



Prevalence of postpartum depression and associated factors among women at the Obstetrics department, Vinmec Times City International General Hospital in 2025

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ABSTRACT

Objective: To determine the prevalence and to explore associated factors of postpartum depression in the context of limited data from private hospitals in Vietnam. **Subjects and methods:** A cross-sectional study was conducted among 205 postpartum women at Vinmec Times City International Hospital, Hanoi, from May to July 2025. The survey employed the Edinburgh Postnatal Depression Scale (EPDS), the Perceived Stress Scale (PSS-10), and the Brief Resilience Scale (BRS-6) to assess depression, perceived stress, and resilience. Statistical analyses were performed to identify associated factors. **Results:** Findings showed that 48.3% of women had no depressive symptoms, 46.8% had signs of depression, and 4.9% were identified as having postpartum depression. Multivariable logistic regression revealed that a moderate income ranging from 15 to under 25 million VND (OR=24.15; 95%CI: 4.51–129.22), sleep disturbances (OR=14.59; 95%CI: 3.49–60.96), eating disorders (OR=5.43; 95%CI: 1.76–16.79), moderate psychological stress (OR=3.68; 95%CI: 1.35–10.05), and moderate resilience (OR=5.15; 95%CI: 1.03–25.85) were associated with an increased risk of postpartum depressive symptoms, while cesarean delivery was identified as a protective factor (OR=0.26; 95%CI: 0.10–0.70). **Conclusion:** These results highlight the need to develop targeted screening, counseling, and intervention programs within private hospital systems to improve mental health care for postpartum women.

Keywords: Postpartum depression, psychological disorders, postnatal women, EPDS, Vinmec Times City International Hospital.

INTRODUCTION

Postpartum depression (PPD) is a common mental disorder among women after childbirth, characterized by persistent sadness, loss of interest, and prolonged fatigue, and may even lead to self-harm ideation or behavior. The period of highest risk typically falls within several weeks to

one year postpartum, most commonly from week 4 to week 8¹. PPD is not only a growing community mental-health concern but also exerts profound effects on mothers' quality of life and on children's long-term physical, mental, and behavioral development.

A review by Haohan Yan et al. (2020) reported a mean prevalence of postpartum

depression of 22%². In Asia, the prevalence has been reported at 30% in Taiwan³ and 16.8% in Thailand⁴. In Vietnam, Nguyen Thi Thu Ha et al. (2024) found that 36.3% of women had signs of postpartum depression⁵, while Nguyen Thi Thanh Huong et al. reported a range from 8.2% to 48.1%, depending on population group and screening instrument⁶. Risk factors discussed in multiple studies include preterm birth⁷, a history of psychiatric disorders, and early maternal age, which may increase mothers' psychological vulnerability.

However, the rate of postpartum mental-health screening and assessment remains low. Most Vietnamese studies to date have focused on public healthcare facilities or community settings with typical demographic and socioeconomic characteristics. In contrast, there is a paucity of data on postpartum depression within obstetrics departments of private hospitals such as the Vinmec International Hospital system. These facilities feature experienced specialists and high-quality care aligned with JCI standards, serving a predominantly middle-income to affluent patient population - groups whose psychology, occupational pressures, social expectations, and help-seeking behaviors may differ from those in the general community. Such distinctive factors may both mitigate and potentially increase mental-health risks, including PPD, via mechanisms that remain insufficiently studied.

Therefore, this study was conducted to describe the prevalence of postpartum depressive symptoms in our sample and to examine associated factors among women giving birth at the Obstetrics Department of Vinmec Times City International Hospital in 2025. The findings not only provide important scientific evidence regarding

the prevalence and clinical characteristics of PPD in this specific population but also serve as a basis for developing appropriate screening, counseling, and intervention programs - contributing to comprehensive maternal-and-child care in private hospitals and, more broadly, across the Vietnamese healthcare system.

SUBJECTS AND METHODS

Study subjects: Postpartum women receiving care at the Obstetrics Department, Vinmec Times City International Hospital, from May to July 2025.

Inclusion criteria: Aged 18–45; alert; capable of understanding information and completing the survey tools; and providing informed consent after being fully informed of the study purpose and procedures.

Exclusion criteria: A history of severe depressive disorder or other diagnosed psychiatric illnesses prior to pregnancy; and complicated postpartum conditions that limited ability to cooperate.

Study design: A descriptive cross-sectional design.

