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Women with Postpartum Depression: A literature review

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Abstract
Background: Postpartum depression (PPD) is a woman's vulnerable period after birth up to two years after birth and impacts women, children, and families. Objectives: to describe factors associated with PPD and its treatment. Methods: A literature search was performed using the online databases Scopus, Web of Sciences, and Google Scholar. Limitations: There were limited findings in cultural and internal factors literature on PPD. Findings: We found in postpartum depression, the factors include biological, psychological, social, demographic, and bio-makers. Implications: The findings of this review may assist policymakers in developing detection for PPD.
Keywords: women, postpartum depression, factor

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1.0 Introduction

According to the American Psychiatric Association (APA), postpartum depression (PPD) is a major depressive disorder with onset peripartum, timing from after birth up to three years after birth. PPD is characterized by a mood that is depressed or where a loss of interest in activities, causing a significant decrease in the quality of everyday life. PPD has significant short- and long-term implications on the physical and emotional health of mothers, the attachment between mothers and infants, and the cognitive development of children (Green et al., 2021; Tesfaye et al., 2023).

The prevalence of PPD was 21%-46% during the COVID-19 pandemic (Abenova et al., 2022). In Indonesia prevalence of PPD was 5.4%, This rate is almost the same as the Indonesian national depression (6.1%) (Wurisastuti et al., 2020). India reported PPD at 21.5% (Agarwala et al., 2019). The PPD within a year of birth was estimated to be as high as 59.4%. (Abenova et al., 2022).

PPD is a thief that steals motherhood, women with this mood disorder struggle with a loss of control over their emotions, thinking processes, and actions. Women seek to deal with this issue through a four-stage process known as teetering on the brink, which alludes to straddling a thin line between sanity and insanity. The four stages are: (a) experiencing dread due to sudden symptoms, (b) losing self-identity, (c) striving to survive, and (d) regaining control of one's life. PPD had an impact on mothering, maternal-child interaction, treatment for PPD on infant interaction, utilization of health prevention services, and gratification in the maternal role (Beck et al., 2006).

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PPD may start before giving birth and last for up to two years after giving birth, with the first ninety days following delivery being the time when the greatest risk appears (Sanni et al., 2024). Depression postpartum can detected (early identification) based on the number and severity of symptoms that are endorsed on a questionnaire such as the Edinburgh Postnatal Depression Scale (EPDS) or the Beck Depression Inventory (BDI) and diagnosis with interviews The Diagnostic and Statistical Manual of Mental Disorders V(DSM-V) criteria (Beck et al., 2006; Feng et al., 2024). Severe PPD can lead to suicide, and confirmed postpartum depression is associated with morbidity for mothers and their families (Beck et al., 2006).

Several studies have stated that PPD is related to psychosocial factors childcare stress, marital satisfaction, stressful life events, psychiatric history and biochemical findings, and neuroendocrine "state" markers (Nurbaeti & Deoisres, 2017). Nowadays, the primary methods for preventing and treating PPD include pharmaceutical treatment, psychosocial, physical therapies, and psychological interventions (Feng et al., 2024).

