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Stress and Maladaptive Psychological Responses as Predictors of Postpartum Depression

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ABSTRACT

Background: Unmanaged stress and maladaptive psychological responses during the postpartum period increase the risk of postpartum depression, highlighting the need for evidence-based interventions in primary health care. This study aimed to analyze the influence of stress levels and psychological adjustment difficulties as risk factors for postpartum depression among mothers in the Singaparna Primary Health Care area.
Subjects and Method: A cross-sectional study was conducted in five villages within the Singaparna Primary Health Care. A total of 150 postpartum mothers were recruited purposively. The independent variables were stress levels and psychological adjustment. The was dependent variable was postpartum depression. Data on stress were collected usng the Perceived Stress Scale (PSS-10). Psychological adjustment was measured using the Postpartum Adjustment Questionnaire (PAQ-15). Postpartum depression was assessed using the Edinburgh Postnatal Depression Scale (EPDS). Reliability and construct validity were confirmed, and Structural Equation Modeling (SEM) was applied to assess predictive relationships.
Results: Maladaptive stress responses significantly reduced postpartum depression (β = 0.54, p= 0.002), Positive stress perception (β = 0.133, p= 0.302) and postpartum adjustment (β= 0.124, p= 0.159) were insignificantly associated. The SEM model showed acceptable fit (RMSEA= 0.06; CFI= 0.89; TLI = 0.88; SRMR= 0.07).
Conclusion: Maladaptive stress responses are a key psychosocial risk factor for postpartum depression, whereas postpartum adjustment and positive stress perception show limited influence. Early screening and psychosocial interventions in primary care are essential to reduce postpartum depression and improve maternal mental health outcomes.

Keywords: postpartum depression, maladaptive psychological adjustment, mental health

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BACKGROUND

The postpartum period represents a crucial transitional phase in a woman's life, characterized by significant physical, hormonal, and psychological changes (Asadi et al., 2021; Az-Zahra et al., 2023; Parwati and Wulandari, 2025). Although often perceived as a joyful moment, this period also presents considerable challenges and places mothers at elevated risk of experiencing psychological stress (Liu et al., 2022). New responsibilities, such as caring for the newborn, disrupted sleep patterns, physical fatigue, and shifting social dynamics, can trigger high stress levels among postpartum women (Kurniati and Wahyuningsih, 2023; Anggraini and Setiyowati, 2024; Rahmawati et al., 2024).

Poorly managed stress during the postpartum period is often closely associated with maladaptive psychological responses (Amalia et al., 2023). The process of adapting to the new role as a mother is critical for long-term mental health (Sundari et al., 2023). Failure to adapt effectively may manifest as excessive anxiety, feelings of incompetence, or social isolation, creating an internal environment that is vulnerable to the development of more severe psychological disorders (Agustina and Aswin, 2021).

One of the most serious consequences of the combination of high stress levels and maladaptive psychological responses is postpartum depression (PPD) (Widarti, 2023). PPD is a mood disorder affecting approximately 10–20% of new mothers worldwide and can have detrimental effects not only on the mother but also on infant development and family well-being (Oyetunji and Chandra, 2020; WHO, 2022). The prevalence of postpartum depression in Asia ranges from 26% to 85%, while in Indonesia, it is estimated between 50% and 70%, posing a potential threat to infant survival due to maternal physical limitations (Mustofa et al., 2021). Research consistently demonstrates that psychosocial stressors and difficulties in self-adjustment are primary predictors of postpartum depressive symptoms (Reid and Taylor, 2015; Mulyani, 2023).

In Indonesia, maternal mental health issues during the postpartum period have often received insufficient attention at the primary healthcare level (Ningsih and Hutasoit, 2023). Community health centers (Puskesmas), as the frontline of public health services, play a strategic role in the early detection and initial management of such psychological problems (Rauf, Hiola and Angriani, 2024). However, specific data regarding stress levels and maladaptive psychological responses as risk factors for PPD within the community—particularly in the catchment area of Singaparna Primary Health Care—remain extremely limited. This lack of data hampers the development of effective and targeted interventions. Such gaps are not aligned with the recommendations from the Director of Mental Health at the Indonesian Ministry of Health, which support the integration of mental health screening into the continuity of care for maternal and child health. The recommended program entails screening pregnant women at least three times during pregnancy and once during the postpartum period (8–28 days) (Muhawarman, 2024). Based on preliminary interviews conducted at Singaparna Primary Health Care, regular mental health screening has only been implemented for visiting pregnant women; meanwhile, postpartum mothers have not been optimally screened, largely because postpartum care is frequently provided through home visits by village midwives.