Sample size: Applying the standard formula for estimating a single proportion:

$$n = Z_{(1-\alpha/2)}^2 \frac{p(1-p)}{d^2}$$

Where: n = minimum required sample size; $\alpha = 0.05$, so $Z = 1.96$; $p = 36.5\%$, prevalence of postpartum depression per Nguyen Thi Thu Ha (2024)⁵; $d = 0.07$, the desired absolute precision.

Substituting values yielded a minimum n of 181. Allowing 10% for incomplete questionnaires, refusals, or other reasons for non-participation, the minimum required sample was 200. In practice, 205 women were enrolled.

Sampling: Simple random sampling. A list of eligible participants was prepared in Excel; the RAND function was then used to randomly select 205 participants.

Study variables: Variables were grouped into three categories:

- General information: age, occupation, place of residence, religion, education level, marital status, and health-insurance participation.

- Clinical and delivery-related information: body-mass index (BMI), mode of delivery, and newborn-related characteristics.

- Psychological variables: measured using three standardized scales-EPDS (postpartum depression), PSS-10 (perceived stress), and BRS-6 (resilience).

Data collection procedures and instruments: Data were collected using a structured questionnaire. Participants were invited to a private room to ensure confidentiality, signed informed consent, and then were assessed using the following instruments:

- Edinburgh Postnatal Depression Scale (EPDS): A globally recommended screening tool for postpartum depression. EPDS comprises 10 items scored 0–3, with higher scores indicating more severe symptoms (maximum 30). Severity categories: no depressive symptoms (EPDS < 9); signs of depression (EPDS 9–11); high likelihood of depression (EPDS 12–13); postpartum depression (EPDS > 13). In this study, results were dichotomized into: no depressive symptoms (EPDS < 9) and presence of depressive symptoms (EPDS ≥ 9). The instrument had previously been standardized and validated in a study conducted among women in northern Vietnam, reporting a Cronbach's alpha of 0.75⁸.

- Perceived Stress Scale (PSS-10): It's a widely used to assess perceived stress over the past month. It includes 10 items scored 0–4 (0 = never, 1 = almost never, 2 = sometimes, 3 = fairly often, 4 = very often), maximum 40 points. Higher scores indicate greater perceived stress. Categories: no/low stress (PSS < 14), moderate stress (PSS 14–26), and high stress (PSS > 26). The Vietnamese version of the PSS-10 has been validated in previous research, showing good internal consistency with a Cronbach's alpha of 0.80⁹.

- Brief Resilience Scale (BRS-6): A 6-item tool by Smith et al. measuring resilience-i.e., the ability to adapt to and recover from stress. Each item is rated 1–5 (1 = strongly disagree to 5 = strongly agree). The total is divided by 6 to yield a mean score. Higher averages indicate greater resilience. Categories: low (BRS ≤ 2.99), moderate (BRS 3.00–4.30), and high (BRS ≥ 4.31). The Vietnamese validated version of the BRS-6 has demonstrated acceptable reliability, with a Cronbach's alpha of 0.752¹⁰.

Data management and analysis: Data were managed in Excel and analyzed using STATA 17.0. Continuous variables were summarized as mean and standard deviation (SD). Categorical variables were presented as frequencies and percentages. Univariable logistic regression was first performed to identify potentially associated factors, and variables with statistical significance at $p < 0.05$ were subsequently included in the multivariable logistic regression model.

Ethics considerations: The study was reported to and approved by the Vinmec Hospital Board of Directors. Participants could withdraw at any time without providing a reason. All collected information was coded and kept strictly confidential, used solely for research purposes.

RESULTS**Table 1. General characteristics of participants (n = 205)**

	Characteristic	Frequency (n)	Percentage (%)
Age group	< 25 years	14	6.8
	26–30 years	85	41.5
	31–35 years	63	30.7
	> 35 years	43	21.0
Religion	Buddhism	102	49.8
	Other	103	50.2
Residence	Urban	199	97.1
	Rural	6	2.9
Occupation	Mental/office work	194	94.6
	Manual labor/other	11	5.4
Marital status	Single	4	2.0
	Married/cohabiting	201	98.1
Monthly income	≤ 15 million VND	24	11.7
	> 15 to < 20 million VND	60	29.3
	> 20 to < 25 million VND	91	44.4
	≥ 25 million VND	30	14.6
Health-insurance card	No	101	49.3
	Yes	104	50.7
BMI classification	Underweight	2	1.0
	Normal	109	53.2
	Overweight/obese	94	45.9
		Means	SD
	Age (min – max: 22 – 43)	31.8	4.6
	Height (148 – 170 cm)	158.7	4.8
	Weight (49 – 90 kg)	63.2	5.9
	Mean monthly income (million VND) (0 – 35)	20.7	4.7