2.0 Literature Review

Postpartum depression can occur in women and men, but the incidence is more common in women. According to The Diagnostic and Statistical Manual of Mental Disorders 5 TM (MSD 5 TM), postpartum depression is a major depressive disorder with postpartum onset. Symptoms are similar to major depressive disorder in general, such as depressed mood, markedly diminished interest or pleasure in all, weight loss or weight gain, insomnia or hypersomnia, psychomotor agitation, loss of energy, feeling of worthlessness, decreased ability to think, and recurrent thoughts of death (Beck et al., 2006; Wurisastuti et al., 2020). Several factors have contributed to the development of PPD (Nurbaeti & Deoisres, 2017). PPD incidence is said to be significantly influenced by both physical and emotional variables, including unintended pregnancies, abrupt hormone changes, and feeling overburdened by the responsibilities of parenthood (Alhusaini et al., 2022). PPD's timing has a secondary influence on infants due to maternal impairment. Maternal depression can affect interactions with children and break attachments. Long-term effects for these children as adults may include developmental deficits and depression (Hutchens & Kearney, 2020). PPD's effects on mother-child relationships can have repercussions for the whole family (Alhusaini et al., 2022). Recent investigations have examined peptide and steroid hormone changes throughout pregnancy and after birth. Modifications to peptide and steroid hormones can affect the hypothalamus-hypophysis-sex glands and hypothalamus-hypophysis-adrenal glands axis in women. Hormonal imbalances during pregnancy and postpartum have been linked to mood-related disorders. Interpersonal psychotherapy is a promising treatment for postpartum depression, addressing both physiological and behavioral factors. Research suggests that certain dietary patterns, foods, and nutrients help alleviate depression through several biochemical mechanisms. These strategies effectively combat inflammation and oxidative stress by increasing monoamine neurotransmitter production, reducing hyperactivity of the hypothalamus-hypophysis-adrenal axis, and modifying the microbiome-gut-brain axis (Papadopoulou et al., 2023).

3.0 Methodology

This is a literature review study. The review aims to identify the prevalence and factors associated with PPD. A thorough literature search was performed using the online databases Scopus, Web of Science, and Google Scholar. Using the Boolean operator, the keywords used for the search were factors "factors AND postpartum AND depression AND women". The search only comprised primary and secondary studies published from 2015 until 2024. The articles cited by the selected studies were also screened for relevant work. Studies included in this review factors associated with postpartum depression in women in any country. The articles retrieved were screened using the criteria last ten years, only the original English language, study treatments, and factors associated with postpartum depression. The exclusion criteria were non-full articles and not available in the English language.

4.0 Findings

Based on the literature search, 18 original research were identified, eleven cross-sectional studies, two cohort studies, one literature review, one umbrella review, one systematic review, and two secondary data. There was one study conducted in Kazakhstan, 1 in India, 3 in Indonesia, 3 in the USA, 2 in China, 1 in Italia, 1 in Saudi Arabia, 1 in Ethiopia, 1 in Nigeria, 1 in California, 1 In Turki, 1 in Iran, and 1 Australia.

Table 1. Factors of PPD among women

Country, Author	Study population	Method	Prevalence PPD	Factors (Biological, Psychological, Social, Demography)
Kazakhstan,(Abenova et al., 2022)	n=251, women within one year after delivery	Cross-sectional study	59.4%	Biological: **Complications during pregnancy** Social: **Accommodation type, satisfaction with living conditions, employment of husband** psychological: **Relationship with mother-in-law** Social: **service about the psychological state of a women**

