Journal of Health and Nutrition Research
Vol. 5, No. 2, 2026, pg. 945-954, https://doi.org/10.56303/jhnresearch.v5i2.1339
Journal homepage: https://journalmpci.com/index.php/jhnr/index

e-ISSN: **2829-9760**

Postpartum Blues and Its Determinants: Continuity of Care, Spousal Support, and A Sleep Quality Among Postnatal Women in an Urban Indonesia Setting

Ika Novita Sari[1*], Tukimin Bin Sansuwito[2]

[1] Department of Nursing, Batam University, Indonesia
[2] Faculty of Nursing, Lincoln University College, Malaysia

Corresponding Author Email: ikanovitasari@univbatam.ac.id

Copyright: ©2026 The author(s). This article is published by Media Publikasi Cendekia Indonesia.

ORIGINAL ARTICLES

Submitted: 22 April 2026

Accepted: 26 May 2026

Published: 01 August 2026

Keywords:
Continuity of Care, Maternal Mental Health, Sleep Quality, Spousal Support, Postpartum Blues

OPEN ACCESS

This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License

ABSTRACT

Postpartum blues is a prevalent yet underrecognized mental health condition among postnatal women, particularly in rapidly urbanizing settings. Comprehensive identification of its determinants is essential for designing targeted interventions. This cross-sectional study aimed to examine the predictive roles of sleep quality, spousal support, and continuity of care on postpartum blues among 96 postnatal women attending community health centres (Puskesmas) in Batam City, Indonesia, enrolled via consecutive sampling between January and June 2025. Data were collected using validated instruments, the Pittsburgh Sleep Quality Index (PSQI), Postpartum Partner Support Scale (PPSS), and Continuity of Care Index (COCI), and postpartum blues was assessed using the Postpartum Blues Questionnaire (PBQ-32). Data analysis included chi-square tests and multivariate logistic regression. A total of 67.8% of respondents experienced postpartum blues of varying severity. Multivariate analysis showed that poor sleep quality (aOR = 8.14; 95% CI: 2.63–25.17; $p < 0.001$), low continuity of care (aOR = 6.02; 95% CI: 2.01–18.03; $p = 0.001$), and minimal spousal support (aOR = 4.53; 95% CI: 1.52–13.51; $p = 0.007$) were significant independent predictors, with sleep quality being the most dominant factor. Parity and delivery method did not show a significant association. The model had strong explanatory power (Nagelkerke $R^2 = 0.71$). Postpartum blues are significantly influenced by the interaction of behavioural, interpersonal, and structural factors within healthcare. Integrated interventions targeting improved sleep quality, strengthening spousal support, and improving continuity of care are needed. Given the cross-sectional design, these findings are preliminary and require longitudinal or interventional validation.

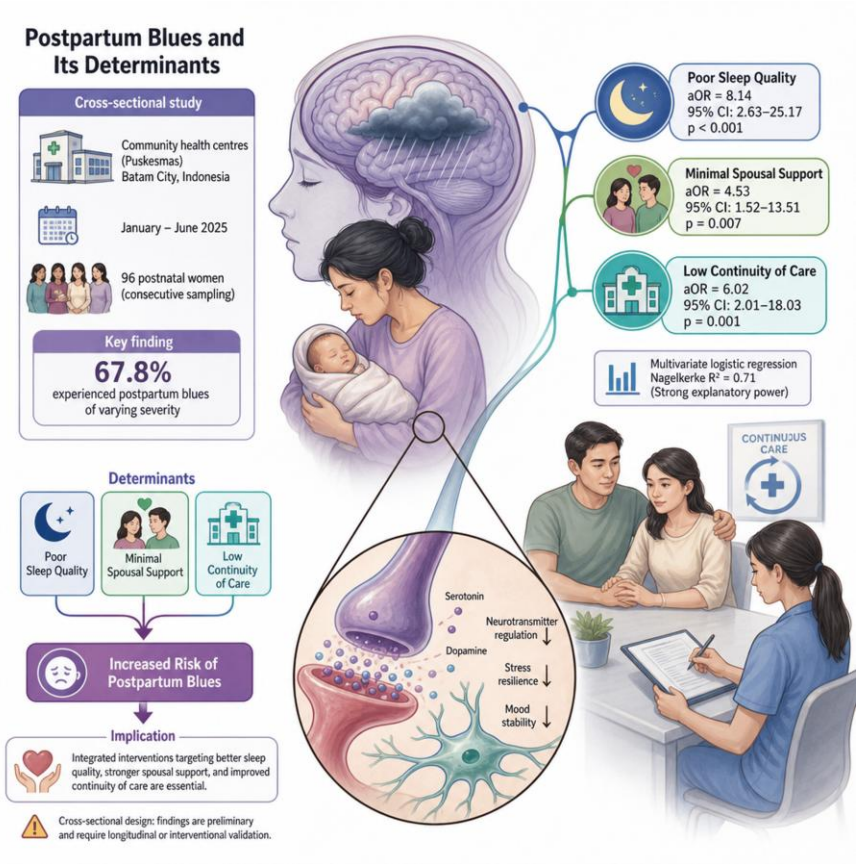
Key Messages:

