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RISK FACTORS OF PERINATAL DEPRESSION IN WOMEN: AN UPDATED SYSTEMATIC REVIEW

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ABSTRACT

Background: *Perinatal depression (PND) can result in adverse outcomes for both mother and child, including poorer pregnancy outcomes and long-term emotional, social, and cognitive difficulties in children. Furthermore, it correlates with high morbidity and mortality rates, posing significant burdens on affected individuals, families, and society. The objective of this study is to conduct an extensive systematic review evaluating the risk factors of perinatal depression in women based on literature published within the last five years.*

Methods: *The systematic review followed PRISMA 2020 standards and examined full-text English literature published between 2019 and 2024. This review excluded editorials, review papers from the same journal, and submissions without a DOI. Literature was sourced from online platforms such as PubMed, SagePub, and SpringerLink.*

Result: *A total of 1,161 articles were retrieved from online databases (PubMed, SagePub, and SpringerLink). After three rounds of screening, five articles directly relevant to the systematic review were selected for full-text reading and analysis.*

Conclusion: *Perinatal depression (PND) affects numerous women during and after childbirth, influenced by socioeconomic, psychosocial, and environmental factors like poverty, social support, pregnancy loss, and urban living. Early detection and comprehensive interventions are crucial to support at-risk mothers, promoting better mental health outcomes for both them and their families.*

Keyword: *Perinatal depression, risk factors, prevalence*

INTRODUCTION

Perinatal depression (PND), occurring during pregnancy or within a year postpartum, is a common reproductive complication affecting 10-15% of women in developed countries and posing a higher risk in less-developed ones. PND is categorized in the Diagnostic and Statistical Manual of Mental Disorders-5th edition (DSM-5) as a major depressive episode occurring during pregnancy (antenatal depression - AND) or following childbirth (postpartum depression - PPD). The specifier "with peripartum onset" is used for depressive disorders, indicating onset during pregnancy or within 4 weeks after delivery. PND is distinct from "postpartum blues," which is a common experience characterized by mood fluctuations, fatigue, tearfulness, irritability, and anxiety that typically resolves within 10-14 days after delivery.[1]

While biological factors may play a role in mood changes during the early postpartum period, there is increasing evidence suggesting that psychological stressors accumulated within the first year after delivery also contribute to the onset or recurrence of depressive episodes. Symptoms of depressive disorders include depressed mood, loss of energy or interest in daily activities, sleep disturbances, changes in appetite or weight, difficulty concentrating, feelings of worthlessness or guilt, and suicidal thoughts. To diagnose major depression, at least five specific symptoms, including either depressed mood or loss of interest, must be present for a minimum of 2 weeks.[1,2]

The majority of women experience either no or low levels of depressive symptoms throughout the entire perinatal period. However, a minority of women may exhibit depressive symptoms primarily during either the antenatal or postpartum period, or they may experience persistently high levels of chronic depressive symptoms. PND can lead to adverse outcomes for both mother and child, including poorer pregnancy outcomes and long-term emotional, social, and cognitive difficulties in children. Additionally, it correlates with high morbidity and mortality rates, imposing significant burdens on affected individuals, families, and society.[3]

Various factors contribute to perinatal depression, such as lower educational level, younger maternal age, smoking during pregnancy, history of depression, poor economic status, marital issues, adverse life events, antenatal depression and anxiety, and lack of social support. While some studies confirm these risk factors, others yield conflicting results; for instance, while some suggest no correlation between maternal education level and perinatal depression, others find it to be a significant negative factor.[2] The objective of this study is to conduct an extensive systematic review evaluating the risk factors of perinatal depression in women based on literature published within the last five years.

METHODS

Protocol

The author carefully followed the rules laid out in the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020. This was done to make sure the study met all its standards. The selection of this methodological approach was specifically aimed at ensuring the precision and reliability of the conclusions drawn from the investigation.

