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Risk factors for postpartum psychiatric disorders: A systematic review

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ABSTRACT

Introduction: Postpartum psychiatric disorders, particularly postpartum depression, are one of the most common psychological complications affecting maternal and neonatal well-being. These conditions are often underdiagnosed and undertreated, particularly in developing countries. Identifying risk factors is crucial for prevention and early detection. Objective: This systematic review aims to identify and analyze risk factors contributing to postpartum psychiatric disorders based on scientific evidence from 2015 to 2025. Methods: A literature search was conducted through PubMed, Scopus, ScienceDirect, and Web of Science databases using the keywords "postpartum depression," "psychiatric disorder," and "risk factors." Included articles were observational human studies, written in English or Indonesian, reporting risk factors and postpartum psychiatric outcomes. Of the 1,026 articles screened, nine studies met the inclusion criteria. Results: The most consistent risk factors found included a history of previous psychiatric disorders, low social support, perinatal stress, low economic status, obstetric complications, and postpartum immunological dysregulation. Eight of the nine studies showed a significant association ($p < 0.05$). Conclusion: Postpartum psychiatric disorders are multifactorial, influenced by biological, psychological, and social factors. Preventive efforts should focus on antenatal screening, strengthening social support, and monitoring the mother's mental state after delivery.

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INTRODUCTION

Pregnancy and childbirth are biopsychosocial events that have a wide-ranging impact on a woman, encompassing physical, emotional, and social aspects. The period from pregnancy to the postpartum period requires profound psychological adaptation (Payne & Maguire, 2019). The mental adjustments that occur during this phase significantly impact the well-being of both mother and baby, even influencing the mother's behavior and interactions before and after delivery. Therefore, psychological preparedness is crucial for women to navigate pregnancy, childbirth, and the postpartum period more healthily (X. Liu, Wang, & Wang, 2022; Moon et al., 2025).

The most common psychological disorders experienced during pregnancy are anxiety and depression. A study from 56 countries found a global prevalence of postpartum depression (PPD) of 17.7% (95% CI: 16.6-18.8%) (Hahn-Holbrook, Cornwell-Hinrichs, & Anaya, 2017). Mapping the global prevalence of depression among postpartum women based on 565 studies in ~80 countries states that approximately 17.22% of women worldwide experience PPD (Wang et al., 2021). During the COVID-19 pandemic, the prevalence of depression and anxiety in pregnant and postpartum women has increased, with perinatal depression globally reaching ~29% and postpartum depression alone at around 26% (Caffieri et al., 2024; Sudhinaraset, Landrian, Mboya, & Golub, 2022).

Studies in Asia report a prevalence of PPD between 13.53%-22.31%, depending on the country and the screening tool used (Moon et al., 2025). Several local studies indicate the prevalence of PPD in Indonesia ranges from 11% to 30%, depending on location and methodology. The prevalence of PPD in young mothers is 4%, with higher incidence in urban areas (5.7%) than in rural areas (2.9%) (Ministry of Health of the Republic of Indonesia, 2018; Pebryatie, Paek, Sherer, & Meemon, 2022). Various factors can increase the risk of mental health disorders during pregnancy and after childbirth. These factors include a history of mental health disorders, substance abuse, having a family member with a psychiatric illness, experiences of physical or sexual abuse, and socioeconomic issues (Onyewuenyi et al., 2023; Yim IS; Stapleton LRT; Guardino CM; et al, 2015).

The postpartum period is a critical period, during which a mother must simultaneously adapt to physiological, psychological, and social changes. While some mothers navigate this period without significant problems, others are susceptible to depression, anxiety, or even postpartum psychosis (Agrawal, Mehendale, & Malhotra, 2022; Y. Liu, Zhang, Guo, & Jiang, 2021; Moon et al., 2025). This anxiety and depression not only impact the mother, but are also associated with reduced concern for the health of the pregnancy, the risk of fetal growth restriction, premature birth, low birth weight, and poor infant response to stimuli (Anindyajati, Ismail, Diatri, & Elvira, 2017; Pebryatie et al., 2022; Schiller CE; Brody SM; Rubinow DR, 2015).