- Poor sleep quality, inadequate continuity of maternal care, and minimal spousal support are strongly associated with an increased likelihood of postpartum blues, highlighting the need for integrated support strategies while necessitating longitudinal research to confirm causal pathways

Access this article online

Quick Response Code

GRAPHICAL ABSTRACT



INTRODUCTION

Psychological disorders experienced by mothers after childbirth, including depression, anxiety, and prolonged emotional distress, have become one of the most pressing public health issues globally. These conditions affect not only maternal well-being but also the broader family system, potentially disrupting mother–infant bonding, impairing early childhood development, and increasing the risk of long-term psychosocial difficulties within families (1,2). Epidemiological evidence suggests that approximately 10–15% of women in high-income countries experience postpartum depression, while prevalence rates are considerably higher in low- and middle-income countries, where socioeconomic stressors, limited access to mental health services, and weaker social support systems intensify maternal vulnerability (3–5). These findings highlight the urgent need to identify modifiable determinants of postpartum mental health to inform effective prevention and intervention strategies in maternal healthcare systems.

Postpartum blues, characterized by transient mood disturbances, including tearfulness, irritability, and emotional lability, typically emerging within the first two weeks following delivery, represent the most common postpartum mood disturbance. Although usually self-limiting, postpartum blues can serve as an early marker for the development of more severe postpartum depression when risk factors accumulate (3,5). In Indonesia, postpartum mental health problems remain insufficiently detected and underreported. Regional studies have reported prevalence rates ranging from 22% to 57%, reflecting differences in sociocultural contexts, family support structures, access to maternal healthcare, and household socioeconomic conditions (3,6,7), (8). Most existing studies, however, have examined psychosocial determinants in isolation rather than within a comprehensive analytical framework, limiting understanding of postpartum mental health in the Indonesian context (9–11).

Batam City represents a relevant yet under-researched setting for this investigation. As a Special Economic Zone in Riau Islands Province, Batam has experienced substantial economic growth, high labour migration, and rapid urbanization. These demographic transitions have contributed to the predominance

https://doi.org/10.56303/jhnresearch.v5i2.1339

of nuclear family structures, often separated from traditional extended family support systems. Urban migration and changing family dynamics may increase psychosocial stress among postpartum women, particularly when social support from relatives is limited (6,11). Additionally, demanding industrial working conditions and limited availability of specialized maternal mental health services may delay early detection and treatment of postpartum psychological disorders (4,5). These features make Batam a distinctive urban context where findings may offer insights relevant to other rapidly developing Indonesian cities experiencing similar demographic transitions.

Sleep quality has been consistently identified in the scientific literature as one of the most important proximal predictors of maternal psychological well-being during the postpartum period. Sleep disturbances are highly prevalent among postpartum women due to multiple physiological and caregiving factors, including frequent nighttime infant feeding, hormonal fluctuations, and the continuous physical and emotional demands associated with newborn care. Empirical studies have demonstrated that insufficient or poor-quality sleep is strongly associated with increased risks of depressive and anxiety symptoms among postpartum mothers. These relationships are believed to be mediated by neurobiological mechanisms, including dysregulation of the Hypothalamic-Pituitary-Adrenal (HPA) axis, altered cortisol secretion, and impaired emotional regulation (12–14). Longitudinal research further indicates that persistent sleep disruption during the early postpartum period significantly elevates the risk of developing postpartum depression, suggesting that sleep quality may function not only as a physical health indicator but also as an early marker and modifiable risk factor for maternal mental health problems (15,16).

Beyond behavioural factors, interpersonal resources, particularly support from intimate partners, play a critical role in maternal psychological adjustment during the postpartum period. Partner involvement can substantially reduce the caregiving burden, enhance mothers' emotional coping capacity, and strengthen maternal self-efficacy in infant care. A growing body of cross-cultural research consistently demonstrates that women who perceive strong emotional and practical support from their partners tend to report significantly lower levels of postpartum depressive symptoms and psychological distress (5–7). The protective effect of spousal support may be particularly pronounced in urban settings like Batam, where traditional extended family systems are less accessible. Moreover, partner support may indirectly improve sleep quality by facilitating shared caregiving responsibilities, creating a pathway through which interpersonal support influences postpartum mental health (13,14,16).

