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# Intimate Partner Violence and Perinatal Mental Health Disorders Among Postpartum Women in Indonesia: A Case-Control Study

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***ABSTRACT***
***Introduction*** *Postpartum depressive symptoms affect between10% and 20% of women globally, with figures reaching up to 22% in Indonesia. Although intimate partner violence (IPV) is potential contributor, empirical data originating from Indonesian primary healthcare settings remains limited. The objective of this study was to investigate the relationship between IPV risk and EPDS-screened postpartum depressive symptoms in Mataram, Indonesia.*
***Methods*** *A facility-based case-control study included 130 postpartum women (0–12 months) attending Babakan Public Health Center from February to May 2026. Participants were categorized into cases (EPDS scores >10) and controls (EPDS ≤ 10). IPV risk was assessed using the Woman Abuse Screening Tool (WAST). Correlation was analyzed using chi-square tests and binary logistic regression.*
***Results*** *IPV risk was identified in 16.9% of cases and 7.7% of controls. The unadjusted bivariate association failed to reach statistical significance (OR = 2.44; 95% CI: 0.79–7.48; p = 0.109). After adjustment, the positive trend persisted but remained nonsignificant (aOR = 2.96; 95% CI: 0.87–10.08; p = 0.083), with substantial statistical imprecision. Conversely, maternal age between 20 and 35 years showed the correlation with lower adjusted odds of postpartum depressive symptoms (aOR = 0.32; 95% CI: 0.13–0.83; p = 0.019).*
***Conclusion*** *Although IPV risk was more prevalent among women screening positive for postpartum depressive symptoms, the adjusted correlation was not statistically significant. Integrating IPV and depression screening into routine postnatal care may support early identification and referral. Further prospective studies are required to clarify this relationship.*

***Keywords:*** *intimate partner violence, postpartum depressive symptoms, edinburgh postnatal depression scale, primary care, perinatal mental health*

## INTRODUCTION

The first year after childbirth involves substantial physical, psychological, and social changes that can significantly influence maternal wellness, caregiving, mother–infant bonding, breastfeeding success, and children's socio-emotional development.[1],[2] Globally, postpartum depression has been reported to affect an estimated10–20% of new mothers, with Indonesian estimates of 15–22%, though many affected individuals remain undiagnosed in routine healthcare settings.[3] Intimate partner violence (IPV) represents a major potential risk factor for postpartum depressive symptoms; existing previous studies suggest that exposure to physical, psychological, or sexual violence may adversely affect maternal mental health.[4],[5] Disruption of the hypothalamic–pituitary–adrenal (HPA) axis alongside alterations in oxytocin-related pathways have been proposed as possible mechanisms links connecting interpersonal violence to serve psychological distress.[6],[7] The association is grounded in both biological and social mechanisms. Recurrent threat, humiliation, coercive control, and fear may prolong stress activation, reduce perceived safety, limit access to family or health services, and weaken the support networks needed during the early months of motherhood.[8] Maternal psychological well-being is shaped by interconnected determinants, including maternal age, education, employment status, economic conditions, and social support. Nevertheless, research within Indonesian primary healthcare settings remains limited, with most studies focusing primarily on prevalence estimates or simple bivariate associations.[9],[10] Recognizing these intersections, the World Health Organization (WHO) emphasizes the integration of intimate partner violence and maternal mental health screening into routine maternal healthcare services as part of a comprehensive prevention strategy, particularly in developing Southeast Asian settings.[11],[12]

Despite growing awareness of maternal mental health, localized empirical data regarding the relationship between intimate partner violence (IPV) risk and screening-identified postpartum depressive symptoms while controlling for relevant sociodemographic and reproductive parameters is still limited. To address this empirical gap, this study assessed IPV risk using the Woman Abuse Screening Tool (WAST) and postpartum depressive symptoms using the Edinburgh Postnatal Depression Scale (EPDS) among women attending Babakan Public Health Center in Mataram, Indonesia. By evaluating these dynamic within an Indonesian primary healthcare setting, this study seeks to clarify the correlation between IPV risk and postpartum depressive symptoms while identifying key contributing sociodemographic and reproductive factors.

