recommendations. J Entrep Bus Econ [Internet]. 2023 [cited 2025 Jun 19];11(1):42-62. https://scientificia.com/index.php/JEBE/article/view/201

16. Cox J, Holden J. Detection of postnatal depression. Development of the 10-item Edinburg Postnatal Depression Scale. The British Journal of Psychiatry [Internet]. 1987 [cited 2025 Jun 19];150:782-786. doi:10.1192/bjp.150.6.782

17. Schreiber J. Issues and recommendations for exploratory factor analysis and principal component analysis. Research in Social and Administrative Pharmacy [Internet]. 2021 [cited 2025 Jun 19];17:1004-1011. doi:10.1016/j.sapharm.2020.07.027

18. Campos-Marin Á, García-Muñoz C, Matias-Soto J, Martinez-Calderon J. What Interventions Focused on Physical Activity Could Improve Postpartum Depression Symptoms? An Overview of Systematic Reviews with Meta-Analysis. Healthcare [Internet]. 2025 [cited 2025 Jun 20];13(12):1419. doi:10.3390/healthcare13121419

19. Rodríguez-Gallego I, Vila-Candel R, Corrales-Gutierrez I, Gomez-Baya D, Leon-Larios F. Evaluation of the Impact of a Midwife-Led Breastfeeding Group Intervention on Prevention of Postpartum Depression: A Multicentre Randomised Clinical Trial. Nutrients [Internet]. 2024 [cited 2025 Jun 20];16(2):227. doi:10.3390/nu16020227

20. Tzitiridou-Chatzopoulou M, Orovou E, Zournatzidou G. Digital Training for Nurses and Midwives to Improve Treatment for Women with Postpartum Depression and Protect Neonates: A Dynamic Bibliometric Review Analysis. Healthcare [Internet]. 2024 [cited 2025 Jun 20];12(10):1015. doi:10.3390/healthcare12101015

21. Bradshaw H, Riddle J, Salimgaraev R, Zhaunova L, Payne J. Risk factors associated with postpartum depressive symptoms: A multinational study. Journal of Affective Disorders [Internet]. 2022 [cited 2025 Jun 20];301:345-351. doi:10.1016/j.jad.2021.12.121

22. Agrawal I, Mehendale A, Malhotra R. Risk Factors of Postpartum Depression. Cureus [Internet]. 2022 [cited 2025 Jun 20];e30898. doi:10.7759/cureus.30898

23. Tsai J, Tsai L, Tsay S, Chen Y. The prevalence and risk factors of postpartum depression among women during the early postpartum period: a retrospective secondary data analysis. Taiwanese Journal of Obstetrics and Gynecology [Internet]. 2023 [cited 2025 Jun 21];62:406-411. doi:10.1016/j.tjog.2023.03.003

24. Dubey A, Chatterjee K, Chauhan V, Sharma R, Dangi A, Adhvaryu A. Risk factors of postpartum depression. Industrial Psychiatry Journal [Internet]. 2021 [cited 2025 Jun 21];30:127-131. doi:10.4103/0972-6748.328803

25. Liu X, Wang S, Wang G. Prevalence and Risk Factors of Postpartum Depression in Women: A Systematic Review and Meta-analysis. Journal of Clinical Nursing [Internet]. 2021 [cited 2025 Jun 21];31:2665-2677. doi:10.1111/jocn.16121

26. Putri A, Wurisastuti T, Suryaputri I, Mubasyiroh R. Postpartum Depression in Young Mothers in Urban and Rural Indonesia. Journal of Preventive Medicine & Public Health [Internet]. 2023 [cited 2025 Jun 21];56:272-281. doi:10.3961/jpmph.22.534

27. Chen L, Shi Y. Analysis of influencing factors and the construction of predictive models for postpartum depression in older pregnant Women. World Journal of Psychiatry [Internet]. 2023 [cited 2025 Jun 21];13:1079-1086. doi:10.5498/wjp.v13.i12.1079

28. Handelzalts J, Ohayon S, Levy S. Risk psychosocial factors associated with postpartum depression trajectories from birth to six months. Soc Psychiatry Psychiatr Epidemiology [Internet]. 2024 [cited 2025 Jun 21];59:1685-1696. doi:10.1007/s00127-023-02604-y

29. Brandão T, Ribeiro AC, Griff MI, Babore A, Diniz E. Social Support and Postpartum Depressive Symptoms in Portuguese Women: The Mediating Role of Emotion Regulation Difficulties. Journal of Clinical Medicine [Internet]. 2024 [cited 2025 Jun 16];13(23):7150. doi:10.3390/jcm13237150

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