In addition to individual and interpersonal determinants, healthcare system characteristics, particularly continuity of care, have been increasingly recognized as important contributors to maternal mental health outcomes (15). Continuity of maternity care refers to the consistent provision of care by the same healthcare providers throughout pregnancy, childbirth, and the postpartum period, promoting stronger patient–provider relationships, improved communication, and early identification of psychological distress (17). Evidence suggests that continuity of care enhances maternal satisfaction, emotional support, and timely referral to mental health services (18–20).

Although these three determinants have received increasing attention individually, their simultaneous examination within an integrated analytical framework remains limited, particularly in the Indonesian context (1). Grounded in the biopsychosocial model of health, this study conceptualizes sleep quality as a behavioural determinant, spousal support as an interpersonal resource, and continuity of care as a structural characteristic of the healthcare system. Integrating these dimensions provides a more comprehensive understanding of postpartum blues. Therefore, this study aims to examine the predictive roles of sleep quality, spousal support, and continuity of care on postpartum blues among postnatal women in Batam using a multivariate analytical approach, with findings intended to inform context-sensitive maternal care strategies.

METHODS

Study Design and Setting

A cross-sectional analytical study was conducted between January and June 2025 at public health centres (Puskesmas) in Batam. These sites were selected based on their high postpartum patient volumes

https://doi.org/10.56303/jhnresearch.v5i2.1339

and representativeness of diverse socioeconomic profiles within Batam.

Population and Sample

The study population comprised all postnatal women attending postpartum follow-up visits at the selected Puskesmas within the study period. Inclusion criteria were: (1) women aged 18–40 years; (2) within 6 weeks postpartum; (3) singleton live birth; (4) residing in Batam; and (5) ability to provide informed consent. Exclusion criteria included: (1) history of pre-existing psychiatric disorders; (2) multiple gestations; (3) neonatal death; and (4) severe obstetric complications.

Sample size was determined using G*Power version 3.1 (21) for multivariate logistic regression analysis. Parameters were set at a medium effect size ($f^2 = 0.15$), $\alpha = 0.05$, statistical power of 0.80, and three predictor variables. The calculation yielded a minimum required sample of 77 participants. With 20% attrition, the final target sample was 96 postnatal women enrolled by consecutive sampling. No missing data were encountered, as all 96 enrolled participants completed all instruments in full during the data collection visit; therefore, imputation was not required.

Instruments

Four validated instruments were utilized:

1. Postpartum Blues Questionnaire (PBQ-32): A 32-item instrument validated for Indonesian postpartum mothers, assessing six domains of postpartum blues using a 4-point Likert scale (CVI = 0.92; Cronbach's $\alpha = 0.89$). Total scores ≥25 indicate the presence of postpartum blues; this cutoff was established based on psychometric validation and receiver operating characteristic (ROC) analysis conducted during instrument development (22), (23).
2. Continuity of Care Index (COCI): Continuity of care was measured using a 15-item questionnaire adapted from the original, covering three dimensions: relational continuity, informational continuity, and management of maternity care services during the perinatal period. This questionnaire demonstrated good internal consistency (Cronbach's $\alpha = 0.81$). The higher the score obtained, the better the mother's perception of the continuity of care received. The total score was converted to a percentage and categorized into good continuity (≥60%) and poor continuity (<60%) using a commonly employed classification method in health research.(24–26).
3. Postpartum Partner Support Scale (PPSS): Partner support during the postpartum period was measured using a 20-item questionnaire adapted from the original, covering three dimensions: emotional, instrumental, and informational support. The higher the score, the greater the mother's perceived support. The total score was converted to a percentage and categorized using Bloom's method: high support (≥75%) and low support (<75%) (5,6,24)
4. Pittsburgh Sleep Quality Index (PSQI): Sleep quality was measured using the Pittsburgh Sleep Quality Index (PSQI). This 19-item scale has been globally validated and has adequate internal consistency (Cronbach's $\alpha = 0.79$)(27). This instrument assesses respondents' sleep quality over the past month. A PSQI global score of 5 or higher indicates poor sleep quality, and this cutoff has been widely used across various research populations.