Criteria for Eligibility

This systematic review examined the risk factors of perinatal depression in women based on literature published within the past decade. This study meticulously analyzed data on literatures to provide insights and enhance patient treatment strategies. The primary objective of this paper is to highlight the collective significance of the identified key points.

Inclusion criteria for this study entail: 1) Papers must be in English, and 2) Papers must have been published between 2019 and 2024. Exclusion criteria comprise: 1) Editorials; 2) Submissions without a DOI; 3) Previously published review articles; and 4) Duplicate entries in journals.

Search Strategy

The keywords used for this research are “perinatal depression”, “risk factors”, and “prevalence”. The Boolean MeSH keywords inputted on databases for this research are: *(("perinatal"[All Fields] OR "perinatally"[All Fields] OR "perinatals"[All Fields]) AND ("depressed"[All Fields] OR "depression"[MeSH Terms] OR "depression"[All Fields] OR "depressions"[All Fields] OR "depression s"[All Fields] OR "depressive disorder"[MeSH Terms] OR ("depressive"[All Fields] AND "disorder"[All Fields]) OR "depressive disorder"[All Fields] OR "depressivity"[All Fields] OR "depressive"[All Fields] OR "depressively"[All Fields] OR "depressiveness"[All Fields] OR "depressives"[All Fields]) AND ("risk factors"[MeSH Terms] OR ("risk"[All Fields] AND "factors"[All Fields]) OR "risk factors"[All Fields]) AND ("epidemiology"[MeSH Subheading] OR "epidemiology"[All Fields] OR "prevalence"[All Fields] OR "prevalence"[MeSH Terms] OR "prevalance"[All Fields] OR "prevalences"[All Fields] OR "prevalence s"[All Fields] OR "prevalent"[All Fields] OR "prevalently"[All Fields] OR "prevalents"[All Fields])) AND (y_5[Filter])*

Data retrieval

The authors assessed the studies by reviewing their abstracts and titles to determine their eligibility, selecting relevant ones based on their adherence to the inclusion criteria, which aligned with the article's objectives. A consistent trend observed across multiple studies led to a conclusive result. The chosen submissions had to meet the eligibility criteria of being in English and a full-text.

This systematic review exclusively incorporated literature that met all predefined inclusion criteria and directly pertained to the investigated topic. Studies failing to meet these criteria were systematically excluded, and their findings were not considered. Subsequent analysis examined various details uncovered during the research process, including titles, authors, publication dates, locations, study methodologies, and parameters.

Quality Assessment and Data Synthesis

Each author independently evaluated the research presented in the title and abstract of the publication to determine which ones merited further exploration. The subsequent stage involved assessing all articles that met the predefined criteria for inclusion in the review. Decisions on including articles in the review were based on the findings uncovered during this evaluation process. This criterion aimed to streamline the paper selection process for further assessment, facilitating a comprehensive discussion of previous investigations and the factors that made them suitable for inclusion in the review.

