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Screening for Postpartum Depression: A Descriptive Study of Risk Factors Among Postpartum Mothers in Malang

Khoyin Irma Diana, Rita Yulifah, Ita Yuliani and Didien Ika Setyarini

Department of Midwfery, Poltekkes Kemenkes Malang, Malang, Indonesia

Corresponding author: Diana Khoyin Irma (e-mail: irmadiana4@gmail.com)

ABSTRACT Postpartum depression (PPD) is a significant psychological disorder impacting both maternal and child well-being. In Indonesia, the incidence of PPD ranges from 50% to 70%, highlighting a critical public health concern. This study addresses the need for early identification of PPD by investigating its prevalence and associated risk factors among postpartum mothers in Malang, where systematic recording of PPD incidence is currently lacking. Employing a quantitative descriptive design with a cross-sectional approach, this research was conducted in Blimbing, Malang, from May to June 2023. A total sampling technique was utilized to recruit 38 seventh-day postpartum mothers who met specific inclusion criteria (normal labor, live birth, no family history of depression) and exclusion criteria (no personal or family history of depression during previous pregnancies/postpartum periods). The Edinburgh Postnatal Depression Scale (EPDS) was used as the primary research instrument to screen for PPD. Univariate analysis, specifically descriptive statistics, was performed using SPSS to analyze the collected data. The study revealed that 21.1% of the postpartum mothers screened were at risk of PPD. Analysis of maternal characteristics indicated that mothers aged 20-35 years (18.4%), primiparous mothers (13.2%), those with a child spacing of less than two years (8.7%), unemployed mothers (15.8%), and mothers with a high school education (15.8%) were most frequently identified as being at risk. All breastfeeding mothers (21.1%) were also found to be at risk. These findings underscore the importance of early screening for PPD to facilitate timely intervention and support, thereby enhancing maternal and child health outcomes.

INDEX TERMS Postpartum Depression, Risk Factors, Screening, Edinburgh Postnatal Depression Scale, Maternal Health

I. INTRODUCTION

The postpartum period, a critical phase following childbirth, is characterized by profound physical and psychological transformations for women. While many mothers adapt successfully to these changes, a significant proportion experience psychological disturbances, with postpartum depression (PPD) being one of the most prevalent and debilitating conditions [39]. PPD is defined as a moderate to severe depressive episode occurring after childbirth, typically within the first three months but potentially extending up to a year [5]. The ramifications of PPD are far-reaching, impacting not only the mother's mental health but also her ability to provide adequate maternal care, engage in breastfeeding, and potentially leading to infant neglect or abuse. Furthermore, PPD elevates the risk of suicide in mothers and can adversely affect the child's long-term development [Abstract]. The global incidence of depression among women who have recently given birth is approximately 13%, with developing countries reporting a higher prevalence of 19.8% [21]. In Asia, PPD rates range from 26% to 85%, and in Indonesia specifically, the incidence is reported to be between 50% and 70% [Abstract]. Regional data within Indonesia further illustrate this concern, with prevalence rates in areas like DKI Jakarta, DI Yogyakarta, and Surabaya ranging from 11% to 30%, and East Java reporting 6.8% [12]. Despite these alarming figures, a systematic system for recording the incidence of PPD in Malang is currently absent. Preliminary local surveys, such as one conducted on 57 respondents in an Independent Midwife Practice (PMB) S in Malang, indicated that 23% experienced PPD [11]. This lack of comprehensive data underscores a significant gap in understanding the true burden of PPD at the local level and impedes targeted public health interventions.

The etiology of PPD is complex and multifactorial, involving a confluence of physiological and psychosocial elements. Hormonal fluctuations post-childbirth are widely recognized as contributing to depressive symptoms [26]. Beyond biological factors, a range of risk factors have been identified, including maternal age, parity, inadequate spousal or family support, lower educational attainment, type of labor, employment status, and child spacing [6]. Elevated stress levels, insufficient social support, a history of violence, and dissatisfaction with one's partner are also

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common contributors, with prenatal depression and current experiences of violence being particularly significant [37]. These diverse contributing factors highlight the necessity for a holistic approach to PPD prevention and management.