Therefore, this study is essential to

analyze the influence of stress levels and maladaptive psychological responses as risk factors for postpartum depression among mothers in the Singaparna Primary Health Care area. The findings are expected to provide a robust scientific basis for designing and developing evidence-based psychosocial intervention programs tailored to the local context, ultimately aiming to enhance postpartum maternal mental well-being.

SUBJECTS AND METHOD

1. Study Design

This study employed an observational approach with a cross-sectional design. It was conducted across five villages—Cikunir, Cintaraja, Singaparna, Sukamulya, and Cikadondong—located within the catchment area of Singaparna Primary Health Care, West Java, Indonesia, from July to August 2025. Data were collected through door-to-door visits to postpartum mothers' homes by enumerators, who administered a questionnaire using a Likert scale.

2. Population and Sample

The study population consisted of postpartum mothers registered at Singaparna Primary Health Care between April and August 2025. A total of 150 mothers within 0–3 months postpartum were selected using purposive sampling. The inclusion criteria were mothers who had given birth within the last three months, agreed to participate, and were able to read and comprehend the questionnaire. Exclusion criteria included a history of severe mental disorders, current use of psychiatric medication, pathological postpartum physical conditions, and cases of infant loss (intrauterine fetal death or miscarriage).

3. Study Variables

The independent variables in this study consist of stress and maladaptive psychological responses. Meanwhile, the dependent variable in this study is postpartum depression.

4. Operational Definition of Variables

Stress is the level of psychological pressure experienced by postpartum mothers during the first 0-3 months after childbirth. Measured using a Perceived Stress Scale (PSS). Category-scale data with 1-14 (mild stress), 15-26 (moderate stress), and >26 (severe stress).

Maladaptive Psychological Responses are patterns of psychological responses that are insufficiently adaptive to the new maternal role, including excessive anxiety, feelings of inadequacy, social withdrawal, or difficulty managing emotions. Measured using a Postpartum Adjustment Questionnaire. Category-scale data with 1-40 (low adjustment), 41-80 (moderate adjustment), and 81-100 (high adjustment).

Postpartum Depression is the severity of depressive symptoms emerging in a mother after childbirth, such as low mood, loss of interest, sleep disturbances, feelings of guilt, and fatigue. Measured using the Edinburgh Postpartum Depression Scale. Category-scale data with <8 (no depression), 9-11 (possible depression), 12-13 (probable depression), and ≥14 (severe depression).

5. Study Instruments

This study utilized three standardized instruments to assess stress, psychological adjustment, and the risk of postpartum depression among mothers and one instrument to collect demographic data. Stress levels were measured using the Perceived Stress Scale (PSS-10), developed by Cohen, Kamarck and Mermelstein (1983), a 10-item questionnaire that employs a 5-point Likert scale (Koğar and Koğar, 2024). The Indonesian version of the PSS-10 demonstrated high internal consistency (α = 0.862). CFA supported a two-factor model with acceptable fit indices (CFI = 0.950, RMR = 0.085,

RMSEA = 0.072), consistent with the original scale (Erlena et al., 2025).

Maternal psychological adjustment was assessed with the Postpartum Adjustment Questionnaire (PAQ), originally developed to evaluate maternal role adaptation in the postpartum period (Davis, Cross and Lind, 2008)(Davis, Cross and Lind, 2008). The PAQ comprises 15 items distributed across domains such as time allocation in daily activities, self-evaluation of maternal adjustment, perceptions from others, and changes since pregnancy. Each item is scored on a 5-point Likert scale (1–5), with higher scores indicating greater adjustment difficulties. To date, no published studies have reported the adaptation or validation of the PAQ in the Indonesian context; thus, this research represents the first attempt to adapt and evaluate its content validity and reliability for use in Indonesian postpartum populations.