## METHOD

### Study Design

A facility-based unmatched case-control study was conducted at Babakan Public Health Center, Mataram, West Nusa Tenggara, Indonesia, from February to May 2026. The center provided maternal, child, and community health services to women in its catchment area. Women who screened positive for postpartum depressive symptoms were then classified as cases, while women who screened negative in the same setting and study period were classified as controls.

### Population and Sample

The study involved women within 12 months postpartum who resided within the service area of Babakan Public Health Center in Mataram, Indonesia. Data collection took place from February to May 2026. Women were eligible if they could complete the questionnaire and had no severe medical conditions that might hinder participation. Women living outside the service area, those who declined to participate, and those whose responses were inconsistent were excluded.

Purposive sampling was used to recruit participants during visits for maternal and child health services. Trained field enumerators at the health center conducted initial screening using the Edinburgh Postnatal Depression Scale (EPDS). Participants with EPDS score >10 were classified as cases, indicating an elevated risk of clinically relevant depressive symptoms, while those scoring ≤10 were categorized as the control group. To enhance group comparability, controls were selected from the same facility during the concurrent timeframe at 1:1 case-control ratio, resulting in 65 cases and 65 controls (N = 30). Although this sampling strategy facilitated efficient field recruitment, the non-random selection may have introduced selection bias and limited the generalizability of the findings.

The proportion of IPV exposure among controls was 7.7%, with an anticipated odds ratio of 2.50. However, the source of the 7.7% estimate should be verified against evidence available before data collection. The initial field records did not contain a detailed accounting of eligibility screening, exclusions, and total non-response. These details should be added if they can be confirmed from the archived records. [13],[14]

### Sample Size Determination

The minimum sample size was calculated using a two-proportion method for an independent case-control study. The calculation assumed a 95% confidence level, 80% statistical power, a 1:1 case-control ratio, a control-group IPV exposure prevalence of 7.7%, and an expected odds ratio of 2.50 derived from previous evidence. These parameters

established a required minimum threshold of 65 participants in each group, giving a total of 130 participants, which was considered feasible within the study's fieldwork constraints. [15]

**Variables and Instruments**

The primary outcome involved postpartum depressive symptoms using the Edinburgh Postnatal Depression Scale (EPDS), as a self-report screening instrument that does not establish a clinical diagnosis. Women with EPDS scores >10 were classified as screen-positive, whereas those with scores ≤10 were classified as screen-negative, based on the Indonesian adaptation studies cited in this manuscript.[10],[15] The main exposure was IPV risk, assessed using an Indonesian-language version of the Woman Abuse Screening Tool (WAST). Previous studies have examined the use of WAST for identifying IPV in Indonesian primary healthcare settings and other populations.[5],[16] In the version used in this study included two initial screening questions and six follow-up items. Each follow-up item was scored from 0 to 2, resulting in a total score ranging from 0 to 12. A score ≥4 was defined as indicating IPV risk for this analysis, while a score <4 was classified as below this threshold. Because this scoring system differs from the one assessed in the Indonesian WAST validation study, the cutoff of ≥4 should be interpreted as an operational criterion rather than a validated diagnostic threshold. The analysis considered maternal age, educational level, employment status, parity, and age at first marriage as potential confounders. Maternal age was then categorized into 20–35 years and under 20 or over 35 years. Education was classified as low-to-middle or higher, while employment status was recorded as employed or unemployed. Parity was categorized as primiparous or multiparous, and age at first marriage as ≥19 or <19 years. Mode of delivery (vaginal birth or cesarean section) was examined descriptively but was not included in the confounder analysis.

**Data Collection**

Data were collected using an online Google Form. Before enrolment, participants were informed about the study objectives, voluntariness, confidentiality, and their right to stop without any adverse consequence. Given the potential safety risks associated with disclosing violence, each participant completed the questionnaire individually in a private setting. Participants were advised not to continue if their partner or another family member could access their responses. These procedures were intended to prioritize participant safety and privacy throughout the data collection process.