Given the substantial impact of PPD on maternal and child health, early identification and intervention are paramount. The government's efforts through mental health activities within family health programs, including antenatal care (ANC) checks for pregnant women and detection of postpartum psychological disturbances during postnatal visits, represent crucial steps [20]. Standardized and validated screening tools are essential for effective early detection. The Edinburgh Postnatal Depression Scale (EPDS) is globally recognized as the most widely used and reliable instrument for PPD assessment, demonstrating a sensitivity of 80% and specificity of 84.4% [1, 10]. This study aims to describe the characteristics of postpartum women and the results of postpartum depression screening among seventh-day postpartum mothers in Malang.

This research offers several key contributions. Firstly, it provides localized data on the prevalence of PPD in Malang, addressing a critical information deficit and establishing a baseline for future public health initiatives. Secondly, by identifying specific demographic and obstetric characteristics associated with PPD risk within this population, the study offers valuable insights for developing targeted screening programs and preventive strategies. Thirdly, the findings reinforce the importance of routine PPD screening using validated tools like the EPDS in clinical practice, advocating for its integration into standard postpartum care to ensure early detection and timely support for at-risk mothers

II. METHOD

This study employed a quantitative descriptive research design utilizing a cross-sectional approach to investigate the prevalence and associated characteristics of postpartum depression among mothers in Malang. A cross-sectional design was selected to assess the current status of postpartum depression and its related factors within a defined population at a single point in time. This observational approach allows for the determination of prevalence and associations between variables, though it inherently does not establish causal relationships or track changes over time [41].

A. STUDY SETTING AND PERIOD

The research was conducted in Blimbing, Malang, Indonesia, with data collection carried out over a two-month period from May to June 2023. This specific timeframe was intentionally selected to ensure the inclusion of a representative sample of postpartum mothers who were within the defined puerperium period. By aligning the data collection schedule with this critical stage following childbirth, the study aimed to capture accurate and relevant information related to postpartum experiences and conditions, thereby enhancing the validity and reliability of the findings.

B. STUDY POPULATION AND SAMPLING

The target population for this study comprised all seventh-day postpartum mothers residing in Blimbing, Malang, who met the predefined inclusion criteria. A total sampling technique was utilized, aiming to include every eligible individual from the population. The total sample size for this study was 38 participants.

1. INCLUSION CRITERIA

Participants were included in this study based on specific eligibility criteria designed to ensure a homogenous sample and minimize potential confounding factors. First, only mothers who experienced a normal vaginal delivery and gave birth to a live infant were included, as this criterion helped standardize the type of childbirth experience and eliminated variability associated with surgical recovery or adverse birth outcomes. Second, the study excluded mothers with a known family history of depression during pregnancy or the postpartum period. This was essential to isolate the occurrence of postpartum depression (PPD) among individuals without a genetic predisposition or environmental influence stemming from immediate family members. Third, mothers with a personal history of depression were also excluded to prevent the inclusion of individuals with a prior tendency toward depressive episodes unrelated to the postpartum context. These inclusion criteria were implemented to strengthen the validity of the findings by focusing solely on new, first-time occurrences of PPD among women without prior or familial mental health conditions.

2. EXCLUSION CRITERIA

Participants were excluded from the study if they met certain conditions that could potentially confound the results or compromise the study's internal validity. Specifically, mothers with a documented history of depression during previous pregnancies or postpartum periods were excluded to ensure that the study focused solely on cases of newly onset postpartum depression (PPD) among individuals without prior diagnoses. Additionally, mothers with a family history of depression were also excluded to reduce the influence of hereditary psychiatric predispositions on the observed outcomes. Beyond these criteria, some potential respondents were unable to participate due to practical constraints, such as relocating to their hometowns outside the study area shortly after childbirth or choosing not to participate after being informed about the nature and procedures of the study. It is also important to note that the study did not utilize randomization in sample selection; instead, a total sampling approach was applied to include all eligible participants who met the inclusion criteria within the designated setting and timeframe. This method was chosen to maximize the representativeness of the accessible population while accommodating logistical and ethical considerations.