Research examining risk factors for postpartum psychiatric disorders in Indonesia is still relatively limited, so systematic reviews are urgently needed to broaden our understanding in this area. This article is expected to provide a foundation for developing more effective screening, prevention, and intervention strategies to improve maternal mental health in the postpartum period.

RESEARCH METHOD

This systematic review aims to evaluate risk factors associated with the occurrence of psychiatric disorders in postpartum mothers, including postpartum depression, anxiety, psychosis, and other adjustment disorders that occur within one year after delivery. The research framework refers to the PICO approach. The population includes postpartum mothers (≤12 months after delivery) of various ages and parities. Interventions in this context refer to exposure to risk factors (biological, psychological, and social) reported in the literature. The comparator used is a group of postpartum mothers without exposure to risk factors or without experiencing psychiatric disorders. The main outcomes analyzed include three groups: (1) psychiatric (incidence of postpartum depression,

anxiety, psychosis, and other mental disorders), (2) functional (quality of life, parenting patterns, mother-child bonding), and (3) socioeconomic (family support, marital relationships, employment status, and social stigma).

Inclusion criteria were prospective or retrospective human studies, cohort studies, case-control studies, cross-sectional studies, secondary clinical trials, or case series with a minimum of five subjects, reporting at least one risk factor and its relationship to postpartum psychiatric outcomes. Articles included were full-text publications in English or Indonesian, peer-reviewed, and published between January 2015 and September 2025. Exclusion criteria included: animal or in vitro studies, narrative or systematic reviews without primary data, editorials, research protocols, conference abstracts without full text, and multifactorial intervention studies that did not specifically disaggregate data related to psychosocial risk factors.

A comprehensive literature search was conducted in the international databases PubMed/MEDLINE, Embase, Scopus, Web of Science, Cochrane Library, ProQuest, and regional portals such as Garuda and Neliti for Indonesian literature. In addition, bibliographies of key articles and forward citations via Google Scholar were also examined to complement the search results. Keywords used included a combination of free terms and MeSH/Emtree terms, including: "postpartum psychiatric disorder," "postpartum depression," "postpartum anxiety," "postpartum psychosis," "risk factor," "determinant," "predictor," "perinatal mental health," "motherhood," and Indonesian equivalents such as "postpartum psychiatric disorder" or "postpartum depression." The search closed on September 17, 2025.