Data Analysis

Data were analyzed using SPSS version 25.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to summarise participants' sociodemographic and obstetric characteristics, presented as frequencies and percentages for categorical variables and as means with standard deviations for continuous variables. The outcome variable, postpartum blues, was operationalized as a dichotomous variable based on PBQ-32 total scores: blues (≥25) and no blues (0–24). Bivariate analysis using chi-square tests was performed to examine associations between each predictor variable and postpartum blues occurrence. Variables with $p<0.25$ in bivariate analysis were considered candidate predictors and entered into the multivariate model (28). Multivariate binary logistic regression analysis was subsequently performed to identify independent predictors of postpartum blues, controlling for potential confounders. Before modelling, logistic regression assumptions were verified: the linearity of continuous

https://doi.org/10.56303/jhnresearch.v5i2.1339

predictors in the logit was assessed using the Box-Tidwell procedure, and multicollinearity among predictor variables was evaluated using Variance Inflation Factors (VIF), all of which were below 10, confirming the absence of problematic multicollinearity. The strength of association was expressed as adjusted odds ratios (aOR) with 95% confidence intervals (CI). Model fit was assessed using the Hosmer-Lemeshow goodness-of-fit test. Statistical significance was set at $p<0.05$.

CODE OF HEALTH ETHICS

Ethical approval was obtained from the Health Research Ethics Committee of Universitas Batam, Batam, under number 025/LPPM-UNIBA/PI-EC/I/2025. All participants provided written informed consent. Data confidentiality was maintained throughout the study.

RESULTS

Table 1 summarizes the sociodemographic and obstetric characteristics of the 96 participants. The majority were aged 26–35 years, had secondary education, and were homemakers. Most participants were multiparous and delivered vaginally. Mild postpartum blues was the most common category. More than half of the participants reported good continuity of care. At the same time, spousal support and sleep quality were relatively evenly distributed between good and poor categories

Table 1. Sociodemographic and Obstetric Characteristics of Participants (n = 96)

Characteristic	n	%
Age (mean ± SD: 29.8 ± 6.6 years)		
18–25 years	27	28.1
26–35 years	46	47.9
>35 years	23	24.0
Educational Level		
Primary/Junior High School	16	16.7
Senior High School/Vocational	44	45.8
Diploma (D1–D3)	13	13.5
Bachelor's and above	23	24.0
Occupation		
Housewife	44	45.8
Private employee/factory worker	30	31.2
Entrepreneur	12	12.5
Civil servant (PNS)	10	10.4
Parity		
Primiparous	26	27.1
Multiparous	50	52.1
Grand multiparous	20	20.8
Mode of Delivery		
Vaginal delivery	72	75.0
Cesarean section	24	25.0
Breastfeeding Status		
Exclusive breastfeeding	45	46.9
Breastfeeding + formula	25	26.0
Formula only	26	27.1
Postpartum Blues		
No symptoms	31	32.3
Mild postpartum blues	40	41.7
Moderate postpartum blues	23	24.0
Severe postpartum blues	2	2.1
Continuity of Care (COCI)		
Good	58	60.4
Poor	38	39.6
Spousal Support (PPSS)		
High	49	51.0
Low	47	49.0
Sleep Quality (PSQI)		
Good	49	51.0
Poor	47	49.0

Table 2 presents the bivariate analysis between predictor variables and the severity of

https://doi.org/10.56303/jhnresearch.v5i2.1339

postpartum blues. Continuity of care (COCI), spousal support (PPSS), and sleep quality (PSQI) showed statistically significant associations with postpartum blues severity ($p < 0.001$), with poorer conditions consistently associated with higher severity levels. In contrast, parity and mode of delivery were not significantly associated with postpartum blues ($p > 0.05$).

Table 2. Bivariate Analysis: Distribution of Predictor Variables Across Postpartum Blues Severity Categories (n = 96)

Variable	No Symptoms (0-24) n=31	Mild (25-48) n=40	Moderate (49-72) n=23	Severe (73-96) n=2	Chi/H	p
COCI — Continuity of Care						
Good (≥60%)	26 (83.9%)	27 (67.5%)	5 (21.7%)	0 (0.0%)	38.27	<0.001
Poor (<60%)	5 (16.1%)	13 (32.5%)	18 (78.3%)	2 (100.0%)		
Mean ± SD	57.5±15.2	50.9±18.5	34.2±14.8	28.5±7.8	H=29.14	<0.001
PPSS — Spousal Support						
High (≥75%)	28 (90.3%)	20 (50.0%)	1 (4.3%)	0 (0.0%)	42.18	<0.001
Low (< 75%)	3 (9.7%)	20 (50.0%)	22 (95.7%)	2 (100.0%)		
Mean ± SD	81.2±15.0	68.5±23.2	43.1±17.3	51.5±14.8	H=33.62	<0.001
PSQI — Sleep Quality						
Good (≤5)	27 (87.1%)	19 (47.5%)	3 (13.0%)	0 (0.0%)	44.93	<0.001
Poor (>above 5)	4 (12.9%)	21 (52.5%)	20 (87.0%)	2 (100.0%)		
Mean ± SD	4.6±4.4	7.5±6.0	10.4±5.1	15.0±5.7	H=31.88	<0.001
Parity						
Primiparous	7 (22.6%)	10 (25.0%)	8 (34.8%)	1 (50.0%)	7.82	0.167
Multiparous	19 (61.3%)	21 (52.5%)	9 (39.1%)	1 (50.0%)		
Grand multiparous	5 (16.1%)	9 (22.5%)	6 (26.1%)	0 (0.0%)		
Mode of Delivery						
Vaginal	26 (83.9%)	30 (75.0%)	15 (65.2%)	1 (50.0%)	3.17	0.367
Cesarean section	5 (16.1%)	10 (25.0%)	8 (34.8%)	1 (50.0%)		