C. RESEARCH VARIABLE

This study focused on a single variable, namely the characterization of postpartum women in relation to their postpartum depression (PPD) screening outcomes. By narrowing the scope to this specific variable, the research enabled a detailed univariate analysis aimed at identifying

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the prevalence of PPD risk across different maternal characteristics. This approach facilitated a clearer understanding of how individual factors such as age, parity, education level, and support systems may correlate with the likelihood of experiencing PPD, thereby offering valuable insights for early detection and targeted mental health interventions in postpartum populations.

D. RESEARCH INSTRUMENT

The primary research instrument employed for screening postpartum depression was the Edinburgh Postnatal Depression Scale (EPDS). The EPDS is a widely recognized and validated self-report questionnaire specifically designed for the detection of PPD [10, 42]. EPDS Structure and Scoring: The EPDS consists of 10 items, each designed to assess the mother's emotional state over the preceding seven days. The EPDS has demonstrated satisfactory sensitivity and specificity for detecting PPD and is sensitive to changes in depression over time [10]. Its utility for screening as early as the seventh day postpartum is supported by existing literature [19, 43]. Each item offers four response options, scored from 0 to 3, resulting in a total possible score ranging from 0 to 30. The scoring methodology is as follows:

1. For items 1, 2, and 4, scores are assigned in ascending order (0, 1, 2, 3) based on the selected response option. These items typically assess positive feelings or the absence of depressive symptoms.
2. For items 3 and 5 through 10, scores are assigned in descending order (3, 2, 1, 0). These items generally assess negative feelings or the presence of depressive symptoms.
3. Special attention was paid to the responses for item 10, which pertains to self-harm thoughts, during the scoring process [10].

E. DATA COLLECTION PROCEDURE

Prior to data collection, ethical approval was obtained from the Ethics Committee of Poltekkes Kemenkes Malang on June 26, 2023, with reference number No.587/VI/KEPK POLKESMA/2023. Informed consent was secured from all potential respondents before their participation. Participants were thoroughly informed about the study's objectives, procedures, and their right to voluntary participation. They were also assured that all personal information collected would be maintained with strict confidentiality and would not be disclosed. Data collection involved direct administration of the EPDS questionnaire to the eligible postpartum mothers.

F. DATA ANALYSIS

Data analysis was performed using univariate analysis, specifically descriptive statistics, conducted with the Statistical Package for the Social Sciences (SPSS) software. This analytical approach was chosen to identify and describe the characteristics of the mothers based on the results of their postpartum depression screening. Descriptive statistics, including frequencies and percentages, were used to summarize the demographic information and the prevalence of PPD risk within the study sample [44].

III. RESULT

TABLE 1 shows characteristics based on age almost entirely have an age range of 20 – 35 years as many as 32 respondents (84.2%). Based on parity, most respondents were multiparous, as many as 23 respondents (60.5%). Based on child spacing, most of the respondents had a child spacing ≥ 2 years as many as 17 respondents (73.9%). Based on employment, most of the respondents did not work as many as 26 respondents (68.4%). Based on education, most of them had high school education as many as 26 respondents (68.4%). Based on lactation, all respondents breastfed as many as 38 respondents (100%).