Country, Author	Study population	Method	Prevalence PPD	Factors (Biological, Psychological, Social, Demography)
India (Agarwala et al., 2019)	n=410, postnatal women within six months of their deliveries	Cross-sectional study	21.5%	Demography: **Paternal educational status** Biological: **Labour complications, more than two children, history of abortion, sleeping difficulty of the mothers**
Indonesia,(Nurbaeti & Deoisres, 2017)	n=206, the first three months after delivery in Indonesia, mothers from low-income families	Cross-sectional study	33.5%	psychological: **Childcare stress, and stressful life events** Social: **Marital satisfaction** Demography: **low social status**
USA,(Green et al., 2021)	n=8800, biological mothers who gave birth to a single child in 2001	Cohort Study	16.10%.	Biological: **Preconception obese (among white mothers), preconception overweight (among Hispanic mothers)**
China, (Wang et al., 2023)	n=1773 participants were included, including 907 lactating women and 866 pregnant women.	Cross-sectional study	15.9 %	Biological: **Vitamin D**
Italy, (Papadopoulou et al., 2023)	n=394, women during the post- partum period between 3 and 6 months after delivery	Cross-sectional study	12.1%	Demography: **Young mothers, lower educational level, nationality, worse family economic levels** Biological: **Postpartum BMI status, type of delivery, breastfeeding practices.**
Indonesia, (Wurisastuti et al., 2020)	n=8769, mothers in Indonesia aged 15 years and above who have a biological baby aged 2-24 weeks	Cross-Sectional study	5,4%	Demography: **Mother education** Biological: **Postpartum complications, pregnancy complications** psychological: **Unwanted pregnancy** Social: **History of pregnancy check-ups with health workers**
Indonesia, (Syamantha Putri et al., 2023)	n=1285, mothers aged 15-24 years with infants aged 0-6 months	Secondary data	4.0%	Biological **experiencing premature delivery, having complications during pregnancy** psychological: **Living without a husband, unintended pregnancy**
Saudi Arabia, (Alhusaini et al., 2022)	n=483, mothers from the obstetrics inpatient ward at KAUH, Jeddah, Saudi Arabia. Patients were followed up for six weeks using the same questionnaire in 354 participants.	Cross-sectional study	15.1%	Demography: **Monthly family income** Social: **family support**
Eithopia, (Tesfaye et al., 2023)	n=454, postpartum women	Cross-sectional study	23.8 %	Biological: **Having complications during pregnancy, Bottle feeding immediately after birth** Psychological: **Being single**
Nigeria, (Sanni et al., 2024)	n=600 women	Cross-sectional survey	21.8%	Biological: **Early breastfeeding initiation** Social: **Poor maternal-infant bonding** Demography: **Maternal age, being married** Psychological: **Perceived stress**
California, (Fox et al., 2024)	n=264 women	Secondary data	48% No-Minimal and Decreasing 39% Mild-Moderate and Stable 13% Moderate-Severe and Stable	Biological: **feeding practices**

Country, Author	Study population	Method	Prevalence PPD	Factors (Biological, Psychological, Social, Demography)
Turkey, (Konukbay et al., 2024)	n=200, postpartum women	Cross-sectional study	16.5%	Biological: **sleep quality** Social: **perceived social support positively** Psychological: **breastfeeding self-efficacy of postpartum women**
Australian, (Newman et al., 2023)	n= 101, Australian new mothers	Cross-sectional	31.6%	Biological: **Sleep quality**
USA,(Silverman et al., 2018)	n= 611.506, women	Prospective cohort study	8.8% - 48.6%	Biological: **BMI first trimester of pregnancy**
Iran, (Salehi-Pourmehr et al., 2018)	n=62 and 245, pregnant women with class 2–3 obesity	Cohort study	7.8% in 6–8 weeks of postpartum 10.6% in 1 year after delivery screened positive for depression	Biological: **Obese before pregnancy**
USA, (Hutchens & Kearney, 2020)	n=21, articles	An umbrella review	13% to 19%	Psychological: **high life stress, current or past abuse, prenatal depression, and marital or partner dissatisfaction** Social: **lack of social support**
China,(Feng et al., 2024)	n= 629 China women	Retrospective cohort study	41.57% non prenatal folic Acid 46.48 with prenatal folic Acid	Biology: **BMI** Demography: **Age**

5.0 Discussion

5.1 Prevalence of PPD

The prevalence of PPD globally in one decade varied, lower in Indonesia from 4% to 33.5%, and higher in Kazakhstan at 59.4%. Only after the implementation of a universal progressive model of patronage services for expectant mothers and young children, created in partnership with UNICEF, did a thorough investigation of postpartum depression in Kazakhstan commence. The epidemiological conditions in the nation during the data-collecting period following the COVID-19 pandemic could also contribute to the high PPD rates. Along with changes that occur during the postpartum period, complete isolation of mothers, social alienation, the absence of a partner during birth, a lack of in-person interactions with medical professionals, and a dread of visiting hospitals can all have a detrimental impact on women's mental health (Abenova et al., 2022). PPD in Asia ranges from 4% to 59.4%. PPD in Europe was 9% to 16.5%. PPD in Africa ranges from 21.8% to 23.8%. PPD in America was 13% to 42%, and 31.6% in Australia. Countries in Asia had a higher and lower prevalence of PPD. Asian women's culture and traditions have been recognized as common indicators of PPD (Abenova et al., 2022).