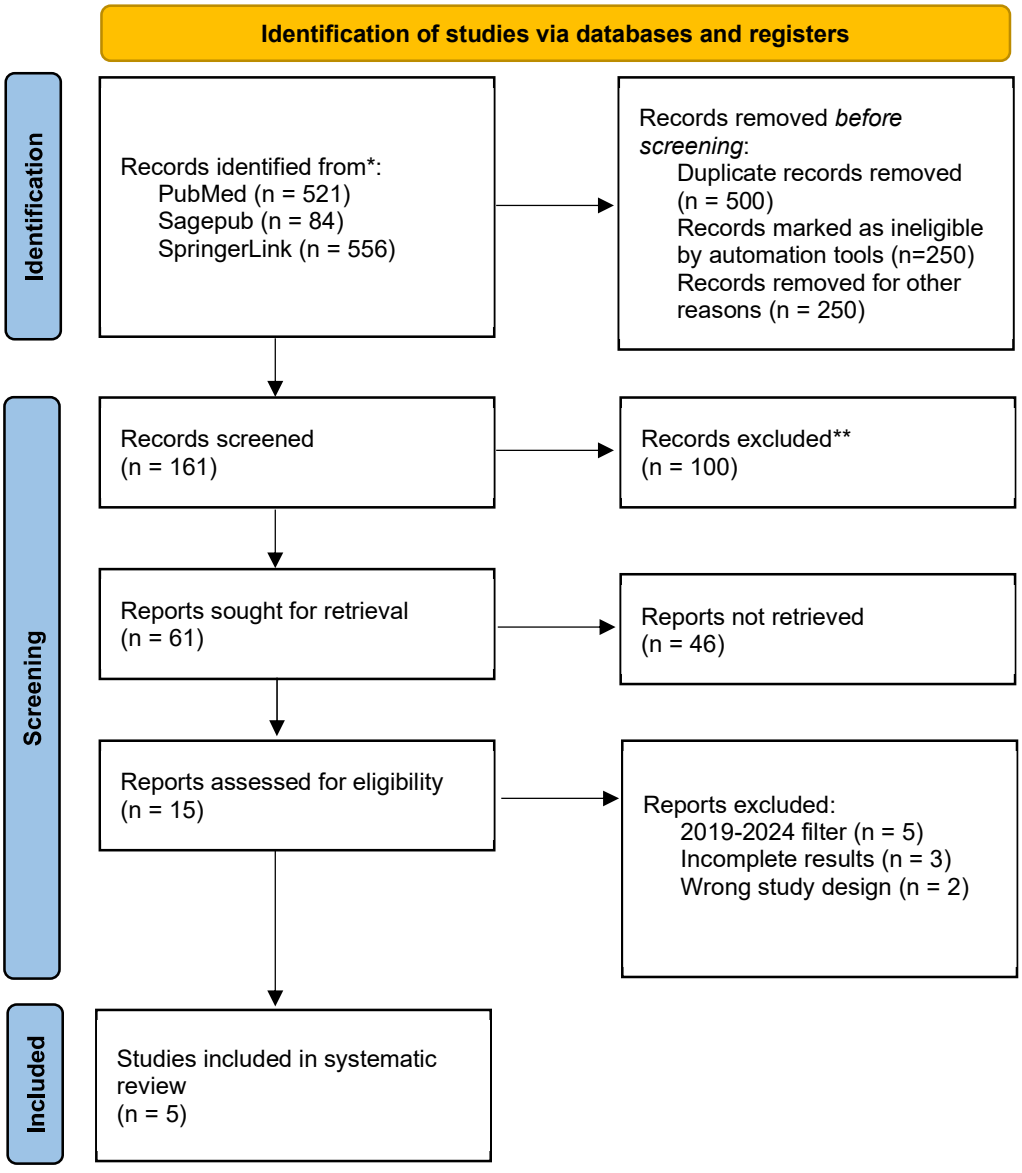

Figure 1. Article search flowchart

RESULT

The initial number of articles retrieved from online databases (PubMed, SagePub, and SpringerLink) is 1,161 articles. After conducting three levels of screening, five articles that directly relate to the current systematic review have been chosen for further assessment through full-text reading and analysis. Table 1 presents the selected literature included in this analysis.

Table 1. The literature included in this study

Author	Origin	Method	Sample	Result
Froeliger, et al.[4] (2024)	Multicenter	Prospective cohort study	281 women	In a study with a 72.2% response rate, prevalence rates for postpartum depression were found to be 9.9% and 15.5% using different cutoff scores on the Edinburgh Postnatal Depression Scale. Factors associated with higher risks of postpartum depression included prepregnancy characteristics such as age below 25 or advanced age, migration from North Africa, previous abortion, and psychiatric history. Some labor and delivery characteristics like induced labor and operative vaginal delivery were also associated with postpartum depression. Additionally, bad memories of childbirth in the immediate postpartum period strongly correlated with postpartum depression symptoms at 2 months post-birth.
Badiya, et al.[5] (2020)	South India	Longitudinal study	347 women	In a longitudinal study conducted in South India, 347 predominantly economically disadvantaged women were assessed for antenatal depression (AD) and postnatal depression (PD) using the EPDS screening tool. Prevalence rates of perinatal depression (PND) were found to be 24.50%, with 12.68% experiencing AD and 18.16% experiencing PD. Urban residence