Note: Cut-off scores for COCI (≥60% / <60%) and PPSS (≥75% / <75%) were determined based on Bloom's percentage-based classification approach, while the PSQI used a pre-established clinical cutoff score of >5 for poor sleep quality. Mean ± SD values present instrument scores by postpartum blues severity group. A *p- value* < 0.05 (in bold) indicates statistical significance.

Table 3 shows the results of multivariate logistic regression identifying independent predictors of postpartum blues. Poor sleep quality, poor continuity of care, and low spousal support were significant predictors ($p < 0.05$), with poor sleep quality having the strongest association. Parity and mode of delivery were not significant predictors in the final model.

Table 3. Multivariate Logistic Regression: Independent Predictors of Postpartum Blues (n = 96)

Variable	B	aOR (95% CI)	Wald	df	p
Poor Sleep Quality (PSQI >5)	2.097	8.14 (2.63–25.17)	12.31	1	<0.001
Poor Continuity of Care (COCI <60%)	1.795	6.02 (2.01–18.03)	9.84	1	0.001
Low Spousal Support (PPSS <75%)	1.510	4.53 (1.52–13.51)	8.27	1	0.007
Parity	0.384	1.47 (0.69–3.13)	1.02	1	0.312
Mode of Delivery	0.071	1.07 (0.38–3.04)	0.02	1	0.891
Constant	-4.127	—	—	—	<0.001

Note: aOR = adjusted Odds Ratio; CI = 95% Confidence Interval. Model fit: Hosmer-Lemeshow chi-square = 5.83, p = 0.667; Nagelkerke $R^2 = 0.71$.

DISCUSSION

Prevalence of Postpartum Blues

In this study, 67.8% of respondents experienced postpartum blues, with 41.7% mild, 24.0% moderate, and 2.1% severe. These findings are broadly consistent with the variable prevalence rates of postpartum mental health disorders reported in previous Indonesian studies, where rates have ranged

https://doi.org/10.56303/jhnresearch.v5i2.1339

from 22% to 57% (4–7,11). The relatively higher rate observed in this study is likely attributable to the unique sociodemographic characteristics of Batam City, a Special Economic Zone with high population mobility, predominance of nuclear family structures, and limited broader social support systems, structural conditions consistent with theoretical frameworks linking urbanization and weakened social ties to increased risk of mental health disorders (5,11,29,30)

Sleep Quality as a Predictor of Postpartum Blues

Poor sleep quality, defined by a PSQI score > 5, was the most dominant independent predictor of postpartum blues (aOR = 8.14; 95% CI: 2.63–25.17; p < 0.001). This finding is consistent with a growing body of evidence demonstrating a strong link between sleep disturbances and postpartum psychological distress (12–14), (16). The high rate of poor sleep quality (49.0%) is likely related to the dominant nuclear family structure in Batam, where mothers often serve as sole caregivers responsible for nighttime infant care (31–33).

Importantly, the relationship between spousal support and sleep quality in this sample also warrants exploratory attention: active partner involvement in nighttime caregiving may indirectly improve maternal sleep quality, suggesting an interaction between interpersonal and behavioural predictors that could strengthen the rationale for couple-based interventions. These findings underscore the need to integrate sleep quality screening and education on sleep hygiene into routine postpartum care as part of comprehensive maternal mental health programmes.