Most participants had a mean age of 31.8 ± 4.6 years, predominantly lived in urban areas (97.1%), and worked in mental/office jobs (94.6%). Mean monthly income was 20.7 ± 4.7 million VND, with over 58% earning more than 20 million VND. Nearly half were overweight/obese (45.9%), and 50.7% had health insurance. Most reported Buddhism (49.8%) or other religions (50.2%), and the vast majority were married or cohabiting (98.1%).

Table 2. Clinical and psychological characteristics (n = 205)

Characteristic		Frequency (n)	Percentage (%)
Mode of delivery	Vaginal birth	88	42.9
	Cesarean section	117	57.1
	Pregnancy pathology	16	7.9
	Preterm birth	6	3.0
	Exercise/physical activity during pregnancy	20	9.8
	Chronic disease	16	6.9
	Sleep disturbance	137	66.8
	Eating disorder	87	42.4
Perceived stress level	Mild	110	53.7
	Moderate	95	46.3
Resilience	Low	16	7.8
	Moderate	189	92.2

Over half delivered by cesarean (57.1%). Pregnancy pathology and preterm birth were 7.9% and 3.0%, respectively. About 9.8% engaged in exercise during pregnancy, and 6.9% had chronic disease. Sleep disturbance was common (66.8%), followed by eating disorders (42.4%). For stress, 53.7% were mild and 46.3% moderate; most women had moderate resilience (92.2%), with 7.8% low.

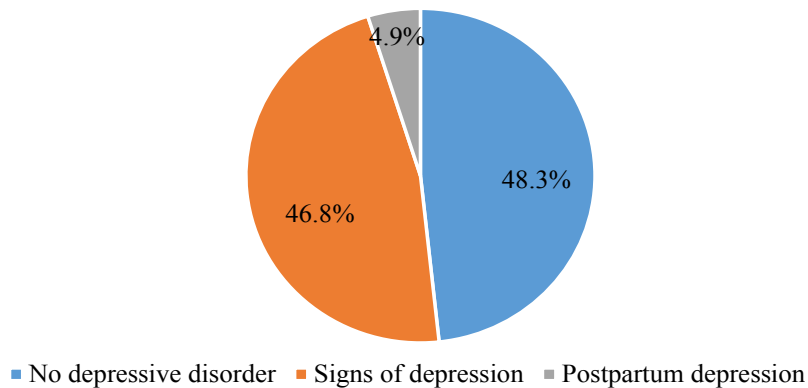


Figure 1. Distribution of postpartum depression levels among participants (n = 205)

48.3% had no depressive disorder, 46.8% had signs of depression, and 4.9% were identified as having postpartum depression-indicating a noteworthy burden of postpartum depressive symptoms.

Table 3. Univariate logistic regression of factors associated with postpartum depressive symptoms

Factor	Univariable OR (95%CI)	p
Age (vs < 25 years)		
26–30	0.73 (0.23–2.29)	0.59
31–35	0.94 (0.29–3.02)	0.91
> 35	0.72 (0.21–2.41)	0.59
Religion (Other vs Buddhism)		
	0.98 (0.57–1.70)	0.94
Monthly income (vs ≤ 15 million VND)		
> 15 to < 20 million	3.27 (1.22–8.72)	0.02
> 20 to < 25 million	1.50 (0.60–3.71)	0.39
≥ 25 million	0.43 (0.13–1.38)	0.15
Health-insurance (Yes vs No)		
	0.50 (0.29–0.87)	0.02
BMI (vs Normal)		
Overweight/obese	0.78 (0.45–1.35)	0.37
Mode of delivery (vs Vaginal)		
Cesarean section	0.36 (0.20–0.64)	0.00
Pregnancy pathology (Yes vs No)		
	0.93 (0.33–2.58)	0.89
Preterm birth (Yes vs No)		
	1.90 (0.34–10.62)	0.46
Exercise during pregnancy (Yes vs No)		
	0.59 (0.23–1.52)	0.27
Chronic disease (Yes vs No)		
	1.61 (0.56–4.62)	0.37
Sleep disturbance (Yes vs No)		
	11.70 (5.59–24.60)	0.00
Eating disorder (Yes vs No)		
	6.79 (3.62–12.70)	0.00
Perceived stress (vs Mild)		
Moderate	2.39 (1.36–4.19)	0.00
Resilience (vs Low)		
Moderate	1.87 (0.65–5.36)	0.24