5.2 Factor Association with PPD

Biological Factors

Fifteen studies show biological factors of PPD. Women with complications during pregnancy, labour, and postpartum had high scores of PPD (Fox et al., 2024; Syamantha Putri et al., 2023). After that, BMI also had a bigger impact on women, overweight and obesity in preconception, pregnancy, and postpartum associated with PPD (Papadopoulou et al., 2023; Silverman et al., 2018). Appetite changes are an indication of depression. The term "change" can refer to either overeating or undereating, which can result in weight gain or reduction. Weight has been linked to poor mental health through several biological pathways, including inflammation, HPA axis instability, and metabolic abnormalities. BMI has been linked to depression and anxiety, but it may also increase the risk of PPD. (Silverman et al., 2018). The initial months after childbirth are a time of high nutritional needs and deficiency, leading to increased demand for breastfeeding and replenishing depleted resources from pregnancy and birth. This can increase the risk of depression (Papadopoulou et al., 2023).

Another study shows the practice of breastfeeding in women has been associated with PPD. Highest PPD in accident bottle feeding immediately after birth and shorter breastfeeding duration. The preventive practices of breastfeeding were early breastfeeding and long-duration breastfeeding (Fox et al., 2024; Sanni et al., 2024). In the breastfeeding process, suckling-induced prolactin release may boost oxytocin levels in the bloodstream by increasing activity in certain oxytocin neurons and amplifying secretion at oxytocin neuron terminals. Oxytocin works as a system activator, influencing the release of signalling molecules such as opioids, serotonin, dopamine, and noradrenaline. Activations promote and coordinate behavioral and physiological responses, driven by stimuli and contextual circumstances. Cortisol release is regulated by the hypothalamic-pituitary adrenal (HPA) axis. Corticotrophin-releasing factor (CRF)

from the hypothalamus triggers the release of adrenocorticotrophic hormone (ACTH) from the anterior pituitary, leading to cortisol release from the adrenal cortex. Oxytocin inhibits the HPA axis at various levels, depending on the stimuli and environment (Li et al., 2024).

Women with PPD have sleep difficulties and poor quality sleep (Agarwala et al., 2019; Konukbay et al., 2024; Newman et al., 2023). More than two children and a history of abortion too were associated with PPD (Agarwala et al., 2019). Poor maternal sleep quality has been linked to higher levels of depression. The process of milk supply to the infant is linked to maternal sleep quality. Breastfeeding women may have higher sleep quality compared to bottle-feeding mothers due to reduced preparation and cleanup time (Newman et al., 2023).