Continuity of Care as a Predictor of Postpartum Blues

Poor continuity of care (COCI < 60%) was the second strongest independent predictor of postpartum blues (aOR = 6.02; 95% CI: 2.01–18.03; p = 0.001). Mothers who did not receive adequate continuity of care were approximately six times more likely to experience postpartum blues. Continuity of care, encompassing relational, informational, and managerial dimensions (25,26). facilitates the development of trust, fosters effective communication, and enables consistent monitoring of maternal condition. Sandall et al. (2016) found that midwifery-based continuity-of-care models are associated with better maternal mental health outcomes compared to fragmented care systems (18). Mortensen et al. (2019) also reported that a continuity-of-care approach significantly improves maternal health outcomes in resource-limited settings (20). Strengthening service continuity through structured midwifery-based programmes, developing integrated care pathways, and improving coordination among health workers are therefore strategic priorities for improving maternal mental health outcomes in Batam.

Spousal Support as a Predictor of Postpartum Blues

Low spousal support (PPSS < 75%) was the third significant independent predictor of postpartum blues (aOR = 4.53; 95% CI: 1.52–13.51; p = 0.007). Nurbaeti et al. (2019) reported that spousal support was significantly associated with postpartum depression in South Jakarta (6). Shorey et al. (2018), in a systematic review and meta-analysis, confirmed that strong partner support consistently correlates with lower rates of postpartum depression across different cultural settings (5). The high proportion of mothers with low spousal support (49.0%) in this sample is likely related to the demanding working hours in Batam's industrial and manufacturing sectors. These findings underscore the urgency of developing postpartum support programmes that actively engage couples, including inclusive postpartum education, co-parenting training, and couples counselling services at the Puskesmas level.

Non-Significant Predictors

Neither parity (aOR = 1.47; p = 0.312) nor delivery method (aOR = 1.07; p = 0.891) was statistically significant in the multivariate model. This aligns with previous studies indicating that psychosocial factors and healthcare quality more influence postpartum psychological outcomes than obstetric characteristics alone (1,3), (5,11).

https://doi.org/10.56303/jhnresearch.v5i2.1339

Integrated Biopsychosocial Perspective

Overall, these findings support the biopsychosocial model of postpartum mental health, which views maternal psychological well-being as the result of dynamic interactions among behavioural, interpersonal, and healthcare system-related factors (2,5,13). Sleep quality represents the behavioural-physiological dimension, spousal support the interpersonal-relational dimension, and continuity of care the structural dimension of the healthcare system. The simultaneous statistical significance of these three variables confirms that postpartum blues is a multifaceted phenomenon. The high Nagelkerke R^2 value (0.71) provides strong support for the validity of this integrated analytical framework.

Limitations

Several limitations warrant acknowledgment. First, the cross-sectional design limits the ability to draw causal conclusions. Second, limiting the study to four Puskesmas in Batam City may limit generalization to other urban and rural Indonesian contexts. Third, while consecutive sampling is practical, it may reduce sample representativeness compared to random sampling. Fourth, the possibility of residual confounding from unmeasured variables, such as mental health history during pregnancy, broader social support networks, and household economic stress, cannot be fully excluded. Future longitudinal research incorporating broader sampling strategies and more comprehensive psychosocial covariates is needed to establish causal pathways.

CONCLUSION

This study confirms that postpartum blues is a multifactorial phenomenon, simultaneously influenced by behavioural, relational, and structural dimensions of healthcare. Sleep quality, spousal support, and continuity of care were significant independent predictors, with sleep quality being the most dominant factor. Obstetrical variables, such as parity and delivery method, did not show significant associations, suggesting that psychosocial factors and healthcare services have a greater influence than clinical characteristics alone. The model's high explanatory power (Nagelkerke $R^2 = 0.71$) underscores the relevance of the biopsychosocial approach. Intervention efforts should be integrated to improve sleep quality through postpartum sleep hygiene programmes, strengthen spousal involvement through couple-based education and co-parenting support, and improve continuity of care through structured midwifery-based pathways at the Puskesmas level. Given the cross-sectional and preliminary nature of these findings, longitudinal and interventional studies are needed to confirm causal relationships and evaluate the effectiveness of these integrated strategies.

DECLARATION OF THE USE OF AI

The authors declare that no artificial intelligence (AI), AI-assisted technologies, or large language models (LLMs) were used in the conception of the study, data analysis, or the drafting, writing, and editing of this manuscript. The only exception is the graphical abstract, which was created using the design platform Illustrae (https://illustrae.co/). The authors take full responsibility for the content and accuracy of the graphical abstract and the entire manuscript

FUNDING

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. All research activities, including instrument development, data collection, and analysis, were self-funded by the corresponding author.