Data collection involved two steps. Participants first completed the EPDS to determine their case-control status. They subsequently completed the WAST and provided sociodemographic and reproductive information. Required fields were incorporated to

minimize missing responses. Before analysis, the dataset was checked for duplicate entries, completeness, plausible ranges, and internal consistency. Only records meeting the completeness and consistency criteria were retained in the final analysis.

### Statistical Analysis

All analyses were performed using IBM SPSS Statistics version 26.0. Participant characteristics were summarized as frequencies and percentages. Pearson's chi-square test was used to examine the association between IPV risk and case–control status. Unadjusted associations were expressed as crude odds ratios (ORs) with 95% confidence intervals (CIs).

Multivariable binary logistic regression using the Enter method was employed to estimate adjusted odds ratios (aORs) for IPV risk, maternal age, educational attainment, employment status, parity, and age at first marriage. These variables were selected based on their potential roles as confounders. Mode of delivery was not included in the adjusted model. Given that only 16 participants screened positive for IPV risk, the number of observations relative to the predictors raised concerns about potential overfitting and imprecise estimates. Accordingly, the adjusted results were interpreted as exploratory, with consideration given to the estimated effect sizes and the width of the 95% CIs. Although complete or quasi-complete separation was not established from the available analyses, potential model instability remained a concern. Statistical significance was set at $p < 0.05$.

### Ethical Considerations

Ethical approval was granted by the Health Research Ethics Committee of the Faculty of Medicine, Universitas Islam Al-Azhar Mataram (approval No. 209/EC-04/FK-06/UNIZAR/XII/2025). Before enrolment, all participants received information about the study objectives, confidentiality measures, and their right to withdraw, and provided written informed consent. Additional safeguards were implemented to protect the privacy of online IPV disclosure. Participants who required further assistance could be referred to the appropriate health personnel through established local service pathways.

## RESULT

**Table 1. Characteristics of postpartum women by case-control status**

| Characteristic | Control (n=65) | Case (n=65) |
|---|---|---|
| Maternal age | | |
| 20-35 years | 44 (67.7) | 50 (76.9) |
| <20 or >35 years | 21 (32.3) | 15 (23.1) |
| Education | | |
| No schooling | 1 (1.5) | 0 (0.0) |
| Primary school | 3 (4.6) | 2 (3.1) |

| Characteristic | Control (n=65) | Case (n=65) |
|---|---|---|
| Junior high school | 12 (18.5) | 10 (15.4) |
| Senior high school | 34 (52.3) | 39 (60.0) |
| College or university | 15 (23.1) | 14 (21.5) |
| Employment | | |
| Unemployed | 51 (78.5) | 53 (81.5) |
| Employed | 14 (21.5) | 12 (18.5) |
| Parity | | |
| Primiparous | 23 (35.4) | 21 (32.3) |
| Multiparous | 42 (64.6) | 44 (67.7) |
| Age at first marriage | | |
| >=19 years | 15 (23.1) | 18 (27.7) |
| <19 years | 50 (76.9) | 47 (72.3) |
| Mode of delivery | | |
| Cesarean section | 36 (55.4) | 41 (63.1) |
| Vaginal birth | 29 (44.6) | 24 (36.9) |

Data are presented as n (%). Cases were defined as EPDS score >10; controls were defined as EPDS score <=10

A total of 130 postpartum women were included in the study, comprising 65 cases and 65 controls. Table 1 summarizes the characteristics of participants by case-control status. Most women in both groups were aged 20-35 years, with a slightly higher proportion in the case group than in the control group (76.9% vs 67.7%). Senior high school was the most common education level in both groups. The majority of participants were unemployed, multiparous, married before the age of 19, and had undergone caesarean delivery. Although the case and control groups showed broadly similar characteristics, selected variables were retained in the adjusted analysis because of their potential relevance to postpartum mental health and their possible confounding effects.