TABLE 2 shows that the results of postpartum depression screening in postpartum women on day seven

TABLE 1
Frequency Distribution of Postpartum Characteristics

Characteristics of Respondents	Frequency (*f*)	Percentage (%)
Age		
< 20 years	1	2,6
20 – 35 years	32	84,2
> 35 years old	5	13,2
Sum	38	100
Parity		
Primipara	15	39,5
Multiparous	23	60,5
Sum	38	100
Child Spacing		
< 2 years	6	26,1
≥ 2 years	17	73,9
Sum	23	100
Work		
Work	12	31,6
Not working	26	68,4
Sum	38	100
Education		
JHS	2	5,3
SHS	26	68,4
College	10	26,3
Sum	38	100
Lactation		
Breastfeed	38	100
Sum	38	100

Source: Researcher's Primary Data, 2023

TABLE 2
Frequency Distribution of Postpartum Depression Screening Results

Postpartum Depression Screening Results	Frequency (*f*)	Percentage (%)
No Risk of Depression	30	78,9
Risk of Depression	8	21,1
Sum	38	100

Source: Researcher's Primary Data, 2023

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were almost entirely not at risk of postpartum depression, namely as many as 30 respondents (78.9%). TABLE 3 shows the characteristics of mothers with postpartum depression screening results on day seven puerperium based on age who are at risk of postpartum depression in the 20 – 35 years age group as many as 7 respondents (18.4%). Based on parity at risk of postpartum depression in primiparous as many as 5 respondents (13.2%). Based on the distance of children at risk of postpartum depression with a child's distance < 2 years as many as 2 respondents (8.7%). Based on employment, 6 respondents (15.8%) were at risk of postpartum depression in mothers who did not work. Based on education at risk of postpartum depression at the high school education level as many as 6 respondents (15.8%). Based on lactation at risk of postpartum depression, breastfeeding mothers were 8 respondents (21.1%). This study has several limitations. Some potential respondents were excluded because they returned to their hometowns outside the city, and others declined to participate. Additionally, the study did not further explore hypotheses regarding the relationship between specific maternal characteristics and the risk of postpartum depression. It solely provided a descriptive analysis without examining the connections between sub-variables. Therefore, further inferential research is needed to address these aspects.

TABLE 3
Frequency Distribution of Maternal Characteristics with Postpartum Depression Screening Results

Characteristics of Respondents	Postpartum Depression Skinning Results				Total	
	No Risk of Depression		Risk of Depression			
	f	%	*f*	%	*f*	%
Age						
< 20 years	0	0,0	1	2,6	1	2,6
20-35 years	25	65,8	7	18,4	32	84,2
> 35 years old	5	13,2	0	0,0	5	13,2
Sum	30	78,9	8	21,1	38	100
Parity						
Primipara	10	26,3	5	13,2	15	39,5
Multiparous	20	52,6	3	7,9	23	60,5
Sum	30	78,9	8	21,1	38	100
Child spacing						
< 2 years	4	17,4	2	8,7	6	26,1
≥ 2 years	16	69,6	1	4,3	17	73,9
Sum	20	87.0	3	13,0	23	100
Work						
Work	10	26,3	2	5,3	12	31,6
Not working	20	52,6	6	15,8	26	68,4
Sum	30	78,9	8	21,1	38	100
Education						
JHS	1	2,6	1	2,6	2	5,3
SHS	20	52,5	6	15,8	26	68,4
College	9	23,7	1	2,6	10	26,3
Sum	30	78,9	8	21,1	38	100
Lactation						
Breastfeed	30	78,9	8	21,1	38	100
Sum	30	78,9	8	21,1	38	100

Source: Researcher's Primary Data, 2023

IV. DISCUSSION

This study aimed to describe the characteristics of postpartum women and the results of postpartum depression screening among seventh-day postpartum mothers in Malang. The findings provide valuable insights into the prevalence of postpartum depression risk within this specific population and highlight several demographic and obstetric factors that appear to be associated with this risk.

A. INTERPRETATION OF KEY FINDINGS AND COMPARISON WITH EXSITING LITERATURE

The overall prevalence of postpartum depression risk in this study, identified in 21.1% of the screened mothers, aligns with the lower end of the reported incidence in Indonesia (50-70%) but is consistent with some regional prevalences (e.g., 11-30% in major cities) [Abstract, 12]. This suggests that while PPD is a significant concern, the specific population studied might exhibit a lower immediate risk or that early screening captures a particular phase of PPD development. The results indicate that a substantial proportion of mothers are not at risk of PPD on the seventh day postpartum (78.9%), yet the presence of any risk necessitates continued vigilance and early intervention strategies. Mothers identified as at risk typically exhibited symptoms such as self-blame, sadness, anxiety, fear, insomnia, and frequent crying, consistent with the clinical presentation of depressive disorders [51]. The effectiveness of the Edinburgh Postnatal Depression Scale (EPDS) as a reliable tool for early detection, even on the seventh day postpartum, is reaffirmed by these findings, supported by its established sensitivity and specificity [10, 19].