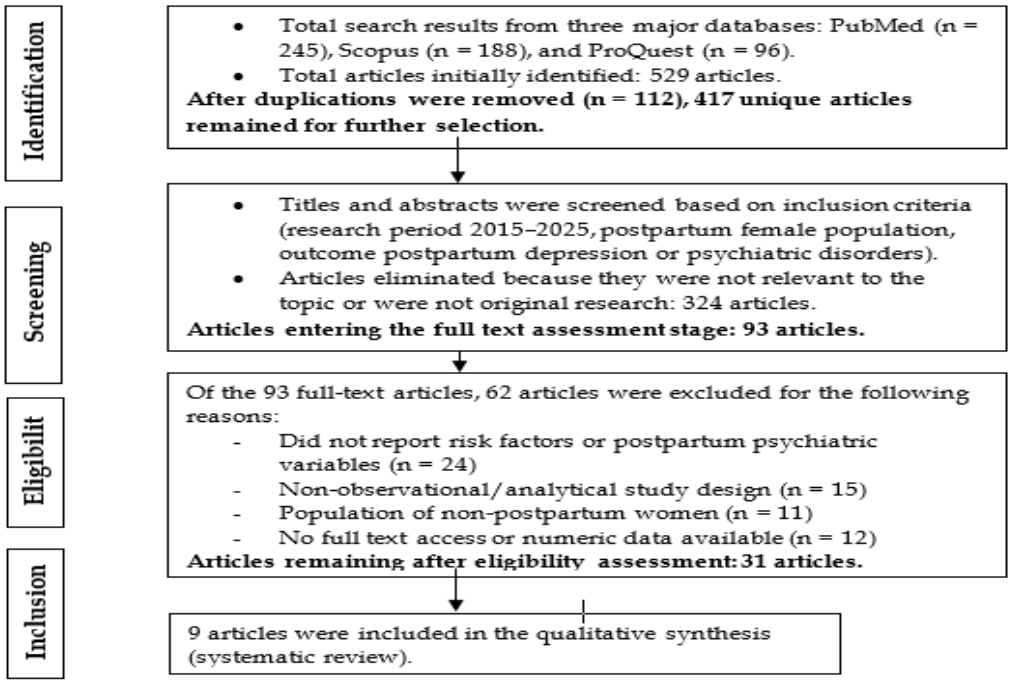

Figure 1. PRISMA flowchart

All search results were combined and then deduplicated based on title, author, DOI, and PMID. The screening process was conducted in two stages: (1) title and abstract screening, and (2) full-text review, by two independent reviewers. Disagreements were resolved through discussion or by involving a third reviewer. Extracted data included: study characteristics (year, country, study design), number of subjects, respondent characteristics (age, parity, socioeconomic status, psychiatric history), psychiatric disorder assessment instruments, analyzed risk factors, and reported psychiatric outcomes.

RESULTS AND DISCUSSIONS

Nine studies that met the inclusion criteria were analyzed to identify psychosocial, biological, and obstetric risk factors associated with PPD and other postpartum psychiatric disorders. The studies were published between 2015 and 2023, with the majority of studies being cross-sectional and prospective cohort designs. The total number of participants across all studies was over 340,000 postpartum women from various countries (Saudi Arabia, India, China, Germany, the United States, the United Kingdom, and New Zealand), reflecting diverse populations and sociodemographic contexts.

Table 1. Article search results

Author (Year)	Research methods	Number of Samples	Risk Factors	Psychiatric conditions	External
Elrahman et al. (2023)(Abd Elrahman et al., 2022)	Cross-sectional (Saudi Arabia)	530	History of trauma, poor marital relationship	Postpartum depression	Prevalence 25%, $p < 0.01$. There is a significant relationship
Dasgupta, et al (2021)(DASGUPTA et al., 2021)	Cross-sectional (India)	78	Social support, stress, demographics, obstetrics	Depression, anxiety, postpartum psychiatric symptoms	There is a significant relationship
Peng et al. (2021)(Peng et al., 2021)	Cross-sectional (China)	612	Financial stress, urbanization, lack of sleep	Postpartum depression	Prevalence 21.3%, $p < 0.001$. There is a significant relationship
Stickel, et al (2021)(Stickel et al., 2021)	Prospective cohort (Germany)	196	Personal/family history of depression, stressful life events, marital status, household income, social support, birth complications/transfer of infant to child care	PPD and postpartum adjustment disorder	Single status, low income, low home support, postpartum stress, and abnormal changes in hair cortisol/cortisone levels
Johansen, et al (2020)(Johansen, Stenhaug, Robakis, Williams, & Cullen, 2020)	Retrospective cohort (United States)	336,522	History of psychiatric disorders before pregnancy (depression, anxiety, bipolar, OCD, PTSD, eating disorders), socioeconomic factors, obstetric complications	Diagnosis of postpartum depression within 2 months–1 year after delivery; postpartum antidepressant use	A history of pre-pregnancy depression increased the risk (OR = 2.7; 95% CI 2.6–2.8; $p < 0.001$); depression during pregnancy was associated with a higher risk (OR = 13.1; 95% CI 12.6–13.6; $p < 0.001$). Anxiety disorders, PTSD, and bipolar disorder were also significantly associated (AOR 1.2–1.8).
English, et al (2018)(English et al., 2018)	Prospective cohort (UK)	480	History of anxiety, history of depression, socio-demographic status, lifestyle	Peripartum depression score (using antenatal and postpartum EPDS)	A history of anxiety contributes significantly to antenatal EPDS scores. A family history of depression and PPD is strongly associated with postpartum EPDS scores. Sociodemographic and lifestyle factors have a greater influence antenatally than