**Table 2. Bivariable correlation between IPV risk and postpartum depressive symptom**

| IPV risk | Control n (%) | Case n (%) | p-value | OR (95% CI) |
|---|---|---|---|---|
| No IPV risk | 60 (92.3) | 54 (83.1) | 0.109 | Reference |
| IPV risk | 5 (7.7) | 11 (16.9) | | 2.44 (0.79-7.48) |
| **Total** | **65 (100.0)** | **65 (100.0)** | | |

IPV: intimate partner violence; OR: odds ratio; CI: confidence interval

Table 2 shows the bivariable association between IPV risk and postpartum depressive symptoms. IPV risk was identified in 11 women in the case group (16.9%) and five women in the control group (7.7%). Women with IPV risk had 2.44 times the odds of postpartum depressive symptoms compared with those without IPV risk. However, the correlation was not statistically significant because the 95% CI included 1.00 (95% CI 0.79-7.48; p=0.109).

**Table 3. Multi-variable logistic regression for postpartum depressive symptoms**

| Variable | Coding in Model | B | p-value | aOR (95% CI) |
|---|---|---|---|---|
| IPV risk | Yes vs no | 1.084 | 0.083 | 2.957 (0.868-10.077) |
| Maternal age | 20-35 years vs <20 or >35 years | -1.126 | 0.019 | 0.324 (0.126-0.833) |
| Education | Higher vs low-middle | -0.017 | 0.972 | 0.984 (0.329-2.471) |
| Employment | Employed vs unemployed | -0.420 | 0.407 | 0.657 (0.244-1.772) |
| Parity | Multiparous vs primiparous | 0.141 | 0.721 | 1.151 (0.531-2.494) |
| Age at first marriage | >=19 years vs <19 years | -0.358 | 0.457 | 0.699 (0.272-1.796) |
| Constant | | 1.539 | 0.141 | |

The adjusted model is presented in Table 3. IPV risk remained positively associated with postpartum depressive symptoms after adjustment, although the correlation did not reach statistical significance (aOR 2.96; 95% CI 0.87-10.08; p = 0.083). Women aged 20-35 years had significantly lower odds of postpartum depressive symptoms compared with age <20 or >35 years (aOR 0.32; 95% CI 0.13-0.83; p=0.019). The terms of education, employment, parity, and age at first marriage were not statistically significant in the adjusted model.

## DISCUSSION

This case-control study identified a higher prevalence of IPV risk among postpartum women who screened positive for depressive symptoms than among controls. The association was positive in both bivariable and multivariable analyses, with an adjusted odds ratio close to 3. However, the result did not reach statistical significance, and the confidence interval was wide. Therefore, the findings do not provide conclusive evidence that IPV was independently associated with increased postpartum depressive symptoms in this sample. The interpretations also recognize that the EPDS and WAST are screening tools, not diagnostic instruments, and that the small number of IPV-exposed participants limited statistical precision.

The observed pattern is consistent with previous systematic review and meta-analytic evidence showing that IPV is associated with postpartum depression. [17],[18],[19] Potential pathways include persistent fear, emotional threat, social isolation, financial dependence, and barriers to help-seeking. Biological pathways may also contribute, as stress and oxytocin systems signaling play roles during childbirth and the early postpartum period, while sustained stress may disrupt maternal emotional regulation.[20],[21] Nevertheless, the association in the present study was less conclusive than those reported in many larger studies. Several factors may account for this difference. First, online self-reporting of IPV may be influenced by fear, shame, or concerns about confidentiality, even when privacy safeguards are in place. Second,

the limited number of participants screening positive for IPV risk reduced statistical precision, resulting in wide confidence intervals. Third, postpartum depressive symptoms have multiple determinants, and the relationship with IPV may be influenced by other factors, including maternal age, social support, financial strain, previous mental health problems, and relationship circumstances.[22],[23]

Maternal age was the only statistically significant factor in the adjusted model. Women aged 20–35 years had lower odds of postpartum depressive symptoms than those younger than 20 years or older than 35 years. This finding should be interpreted as an association rather than evidence of direct protection. Women aged 20-35 year may have better physical readiness for childbirth, more stable social roles, and greater capacity to adapt to childcare responsibilities than mothers at younger or older reproductive ages. In contrast, younger mothers may experience educational interruption, economic dependence, and limited negotiation power. Meanwhile, the older mothers may face obstetric risks or accumulated family responsibilities. The model clarified the coding direction by comparing age 20-35 years with the combined higher-risk age group. Accordingly, the aOR below 1.00 indicates lower odds of depressive symptoms among women in the 20-35-year age group.