1. MATERIAL AGE AND POSTPARTIUM DEPRESSION RISK

The study revealed that 18.4% of mothers at risk for PPD were within the 20-35 years age group. Interestingly, one mother under 20 years old was also identified as being at risk, representing 100% of that age subgroup in the sample. While the 20-35 age range is generally considered psychologically mature [7], the findings suggest that psychological maturity is not solely determined by chronological age but is influenced by various factors such as mindset and accumulated experience [14]. The observation that most at-risk mothers in this age group were primiparous suggests that inexperience in infant care and the need to adapt to a new maternal role may contribute to vulnerability, irrespective of what is typically considered a "mature" age. This aligns with research indicating that younger maternal age can be a risk factor due to unpreparedness for changing roles [3, 31]. Conversely, older maternal age can also pose a risk due to fatigue and less favorable anatomical conditions for childbirth [52]. This study's emphasis on the 20-35 age group as the most frequently affected, despite being considered mature, highlights the nuanced interplay of age with other factors like parity and readiness for motherhood.

2. PARITY AND POSRPARTUM DEPRESSION RISK

Primiparous mothers constituted 13.2% of those at risk for PPD, indicating a higher incidence among first-time mothers. This finding is consistent with the notion that

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primiparous mothers often face greater psychological unpreparedness and a more significant adaptation process to their new role, lacking prior experience in infant care [39]. The challenges of adapting to new conditions, physical changes, and anxieties about caring for a newborn can predispose primiparous mothers to PPD [53]. While some studies, such as [24], suggest that parity may not be a direct predictor of PPD, the current study's results, alongside others [3], reinforce the vulnerability of primiparous women. This underscores the importance of targeted support and education for first-time mothers to facilitate their adaptation and mitigate PPD risk.

3. CHILD SPACING AND POSTPARTUM DPRESSION RISK

Mothers with a child spacing of less than two years accounted for 8.7% of those at risk for PPD. This finding supports the perspective that closely spaced pregnancies can increase psychological burden [54]. The demands of caring for a previous child who still requires significant attention, coupled with the arrival of a new infant, can overwhelm mothers, particularly in terms of time and energy allocation. This additional burden, especially for mothers without adequate support, can lead to anxiety and increased PPD risk. The need for mothers to physically and psychologically recover and prepare between pregnancies is crucial, and a spacing of less than two years may compromise this recovery, thereby increasing vulnerability to depressive symptoms [55].

4. MATERNAL EMPLOYMENT STATUS AND POSTPARTUM DEPRESSION

Unemployed mothers represented 15.8% of those at risk for PPD. This finding contrasts with some literature suggesting that working mothers face a dual role that can increase stress and PPD risk [11]. However, the current study's observation aligns with research indicating that mothers who do not work, particularly those with lower educational attainment, might experience PPD due to perceived lack of economic contribution or financial strain within the household [22]. The societal undervaluation of domestic work can lead to feelings of worthlessness, and financial uncertainties can exacerbate stress, contributing to PPD risk [56]. This suggests that the impact of employment on PPD is complex and can vary depending on socioeconomic context, perceived value of work, and financial security.