				and recent adverse life events were associated with PND, while irregular menstrual history and chronic health issues were associated with AD and PD, respectively. Three distinct PND trajectories were identified through latent class mixed modeling (LCMM): low-risk (76.08%), medium-risk (19.89%), and high-risk (4.04%). Urban residence, recent adverse life events, irregular menstrual history, and pregnancy complications were associated with medium to high-risk trajectories.
Garman, et al.[6] (2019)	South Africa	Randomised controlled trial	384 women	In a secondary analysis of a randomized controlled trial in Khayelitsha, South Africa, involving 384 women, trajectories of depressive symptoms were examined using growth mixture modeling. Participants were recruited during their first antenatal visit if they scored 13 or above on the Edinburgh Postnatal Depression Scale, were at least 18 years old, less than 29 weeks pregnant, and spoke isiXhosa. Two trajectories were identified: antenatal only (91.4%) with symptoms subsiding over time, and antenatal and postnatal (8.6%) with severe symptoms during pregnancy and early postpartum. Predictors for the latter trajectory included severe food insecurity, intimate partner violence, lower social support, greater functional impairment, problematic drinking, and suicide risk.

Raghavan, et al.[7] (2021)	Bihar, India	Cross sectional study	564 perinatal women	In a cross-sectional study conducted in rural areas of Bihar, perinatal women were screened for depression through a door-to-door survey, with 564 participants recruited after obtaining informed consent. The estimated prevalence of perinatal depression was 23.9%. Multivariate analysis revealed associations between perinatal depression and factors such as physical illness in the mother, previous history of abortion, poor financial status, and ill-treatment by in-laws.
Rajendran, et al.[8] (2024)	India	Prospective cohort study	166 antenatal mothers	In a study of 166 antenatal mothers attending a tertiary center, various factors were assessed using a semi-structured questionnaire and the Hamilton depression rating scale (HAMD) at different stages of pregnancy and postpartum. Prevalence rates of postnatal depression (PND) ranged from 21.7% at the end of the first trimester to 30.6% at six weeks postpartum. Factors significantly associated with depressive symptoms included history of previous children with illness, preterm birth, history of abuse, marital conflicts, lower socioeconomic status, unsatisfactory living conditions, alcohol use in husband, history of depressive episodes, high-risk pregnancy, stressful events in the postpartum period, intrauterine device (IUD) use, congenital malformations, dissatisfaction with the sex of the child, poor

				family support, and low birth weight.

Froeliger, et al.[4] (2024) showed that around 10% of women with vaginal deliveries may experience postpartum depression symptoms. Prepregnancy vulnerability factors; obstetrical characteristics, such as induced labor and operative vaginal delivery; and bad memories of childbirth 2 days after delivery were the main factors associated with this provisional diagnosis. A screening approach targeting these risk factors could help identify at-risk women for early intervention.

Badiya, et al.[5] (2020) showed that urban women exhibited a higher prevalence of PND compared to their rural counterparts. In low-income nations, the identification of risk factors linked to PND is crucial for formulating preventive measures for conditions associated with PND due to the restricted availability of mental health services. Urban residence, recent adverse life events, irregular menstrual history, and pregnancy complications were associated with medium to high trajectory of PND.

Garman, et al.[6] (2019) suggested the importance of identifying high-risk groups with chronic depressive symptoms throughout the perinatal period, especially in low-income settings with limited mental health resources. Predictors for the antenatal and postnatal trajectory included severe food insecurity, intimate partner violence, lower social support, greater functional impairment, problematic drinking, and suicide risk.