The findings have implications for primary healthcare. They highlight the importance of integrating postpartum depression screening and IPV assessment while ensuring that both are conducted sensitively and safety. A mother who screens positive for depressive symptoms may also require private enquiry about safety at home, while a mother who discloses IPV may need mental health assessment and referral. The World Health Organization recommends a respectful, non-stigmatizing care when integrating perinatal mental health service into maternal and child health services.[11] In practical terms, healthcare workers need training in confidentiality, risk assessment, first-line support, referral pathways, and documentation that does not increase danger to the woman. Strengthening social support is also important because it may help postpartum women cope with psychosocial stress and seek assistance.[24]

The assessment of intimate partner violence (IPV) relied on participants' self-reports of experiences within their relationships. Recalling and reporting these experiences may have been affected by memory limitations or reluctance to disclose sensitive information, potentially resulting in misclassification of IPV exposure. However, the extent to which these factors affected the accuracy of the reported information could not be determined. [25],[26] The study was conducted in a single urban primary healthcare facility; therefore, the findings should be interpreted with caution to populations with different social, economic, and cultural characteristics. Although several measures were implemented to minimize potential sources of bias, the analytical model did not incorporate for certain factors known to influence perinatal

mental health, including household economic conditions and broader sources of social support.[27],[24] As perinatal mental health is influenced by multiple biological, psychological, and social determinants, longitudinal studies involving more heterogeneous populations are warranted to further clarify the association between intimate partner violence and maternal mental health outcomes.[28] Future studies should incorporate more comprehensive measures of economic circumstances, social support, and family context to enhance model precision and support the development of targeted intervention strategies.[24]

These findings have important implications for maternal health promotion and the achievement of the Sustainable Development Goals (SDGs) 2030. Postpartum women identified as being at risk of IPV showed higher estimated odds of depressive symptoms than those who were not identified as being at risk, although this association was not statistically significant after adjustment for potential confounding factors (aOR = 2.96; 95% CI: 0.87–10.08; p = 0.083). The wide confidence interval indicates substantial uncertainty in the effect estimate. Therefore, the findings do not establish an independent association between IPV risk and postpartum depressive symptoms in this sample. Nevertheless, the findings underscore the importance of considering violence against women in efforts to promote maternal well-being. They are relevant to SDG Target 5.2, which aims to eliminate all forms of violence against women and girls, and SDG Target 3.4, which focuses on improving mental health and well-being .[11], The correlation between maternal age of 20-35 years and lower odds of postpartum depressive symptoms also suggests that prevention efforts should address multiple potential risk factor rather than focus on a single determinant. Integrating perinatal mental health screening and IPV assessment into primary healthcare services, alongside strengthened psychosocial support for women at higher reproductive risk and social challenges, may help address the effects of violence on maternal well-being and child development.[1],[29]

## CONCLUSION

Among postpartum women attending primary healthcare services in Indonesia, those identified as being at risk of intimate partner violence had higher estimated odds of screening positive for postpartum depressive symptoms. However, the adjusted association was not reach statistically significant, and the wide confidence interval suggests that the estimate remains uncertain (aOR = 2.96; 95% CI: 0.87–10.08; p = 0.083). Women aged 20–35 years had lower odds of screening positive than those younger than 20 or older than 35 years. These findings highlight the potential value of incorporating depressive symptom screening and confidential IPV assessment into routine maternal and child health services. Further longitudinal research involving larger samples is required to obtain more precise estimates,

examine temporal relationships, and guide the development of appropriate intervention.

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## AUTHOR CONTRIBUTIONS

Author 1 (APH): Conceptualization, Methodology, Data Curation, Formal Analysis, Writing Original Draft, and Writing – Review & Editing. Author 2 (AA): Methodology, Investigation, Data Collection, and Writing – Review & Editing. Author 3 (EDR): Supervision, Validation, and Writing – Review & Editing. Author 4 (CEP/DLS): Project Administration, Resources, and Supervision. All authors have reviewed and approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

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