Author (Year)	Research methods	Number of Samples	Risk Factors	Psychiatric conditions	External
					postpartum.
Chojenta, et al (2016)(Chojenta, Lucke, Forder, & Loxton, 2016)	Cross-sectional (New Zealand)	1,891	Demographic, obstetric, social factors (e.g. socioeconomic status, social support, pregnancy complications)	Postpartum depression (incidence and symptom levels per EPDS)	Low socioeconomic status, previous history of depression is significant
Martini, el al (2015)(Martini et al., 2015)	Prospective study (Germany)	306	Demographic factors (age, education, economic status), obstetric factors (pregnancy complications, childbirth), social support, mental history	Postpartum depression (EPDS score or other screening tool)	Several factors with significant associations: e.g. low socioeconomic status, history of depression
Corwin, et al (2015)(Corwin et al., 2015)	Longitudinal prospective (Canada)	152	Proinflammatory cytokine levels (IL-6, TNF-α), cortisol levels, sleep status, stress, and social support	Postpartum depression symptoms were measured using the EPDS and immune profile at weeks 1 and 6 postpartum.	Increased IL-6 and TNF-α were significantly associated with higher EPDS scores ($p < 0.01$)

Most studies indicate that psychosocial factors play a dominant role in the incidence of PPD. Elrahman et al. (2023), Dasgupta et al. (2021), and Peng et al. (2021) found a strong association between financial stress, urbanization, and sleep disturbances with postpartum depression. Stickel et al. (2021), Chojenta et al. (2016), and Martini et al. (2015) confirmed that low socioeconomic status and a history of depression were consistently associated with more severe postpartum depressive symptoms. Johansen et al. (2020) and English et al. (2018) reported that a history of anxiety and depression, both personal and family, contributed to increased peripartum depression scores as measured by the EPDS.

Corwin et al. (2015) highlighted biological mechanisms through the psycho-neuro-immune axis. This study found that increased levels of pro-inflammatory cytokines (IL-6 and TNF-α) were significantly correlated with higher postpartum depression scores ($p < 0.01$). Stickel et al. (2021), Martini et al. (2015), and Chojenta et al. (2016) demonstrated a significant association between obstetric complications and increased depressive symptoms. Overall, all studies demonstrated a significant association between psychosocial, biological, and obstetric factors and the incidence of postpartum depression. A previous history of depression or anxiety and low socioeconomic status were the most consistent determinants across countries. Biological mechanisms such as inflammatory activation and stress hormone dysregulation also potentially mediate this relationship.

Discussion

Postpartum psychiatric disorders, particularly postpartum depression (PPD), are often overlooked mental health issues, despite their significant impact on maternal quality of life, the mother-child relationship, and child development. A synthesis of nine identified studies suggests that the risk factors for PPD are multifactorial, involving complex interactions between biological, psychosocial, and obstetrical factors. Research by (Corwin et al., 2015) Studies have shown that changes in the immune and endocrine systems during the postpartum period play a significant role in the development of depressive symptoms. Elevated levels of proinflammatory cytokines such as IL-6 and TNF-α correlate significantly with higher Edinburgh Postnatal Depression Scale (EPDS) scores (Ricci et al., 2023). This supports the neuroimmune dysregulation theory, in which

an excessive inflammatory response after childbirth can trigger dysregulation of the HPA (hypothalamic-pituitary-adrenal) axis, disrupting neurotransmitter balance, and ultimately affecting mood. These results align with recent biological models that postpartum physiological stress triggers neuroendocrine sensitization in susceptible individuals (Caffieri et al., 2024; Kościuszko et al., 2025; X. Liu et al., 2022).