ACKNOWLEDGMENTS

The authors thank the expert panel members, village midwives, health cadres, and participating mothers for their contributions to this study. Special thanks to the Health Center in Batam City for facilitating data collection and supporting this research initiative.

https://doi.org/10.56303/jhnresearch.v5i2.1339

CONFLICTS OF INTEREST

The authors declare no conflict of interest

REFERENCES

1. Howard LM, Molyneaux E, Dennis CL, Rochat T, Stein A, Milgrom J. Non-psychotic mental disorders in the perinatal period. The Lancet. 2014;384(9956):1775–88. doi:10.1016/S0140-6736(14)61276-9 PubMed PMID: 25455248.
2. Stein A, Pearson RM, Goodman SH, Rapa E, Rahman A, McCallum M, et al. Effects of perinatal mental disorders on the fetus and child. The Lancet. 2014 Nov 15;384(9956):1800–19. doi:10.1016/S0140-6736(14)61277-0
3. Khamidullina Z, Marat A, Muratbekova S, Mustapayeva NM, Chingayeva GN, Shepetov AM, et al. Postpartum Depression Epidemiology, Risk Factors, Diagnosis, and Management: An Appraisal of the Current Knowledge and Future Perspectives. Journal of clinical medicine. 2025 Apr;14(7). doi:10.3390/jcm14072418 PubMed PMID: 40217868.
4. WHO WHO. Transforming mental health for all. WHO WHO, editor. WHO; 2022. 296 p.
5. Shorey S, Chee CYI, Ng ED, Chan YH, Tam WWS, Chong YS. Prevalence and incidence of postpartum depression among healthy mothers: A systematic review and meta-analysis. Journal of psychiatric research. 2018 Sep;104:235–48. doi:10.1016/j.jpsychires.2018.08.001 PubMed PMID: 30114665.
6. Nurbaeti I, Deoisres W, Hengudomsub P. Association between psychosocial factors and postpartum depression in South Jakarta, Indonesia. Sexual & reproductive healthcare : official journal of the Swedish Association of Midwives. 2019 Jun;20:72–6. doi:10.1016/j.srhc.2019.02.004 PubMed PMID: 31084823.
7. Rahmadhani W, Chamroen P. Prevalence and Determinants of Postpartum Depression Among Adolescent Mothers : A Cross-Sectional Study. Vol. 6. 2022;6(2):533–44.
8. Palupi KC, Mulyadewi Z, Fadhilah R, Melani V, Siahaan MF. The Effect of a Fruit-Based Antioxidant Intervention on Depressive and Anxiety Symptoms in Postpartum Mothers : A Quasi-Experimental Study Key Messages : Vol. 4. 2025;4(3):1322–33.
9. Sari N, Sari N, Dewi FNM, Muhani N. Maternal Factors Influencing Postpartum Depression in Indonesia Maternal Factors Influencing Postpartum Depression in. Vol. 18. 2023;18(3):203–8. doi:10.21109/kesmas.v18i3.7209
10. Zarroug M, Altaf MF, Shaikh S, Tidjani A, Bashir O, Ayash MI, et al. The Prevalence and Risk Factors of Postpartum Depression Among Saudi Arabian Women—A Systematic Review and Meta-Analysis. Healthcare. 2025;13(16). doi:10.3390/healthcare13162040
11. Fisher J, Cabral de Mello M, Patel V, Rahman A, Tran T, Holton S, et al. Prevalence and determinants of common perinatal mental disorders in women in low- and lower-middle-income countries: a systematic review. Bulletin of the World Health Organization. 2012 Feb;90(2):139G-149G. doi:10.2471/BLT.11.091850 PubMed PMID: 22423165.
12. Okun ML, Mancuso RA, Hobel CJ, Schetter CD, Coussons-Read M. Poor sleep quality increases symptoms of depression and anxiety in postpartum women. Journal of behavioral medicine. 2018 Oct;41(5):703–10. doi:10.1007/s10865-018-9950-7 PubMed PMID: 30030650.
13. Bei B, Coo S, Trinder J. Sleep and Mood During Pregnancy and the Postpartum Period. Sleep medicine clinics. 2015 Mar;10(1):25–33. doi:10.1016/j.jsmc.2014.11.011 PubMed PMID: 26055670.
14. Bangsgaard RB, Høgh S, Borgsted C, Cvetanovska E, Pinborg A, Hegaard H, et al. Sleep quality in late pregnancy is associated with maternal mental health in the early postpartum period. European Journal of Obstetrics & Gynecology and Reproductive Biology. 2025;311:113980. doi:https://doi.org/10.1016/j.ejogrb.2025.113980
15. Bm XL, Student G, Wang S, Wang G, Student G. Prevalence and Risk Factors of Postpartum Depression in Women : A Systematic Review and Meta- - analysis. 2022;(July 2021):2665–77. doi:10.1111/jocn.16121