Raghavan, et al.[7] (2021) highlighted the high prevalence of perinatal depression in rural North India and emphasized the importance of comprehensive interventions targeting various risk factors to address this issue. Risk factors of PND in this study are physical illness in the mother, previous history of abortion, poor financial status, and ill-treatment by in-laws.

Rajendran, et al.[8] (2024) underscores the need for periodic assessment of depression among high-risk mothers to facilitate early diagnosis and management. actors significantly associated with depressive symptoms included history of previous children with illness, preterm birth, history of abuse, marital conflicts, lower socioeconomic status, unsatisfactory living conditions, alcohol use in husband, history of depressive episodes, high-risk pregnancy, stressful events in the postpartum period, intrauterine device (IUD) use, congenital malformations, dissatisfaction with the sex of the child, poor family support, and low birth weight.

DISCUSSION

This systematic review delves into the risk factors associated with perinatal depression (PND) among women worldwide. PND is a prevalent medical complication affecting roughly one in seven women during both pregnancy and the postpartum period. The World Health Organization (WHO) defines PND as occurring during pregnancy or within the first year following delivery, while diagnostic classifications in the ICD-10 and ICD-11 pertain to mental and behavioral disorders linked to the puerperium, commencing within six weeks of delivery. However, PND often remains undetected, as symptoms like changes in sleep, appetite, and libido may be mistaken for normal pregnancy and postpartum changes. This oversight can lead to untreated PND and other mood disorders, with severe consequences for women, infants, and families.[3,4]

The risk of PND is significantly influenced by various socioeconomic and psychosocial factors. Poverty, inadequate social support, harassment by in-laws, and limited access to healthcare can substantially impact a woman's mental health. Previous abortion history is associated with PND, with studies worldwide supporting this finding. Past pregnancy loss can also lead to other psychiatric disorders like anxiety and post-traumatic stress disorder. Financial instability, including debt and chronic stress, is a strong predictor of PND, while ill-treatment by in-laws is also linked to increased risk.[7]

Additionally, predictors for antenatal and postnatal trajectories of PND include factors such as severe food insecurity, intimate partner violence, lower social support, greater functional impairment, problematic drinking, and suicide risk. Although physical abuse and lack of social support did not show significance in one study, they are commonly reported risk factors in others. Moreover, intimate partner violence and poor partner relationships are predictive of PND.[6]

Furthermore, the study highlights that the rural vs. urban site is associated with characteristics linked to PND, with urban women being more susceptible to perinatal depressive symptoms compared to their rural counterparts. This trend aligns with previous research attributing urbanization, insufficient healthcare infrastructure, challenges in accessing healthcare, and environmental stressors like overcrowding and pollution as potential factors contributing to psychological distress during the perinatal period.[7]

Previous studies emphasize the importance of regularly assessing depression among high-risk mothers to enable early detection and effective management. Various factors significantly associated with depressive symptoms during the perinatal period include a history of previous children with illness, preterm birth, experiences of abuse, marital conflicts,

lower socioeconomic status, unsatisfactory living conditions, alcohol use by the husband, a history of depressive episodes, high-risk pregnancy, stressful events in the postpartum period, intrauterine device (IUD) use, congenital malformations in the newborn, dissatisfaction with the sex of the child, poor family support, and low birth weight. These factors underscore the complex interplay of social, environmental, and individual factors contributing to maternal mental health during pregnancy and postpartum, highlighting the necessity for comprehensive support and intervention strategies to address the multifaceted challenges faced by at-risk mothers.[8]

CONCLUSION

In conclusion, perinatal depression (PND) is a widespread issue affecting many women during pregnancy and after childbirth. This systematic review highlights the multitude of socioeconomic, psychosocial, and environmental factors that contribute to PND, including poverty, inadequate social support, previous pregnancy loss, and urbanization. Early detection and comprehensive intervention strategies are essential to address the complex challenges faced by at-risk mothers, ensuring better mental health outcomes for both mothers and their families.

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