In the univariate analysis, women with a monthly income of 15–20 million VND had significantly higher odds of postpartum depressive symptoms (OR = 3.27, 95% CI: 1.22–8.72, $p = 0.02$) compared with those earning ≤ 15 million. Having health insurance was protective (OR = 0.50, 95% CI: 0.29–0.87, $p = 0.02$), while cesarean section was also associated with a reduced risk (OR = 0.36, 95% CI: 0.20–0.64, $p < 0.05$). Conversely, sleep disturbance (OR = 11.70, 95% CI: 5.59–24.60, $p < 0.001$), eating disorders (OR = 6.79, 95% CI: 3.62–12.70, $p < 0.05$), and moderate perceived stress (OR = 2.39, 95% CI: 1.36–4.19, $p < 0.05$) markedly increased the risk. Other factors such as age, BMI, pregnancy pathology, preterm birth, chronic disease, and exercise during pregnancy were not statistically significant.

Table 4. Multivariable logistic regression of factors associated with postpartum depressive symptoms

Factor	Multivariable OR (95%CI)	p
Monthly income (vs ≤ 15 million VND)		
> 15 to < 20 million	5.45 (1.63-18.22)	0.01
> 20 to < 25 million	3.33 (1.09-10.21)	0.04
≥ 25 million	1.04 (0.25-4.22)	0.96
Health-insurance (Yes vs No)	1.21 (0.53-2.77)	0.66
Mode of delivery (vs Vaginal)		
Cesarean section	0.36 (0.17-0.78)	0.01
Sleep disturbance (Yes vs No)	7.49 (2.74-20.49)	0.00
Eating disorder (Yes vs No)	3.18 (1.31-7.71)	0.01
Perceived stress (vs Mild)		
Moderate	4.67 (2.04-10.68)	0.00

In the multivariable logistic regression, several factors remained significantly associated with postpartum depressive symptoms. Women with a monthly income of 15–20 million VND (OR = 5.45, 95% CI: 1.63–18.22, $p = 0.01$) and 20–25 million VND (OR = 3.33, 95% CI: 1.09–10.21, $p = 0.04$) had a higher risk compared with those earning ≤ 15 million VND, while income ≥ 25 million was not significant. Cesarean section was protective, reducing the odds of postpartum depressive symptoms (OR = 0.36, 95% CI: 0.17–0.78, $p = 0.01$). Sleep disturbance (OR = 7.49, 95% CI: 2.74–20.49, $p < 0.001$) and eating disorders (OR = 3.18, 95% CI: 1.31–7.71, $p = 0.01$) markedly increased the risk. Moderate perceived stress was also strongly associated (OR = 4.67, 95% CI: 2.04–10.68, $p < 0.001$). In contrast, health insurance was not significantly related after adjustment.

DISCUSSION

In a sample of 205 postpartum women at Vinmec TimesCity International Hospital from May to July 2025, over 50% exhibited depressive symptoms ($EPDS \geq 9$). This rate is lower than the 70.8% reported by Pham Ngoc Thanh ¹¹, possibly because that study focused on mothers of preterm infants—who are more vulnerable to psychological trauma. However, our observed rate is higher than those reported by Nguyen Thi Thu Ha (36.3%) ⁵ and Nguyen Thi Thanh Huong (8.2–48.1%) ⁶. This suggests that women at private hospitals—predominantly urban, engaged in mental/office work—may face occupational pressure, a fast pace of life, and heightened social expectations, collectively raising PPD risk. Conversely, some rural communities may benefit from stronger social support, mitigating risk. The cesarean rate exceeding 50% in our sample, higher than national averages, may also contribute to increased anxiety and prolonged recovery.

Univariable analyses initially suggested that several factors, such as lack of health insurance and certain socioeconomic characteristics, were significantly associated with postpartum depressive symptoms. However, after adjustment in the multivariable model, these associations were no longer significant, indicating possible confounding or interaction effects. This finding highlights the complexity of PPD etiology, where socioeconomic or demographic variables may show apparent effects in isolation but lose significance when psychological and behavioral risk factors are simultaneously considered. Such patterns have also been reported in international studies, where crude associations diminished once major predictors like stress and sleep were included in the model.