5. MATERNAL EDUCATION LEVEL AND POSTPARTUM DEPRESSION RISK

Mothers with a high school education comprised 15.8% of those at risk for PPD. While this was the largest group, the study also noted that one out of two mothers with a junior high school education was at risk (50%), suggesting that lower educational attainment is associated with a higher proportional risk. This supports the established link between lower education and increased PPD incidence [31]. Mothers with less education may have limited access to information, fewer coping strategies, and potentially marry at a younger age, leading to higher parity, all of which are PPD risk factors [32, 57]. Higher education is generally associated with better knowledge, improved coping mechanisms, and greater adaptability, thereby reducing PPD risk [32]. The findings highlight the need for accessible and tailored information and support for mothers across all educational levels, particularly those with lower educational attainment.

6. LACTATION AND POSTPARTUM DEPRESSION RISK

Despite all respondents being breastfeeding mothers, 21.1% were still at risk for PPD. This finding is particularly noteworthy given the widely recognized benefits of breastfeeding, including the promotion of mother-infant bonding and the release of oxytocin, often referred to as the "love hormone," which can reduce depression [15, 29]. Skin-to-skin contact during breastfeeding is known to increase oxytocin levels, promoting relaxation and potentially reducing PPD [15]. However, the study suggests that while breastfeeding can be protective, it does not entirely eliminate the risk of PPD. This could be attributed to individual variations in oxytocin response or the overwhelming influence of other PPD risk factors [23, 58]. The results imply that while breastfeeding should be encouraged for its numerous benefits, it should not be considered a sole protective factor against PPD, and breastfeeding mothers still require comprehensive PPD screening and support.

B. LIMITATIONS AND WEAKNESS ON THE STUDY

This study, while providing valuable descriptive insights, is subject to several limitations that warrant consideration. Firstly, the use of a total sampling technique within a specific geographic area (Blimbing, Malang) and a relatively small sample size (N=38) limits the generalizability of the findings to broader populations of postpartum mothers in Indonesia or elsewhere. The exclusion of potential respondents who returned to their hometowns or declined participation may also introduce selection bias, potentially affecting the representativeness of the sample. Secondly, the cross-sectional design, by its nature, only captures data at a single point in time (seventh day postpartum). While useful for prevalence estimation, it precludes the establishment of causal relationships between the identified characteristics and PPD risk. It also does not account for the dynamic nature of PPD, which can manifest later in the postpartum period or fluctuate in severity [1]. Therefore, the study cannot track the progression or resolution of depressive symptoms over time. Thirdly, the study primarily focused on a descriptive analysis of characteristics and PPD risk, without further exploring hypotheses regarding the intricate relationships or interactions between specific maternal characteristics and PPD. The lack of inferential analysis limits the ability to determine the statistical significance of associations or to build predictive models for PPD risk. Finally, the study did not explore additional known risk factors for PPD, such as the level of social support, quality of the marital relationship, history of prenatal depression, or sleep disturbances post-delivery, which are recognized as significant contributors to PPD [37, 40, 59].

C. IMPLICATIONS OF THE FINDINGS

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Despite its limitations, this study offers several important implications for clinical practice, public health policy, and future research concerning postpartum depression in Malang and similar contexts.

1. CLINICAL PRACTICE IMPLICATIONS

The findings underscore the critical need for routine and early PPD screening in postpartum care settings, particularly around the seventh day postpartum, using validated tools like the EPDS. Healthcare providers, including midwives and obstetricians, should be trained to administer and interpret the EPDS effectively. The identified risk factors (age, parity, child spacing, employment, education, and even breastfeeding status) should prompt clinicians to conduct more in-depth assessments and offer proactive support. For instance, primiparous mothers, those with closely spaced children, or those with lower educational attainment may benefit from enhanced psychoeducation, counseling, and practical support regarding infant care and maternal role adaptation [60].

2. PUBLIC HEALTH POLICY IMPLICATIONS

The absence of a systematic PPD recording system in Malang highlights a significant gap in public health surveillance. Policymakers should prioritize the establishment of robust data collection mechanisms for PPD incidence and risk factors to enable evidence-based policy development and resource allocation. Public health campaigns should raise awareness about PPD, destigmatize mental health issues in the postpartum period, and promote early help-seeking behaviors among mothers and their families. Community-based support programs, potentially involving peer support groups or home visiting nurses, could be developed to reach at-risk populations, especially unemployed mothers or those with limited social support [61].