Social factors are the most consistent determinants in almost all studies (Abd Elrahman et al., 2022),(DASGUPTA et al., 2021). Studies have shown that low social support, poor marital relationships, and economic stress are strong predictors of postpartum depression. Emotional support from partners and family acts as a protective factor, reducing the risk by 40–60%. Conversely, marital conflict, social isolation, and feelings of helplessness increase the likelihood of postpartum psychiatric disorders. In the Asian cultural context, collectivist values and gender role pressures also influence mothers' perceptions of social support, as demonstrated by Peng et al. (2021) in China.

A history of psychiatric disorder before or during pregnancy is the strongest risk factor consistently identified. A large-scale study by (Johansen et al., 2020) showed that women with a history of pre-pregnancy depression had a nearly threefold increased risk of developing PPD, while antenatal depression increased the risk up to thirteenfold. These findings underscore the importance of antenatal mental health screening as an early prevention measure. In addition to depression, anxiety disorders, bipolar disorder, and PTSD also significantly contribute to the incidence of postpartum psychiatric disorders (Y. Liu et al., 2021).

Sociodemographic variables such as low economic status, limited education, and single marital status have consistently been found to be associated with an increased risk of PPD in studies (Stickel et al., 2021),(Chojenta et al., 2016), And (Martini et al., 2015). Difficult economic conditions can increase household stress, reduce access to mental health services, and exacerbate the psychological burden on mothers. On the other hand, young age and first-time parity also contribute to increased emotional vulnerability due to a lack of experience and coping strategies (Cooke, Nasiri, Jayakumar, & Rangrej, 2025; Finegan, Firth, Wojnarowski, & Delgadillo, 2018; Rokicki, McGovern, Von Jaglinsky, & Reichman, 2022).

Several studies, such as those conducted by (English et al., 2018) And (Stickel et al., 2021), highlights the role of obstetric complications, including premature birth, cesarean section, or transfer to the neonatal intensive care unit (NICU). These conditions increase maternal psychological stress and disrupt bonding with the infant. Furthermore, sleep disturbances, postpartum pain, and extreme hormonal changes exacerbate emotional symptoms, accelerating the transition from baby blues to clinical postpartum depression (Retnosari & Fatimah, 2022).

Differences in prevalence and risk factors between countries may be due to variations in measurement instruments (e.g., EPDS vs. PHQ-9), sampling methods, and cultural background. Studies in developing countries (India, China, and Saudi Arabia) tend to show a stronger association between socioeconomic stress and postpartum psychiatric disorders than those in developed countries (Germany, the United Kingdom, and Canada). This reflects the importance of social context and cultural values in understanding postpartum psychological manifestations. Of the nine studies analyzed, eight showed a statistically significant association between one or more risk factors and postpartum psychiatric disorders ($p < 0.05$). Only one study showed a partial association for a specific variable. Overall, these findings confirm that a multidimensional approach encompassing early detection, social support, and perinatal stress management is a key strategy in preventing postpartum psychiatric morbidity.

This article has several limitations. Most studies used a cross-sectional observational design, so causality cannot be definitively concluded. Variability in outcome definitions, sample sizes, and psychometric measurement tools also hinder quantitative meta-analysis. Future research is recommended to use a prospective, longitudinal design with the integration of immunological and neuroendocrine biomarkers to comprehensively bridge biological and psychosocial aspects.

CONCLUSION

This systematic review confirms that postpartum psychiatric disorders, particularly depression, are influenced by a combination of biological, psychological, social, and obstetric factors. A history of previous psychiatric disorders and lack of social support are the strongest predictors. Preventive interventions should focus on antenatal screening, increased partner support, and mental health education for pregnant women and their families.

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