By contrast, women with a monthly income of 15–20 million VND (OR = 5.45, 95% CI: 1.63–18.22) and 20–25 million VND (OR = 3.33, 95% CI: 1.09–10.21) remained at significantly higher odds compared with those earning ≤ 15 million VND, while income ≥ 25 million VND did not differ significantly. In an urban context such as Hanoi, middle-income families may experience pressure to maintain living standards and face high child-rearing costs, increasing stress—consistent with Nguyen Thi Thu Ha's observation ⁵ that financial burden remains a key determinant of postpartum mental health. It is also possible that middle-income mothers may lack access to informal social support often available to lower-income families in extended household settings, while still struggling to afford high-quality private childcare or psychological services, thereby creating a “double burden” effect.

Cesarean section was found to be protective (OR = 0.36, 95% CI: 0.17–0.78), while sleep disturbance (OR = 7.49, 95% CI: 2.74–20.49), eating disorders (OR = 3.18, 95% CI: 1.31–7.71), and moderate perceived stress (OR = 4.67, 95% CI: 2.04–10.68) significantly increased the risk of postpartum depressive symptoms. These findings are consistent with stress-related mechanisms involving the HPA axis and highlight the complex interplay of biological, psychological, and social factors in PPD. The discrepancy between univariable and multivariable results underscores the importance of controlling for confounders, as some apparent risk factors may in fact be explained by overlapping influences of income, stress, or delivery method. Moreover, the strong associations of sleep disturbance and stress suggest potential intervention points for prevention, such

as routine postpartum screening for sleep quality and stress management support. Integrating counseling services and lifestyle interventions into obstetric care may therefore be a feasible strategy to mitigate risk. Nonetheless, these are associative findings that warrant confirmation in larger longitudinal studies.

Overall, our results reflect a potentially high prevalence of PPD among urban women seeking care at private hospitals, consistent with broader trends of increasing PPD amid urbanization and social pressure. Study limitations include the cross-sectional design (precluding causal inference), reliance on self-report scales (susceptible to social desirability and recall bias), and small sample size (yielding wide CIs and uncertainty for some ORs). Another limitation is that the study was conducted at a single private hospital in Hanoi, which may restrict generalizability to other populations, particularly rural women or those using public health services. Future research should employ larger samples, longitudinal designs, standardized clinical assessments, and interventional trials aimed at enhancing psychological resilience—informing effective PPD prevention strategies.

LIMITATIONS

This study has several limitations. First, the cross-sectional design only allowed us to identify associations between postpartum depression, stress, and resilience, without establishing causal relationships. Second, the research was conducted in a single hospital, which may limit the generalizability of findings to other settings, particularly rural or lower-resource healthcare facilities. Third, important psychosocial and contextual factors,

such as family support, socioeconomic status, and cultural influences, were not comprehensively assessed, which may have affected the interpretation of results. Finally, the relatively short recruitment period (May to July 2025) may not fully capture seasonal or temporal variations in postpartum mental health outcomes.

CONCLUSION

This study found that more than half of postpartum women in Vinmec Timecity exhibited depressive symptoms, a prevalence higher than most previous reports in Vietnam. Multivariable analyses indicated that women with moderate household income (15–25 million VND/month) were at greater risk of postpartum depressive symptoms, suggesting financial strain as an important determinant of maternal mental health in urban settings. Cesarean delivery appeared protective, whereas sleep disturbance, eating disorders, and moderate perceived stress significantly increased the odds of postpartum depression. These findings highlight the multifactorial nature of PPD, shaped by socioeconomic, psychological, and behavioral factors, and underscore the need for integrated care models targeting both clinical and lifestyle determinants.

RECOMMENDATION

Hospitals and health systems should strengthen early screening and timely intervention for postpartum depression, with a particular focus on modifiable risk factors such as sleep quality, eating habits, and psychological stress. Routine assessments during pregnancy, hospitalization, and after discharge should be combined with counseling and nutritional guidance to support healthier behaviors and greater resilience. In addition, health education

programs for both mothers and their families are essential to raise awareness and enhance social support. Special attention should also be given to middle-income families who may experience unique financial and psychological burdens, in order to provide more tailored support. Further large-scale and longitudinal studies are recommended to consolidate these findings, clarify causal mechanisms, and inform the design of effective interventions to reduce postpartum depression rates and improve the overall quality of maternal health care.

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