https://doi.org/10.56303/jhnresearch.v5i2.1339

16. Horwitz A, Bar-Shachar Y, Ran-Peled D, Meiri G, Tikotzky L. Sleep and symptoms of depression and anxiety in mothers and fathers of infants: A longitudinal perspective. Sleep Health. 2026;12(2):273–82. doi:https://doi.org/10.1016/j.sleh.2025.11.009
17. Penu AS, Mediawati AS, Agustina HR. Impact of the I-PASS Communication Method on Nurse Handover Quality in Hospital Settings : A Scoping Review Key Messages : Journal of Health and Nutrition Research. 2026;5(1):450–63. doi:https://doi.org/10.56303/jhnresearch.v5i1.1073
18. Sandall J, Soltani H, Gates S, Shennan A, Devane D. Midwife-led continuity models versus other models of care for childbearing women. The Cochrane database of systematic reviews. 2016 Apr;4(4):CD004667. doi:10.1002/14651858.CD004667.pub5 PubMed PMID: 27121907.
19. Homer CSE, Leap N, Edwards N, Sandall J. Midwifery continuity of carer in an area of high socio-economic disadvantage in London: A retrospective analysis of Albany Midwifery Practice outcomes using routine data (1997–2009). Midwifery. 2017;48:1–10. doi:https://doi.org/10.1016/j.midw.2017.02.009
20. Mortensen B, Lieng M, Diep LM, Lukasse M, Atieh K, Fosse E. Improving Maternal and Neonatal Health by a Midwife-led Continuity Model of Care - An Observational Study in One Governmental Hospital in Palestine. EClinicalMedicine. 2019 Apr;10:84–91. doi:10.1016/j.eclinm.2019.04.003 PubMed PMID: 31193799.
21. Erdfelder E. Statistical power analyses using G * Power 3 . 1 : Tests for correlation and regression analyses. Vol. 41. 2009;41(4):1149–60. doi:10.3758/BRM.41.4.1149
22. Sari IN, Sansuwito T. Development and psychometric validation of the Indonesian versions of the Postpartum Blues and Maternal Self-Efficacy Scales Ika Novita Sari. F1000research. 2026;1–19.
23. Sari IN, Sansuwito T. Development And Psychometric Validation Of The Indonesian Versions Of The Postpartum Blues And Maternal Self-Efficacy Scales. Zenoda. 2025. doi:https://doi.org/10.5281/zenodo.16298002
24. Bloom BS, Hastings T, Madaus GF; Handbook on Formative and Summative Evaluation of Student Learning. New York; 1971.
25. Haggerty JL, Reid RJ, Freeman GK, Starfield BH, Adair CE, McKendry R. Continuity of care: a multidisciplinary review. BMJ. 2003;327(7425):1219–21. doi:10.1136/bmj.327.7425.1219
26. Freeman G, Shepperd S, Robinson I, Ehrich K, Richards S. Continuity of care: Report of a scoping exercise. 2001.
27. Buysse DJ, Reynolds CF 3rd, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. Psychiatry research. 1989 May;28(2):193–213. doi:10.1016/0165-1781(89)90047-4 PubMed PMID: 2748771.
28. David W. Hosmer Jr., Stanley Lemeshow RXS. Applied Logistic Regression. Wiley Online Library; 2013. doi:10.1002/9781118548387
29. Patel V, Saxena S, Lund C, Thornicroft G, Baingana F, Bolton P, et al. The Lancet Commission on global mental health and sustainable development. The Lancet. 2018 Oct 27;392(10157):1553–98. doi:10.1016/S0140-6736(18)31612-X
30. Norhayati MN, Nik Hazlina NH, Asrenee AR, Wan Emilin WMA. Magnitude and risk factors for postpartum symptoms: A literature review. Journal of Affective Disorders. 2015;175:34–52. doi:https://doi.org/10.1016/j.jad.2014.12.041
31. Dennis CL, Ross L. Relationships Among Infant Sleep Patterns, Maternal Fatigue, and Development of Depressive Symptomatology. Birth. 2005 Sep 1;32(3):187–93. doi:https://doi.org/10.1111/j.0730-7659.2005.00368.x
32. Dørheim SK, Bondevik GT, Eberhard-Gran M, Bjorvatn B. Sleep and Depression in Postpartum Women: A Population-Based Study. Sleep. 2009 Jul 1;32(7):847–55. doi:10.1093/sleep/32.7.847
33. Giallo R, Rose N, Vittorino R. Fatigue, wellbeing and parenting in mothers of infants and toddlers with sleep problems. Journal of Reproductive and Infant Psychology. 2011 Jul 1;29(3):236–49. doi:10.1080/02646838.2011.593030