Psychological Factors

Eight studies show psychological factors of PPD. Psychological issues in women start from bad history psychology (high life stress, current or past abuse, prenatal depression, and marital or partner dissatisfaction)(Hutchens & Kearney, 2020). Developed into unwanted pregnancy, prenatal depression, the experience of violence, high life stress, current or past abuse, and low breastfeeding self-efficacy in postpartum women (Abdoli Najmi & Mirghafourvand, 2024; Konukbay et al., 2024). Besides that, living without a husband, marital or partner dissatisfaction, and a relationship with a mother-in-law, and were also associated with PPD (Hutchens & Kearney, 2020; Syamantha Putri et al., 2023; Tesfaye et al., 2023). Unwanted pregnancies can impact the health of both women and their children. Pregnancy can lead to increased psychosocial stress for women due to unforeseen disruptions to their plans for education, employment, and other elements of life (Syamantha Putri et al., 2023). A serious public health concern, violence against women has a negative impact on both physical and mental health, increasing the risk of chronic illnesses, injuries, and mental health issues (Abdoli Najmi & Mirghafourvand, 2024). Violence against women during pregnancy and postpartum can contribute to psychological illnesses such as depression, suicidal ideation, post-traumatic stress disorder (PTSD), and anxiety (Abdoli Najmi & Mirghafourvand, 2024). Cohabitation with the spouse's parents and discontent with living circumstances were discovered to be important predictors of PPD (Abenova et al., 2022). Postpartum women report excellent levels of breastfeeding self-efficacy, sleeping hygiene, and social support, with a minimal risk of depression. Women have a high level of self-efficacy and good attitudes towards breastfeeding. They are self-confident and willing to face challenges during breastfeeding (Konukbay et al., 2024). Besides that, the majority of women in this study exhibited modest depressive symptoms throughout pregnancy, which greatly decreased postpartum. However, mild and moderate symptoms persisted (Fox et al., 2024).

Social Factors

Seven studies showed social factors of PPD. Lack of social and family support was associated with PPD (Alhusaini et al., 2022; Hutchens & Kearney, 2020; Konukbay et al., 2024). Social support, particularly family support, was identified as a predictor of breastfeeding self-efficacy (Konukbay et al., 2024). The history of pregnancy check-ups with health workers, being married and services about the psychological state of a woman was associated with PPD. There is a link between nurses' interest in women's health after childbirth and the development of postpartum depression. These results highlight the need for additional education on postpartum care, as well as monitoring and training for patronage nurses in the universal-progressive model (Abenova et al., 2022). Other factors associated with poor maternal-infant bonding(Sanni et al., 2024). Accommodation type is also a factor in PPD (Abenova et al., 2022). Support from family, husbands, and health workers can make it easier for mothers to do motherhood. Compared to women with moderate or high levels of social support, mothers with low levels of social support were five times more likely to experience depression (Tesfaye et al., 2023). Social support eases stress and feelings of loneliness by offering both practical and emotional assistance. Chronic stress, however, can have detrimental effects on hormone balance and mental health, raising the risk of PPD (Sanni et al., 2024).

Demography Factors

Six studies showed the demography factors of PPD. Low social status including living conditions, family income, education level, and work, was associated with PPD (Abdoli Najmi & Mirghafourvand, 2024; Wurisastuti et al., 2020). Age was also one of the demographic factors associated with PPD (Feng et al., 2024; Papadopoulou et al., 2023; Sanni et al., 2024). A significant factor in this is household income. The expenditures of raising a kid are high, particularly when a woman is taking maternity leave and paying for child care (Abenova et al., 2022). Aside from the disparity in the tools used for measuring, cultural differences between the two nations also contribute to the gap in depression rates since Indonesian women have a harder time communicating their issues to others, which further complicates the diagnosing process (Wurisastuti et al., 2020). Besides that, demographic factors such as education, age, and job position were linked to breastfeeding self-efficacy (Konukbay et al., 2024).

6.0 Conclusion& Recommendations

In summary, we found that the prevalence of PPD varies in the world. Asia has the lowest and highest ranking in the world. This condition can be influenced by Asian women's culture or traditions and the Covid-19 pandemic that has hit the world until 2023. Postpartum depression in women includes many factors, biological, psychological, social, and demographic. The findings of this review may assist policymakers in developing interventions for PPD. The collaboration between midwives, nurses, nutritionists, psychologists, and psychiatrists may strengthen the available healthcare services provision for mothers with PPD. We suggest further research on

biomarkers in women who experience PPD. So far medicine and psychotherapy have been good treatments for women with PPD. Research bio-makers can develop another choice for treatments for women with PPD.

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Paper Contribution to Related Field of Study

This paper may contribute to the field of women's healthcare as it identified associated factors for postpartum depression.

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