3. FUTURE RESEARCH DIRECTIONS

Future research should address the limitations of this study by employing longitudinal designs to track the trajectory of PPD symptoms and establish causal relationships between risk factors and PPD onset. Larger, multi-center studies are needed to enhance the generalizability of findings across different regions in Indonesia. Inferential statistical analyses should be conducted to quantify the strength of associations between various maternal characteristics and PPD risk, potentially leading to the development of predictive models. Furthermore, future studies should incorporate a broader range of known PPD risk factors, including social support, marital quality, and sleep patterns, to provide a more comprehensive understanding of PPD etiology in the local context. Qualitative research could also offer deeper insights into the lived experiences of mothers at risk for PPD and their coping strategies, informing the development of culturally sensitive interventions [62]. Finally, intervention studies evaluating the effectiveness of targeted psychoeducational programs or support interventions for at-risk groups are warranted.

V. CONCLUSION

This study aimed to describe the characteristics of postpartum women and the results of postpartum depression screening among seventh-day postpartum mothers in Malang. The research successfully identified the prevalence of postpartum depression risk within the study population and highlighted several associated maternal characteristics. The findings indicate that a notable proportion of mothers, specifically 21.1%, were identified as being at risk for postpartum depression on the seventh day postpartum. This contrasts with the 78.9% of mothers who showed no immediate risk.

Further analysis of the characteristics of mothers at risk revealed several key patterns. The majority of at-risk mothers fell within the 20-35 years age group (18.4%), suggesting that even within conventionally mature age ranges, vulnerability to PPD persists, often linked to the challenges of adapting to a new maternal role. Primiparous mothers (13.2%) demonstrated a higher propensity for PPD risk, underscoring the significant adjustment period for first-time mothers. A child spacing of less than two years (8.7%) was also associated with increased risk, indicating the heightened burden on mothers with closely spaced children. Interestingly, unemployed mothers (15.8%) were more frequently at risk, potentially due to perceived financial strain or lack of external validation. Furthermore, mothers with a senior high school education (15.8%) were the most represented among those at risk, with a higher proportional risk observed in those with junior high school education, suggesting that lower educational attainment may correlate with reduced coping mechanisms and access to information. Despite all mothers in the study engaging in breastfeeding, **21.1%** of them were still at risk, highlighting that while breastfeeding offers numerous benefits, it does not entirely negate the risk of PPD and comprehensive screening remains essential for all postpartum mothers.

The insights gleaned from this descriptive study lay a crucial foundation for enhancing maternal healthcare strategies in Malang. For future work, it is imperative to transition from descriptive analysis to inferential and longitudinal studies to establish causal relationships and track the dynamic nature of postpartum depression over time. Expanding the scope to include a broader range of psychosocial factors, such as social support networks, marital quality, and sleep patterns, will provide a more holistic understanding of PPD etiology. Furthermore, the development and evaluation of targeted interventions, particularly for identified high-risk groups, are critical next steps to effectively mitigate the incidence and impact of postpartum depression, ultimately fostering improved maternal and child health outcomes.

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DATA AVAILABILITY

No datasets were generated or analyzed during the current study.

AUTHOR CONTRIBUTION

The authors contributed to this paper in various ways. Khoyin Irma Diana was responsible for the conceptualization, methodology, data curation, and writing of the original draft, as well as project administration and serving as the corresponding author. Rita Yulifah contributed to the investigation, data curation, formal analysis, and writing of the review and editing. Ita Yuliani was involved in the methodology, validation, formal analysis, and also contributed to the writing of the review and editing. Didien Ika Setyarini provided resources, supervision, and contributed to the writing of the review and editing.

DECLARATIONS

ETHICAL APPROVAL

Confirmation that the study was conducted in accordance with ethical standards.

CONSENT FOR PUBLICATION PARTICIPANTS.

Consent for publication was given by all participants.

COMPETING INTERESTS

The authors declare no competing interests.

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