Risk of postpartum depression was assessed using the Edinburgh Postnatal Depression Scale (EPDS), a 10-item screening tool widely validated across countries, including Indonesia, with reported EPDS reported to be a good tool to measure postpartum depression in Indonesia (Syam et al., 2021). An EPDS cut-off value of 11 or higher maximized combined sensitivity and specificity; a cut-off value of 13 or higher was less sensitive but more specific. To identify pregnant and postpartum women with higher symptom levels, a cut-off of 13 or higher could be used. Lower cut-off values could be used if the intention is to avoid false negatives and identify most patients who meet diagnostic criteria (Levis et al., 2020). All instruments were selected for their international use, established reliability, and relevance to postpartum mental health, and were subjected to expert content validation and readability testing before data collection.

6. Data analysis

Data analysis in this study was conducted in several stages to ensure both the quality of the measurement instruments and the robustness of the statistical findings. First, a content readability test was performed to evaluate the clarity and comprehensibility of each questionnaire item among postpartum mothers, thereby ensuring cultural and linguistic appropriateness for the target population.

Second, descriptive statistical analyses were carried out to summarize participants' demographic characteristics and the distribution of scores across stress levels, psychological adjustment, and postpartum depression risk. This provided an overview of the sample profile and baseline variations in the study variables.

Third, the reliability of the instruments was assessed using Cronbach's alpha coefficients and composite reliability; meanwhile, construct validity was evaluated through confirmatory factor analysis (CFA), testing factor loadings, average variance extracted (AVE), and model fit indices to confirm the theoretical structure of each scale.

Finally, to examine the hypothesized relationships between stress, maladaptive psychological responses, and postpartum depression, Structural Equation Modeling (SEM) was applied. This method was chosen because it allows for the simultaneous estimation of multiple interrelated relationships, accounts for measurement error, and provides a comprehensive understanding of the predictive pathways between independent and dependent variables. All statistical analyses were performed using Mplus, with significance levels set at $p < 0.05$.

7. Research Ethics

Research on ethical issues, including

informed consent, anonymity, and confidentiality, was carefully addressed during the study process. The research ethical clearance approval letter was obtained from the Research Ethics Committee at STIKes Dharma Husada, Bandung, Indonesia, No. 228/KEPK/SDHB/B/VI/2025, on June 16, 2025.

RESULTS

1. Readability Test

In the first stage, a readability test was conducted to ensure that the content of the scale used was appropriate and easily understood by the respondents. For this purpose, Aiken's V analysis was applied. The testing involved 16 panelists, all of whom were second-semester students. The rationale for selecting this group was to confirm that the wording of the items could be comprehended by individuals with limited prior knowledge (Table 1).

Based on Table 1, there were 16 panelists with four rating categories, with the recommended minimum value being 0.67 at α = 0.047. In this study, with 16 panelists and four categories, the recommended minimum value was 0.67 at α = 0.047. The results of the readability test for all items across the three scales showed that Aiken's V values ranged from 0.771 to 0.938, which exceeds the minimum threshold. This indicates that all items were understandable and easily comprehended by laypersons.

Table 1. V-Aiken Coefficients

o	Item	V Aiken	Scale	Item	V Aiken
PSS	P1	0.771	PAQ	Q1	0.917
	P2	0.938		Q2	0.896
	P3	0.875		Q3	0.896
	P4	0.917		Q4	0.875
	P5	0.792		Q5	0.896
	P6	0.833		Q6	0.917
	P7	0.792		Q7	0.917
	P8	0.750		Q8	0.854
	P9	0.792		Q9	0.896
	P10	0.813		Q10	0.792
EPDS	E1	0.854		Q11	0.854
	E2	0.854		Q12	0.875
	E3	0.833		Q13	0.875
	E4	0.854		Q14	0.896
	E5	0.771		Q15	0.875
	E6	0.833		Q16	0.875
	E7	0.854		Q17	0.875
	E8	0.896		Q18	0.854
	E9	0.938		Q19	0.958
	E10	0.875		Q20	0.938

2. Descriptive Statistics Analysis

Before conducting the structural equation modeling (SEM) analysis, descriptive statistics were performed to provide an overview of the respondents' characteristics and the distribution of variables included in the model. This step aimed to ensure that the data met the assumptions required for SEM analysis, such as normality, adequacy, and representativeness of the sample.

Descriptive analysis included frequency distributions for categorical variables and mean values with standard deviations for continuous variables. These results served as the foundation for interpreting the subsequent SEM findings and provided context regarding the characteristics of the study population.

The characteristics of the respondents in this study included age, education level, employment status, parity, income, postpartum age, and family support (Table 2).

Table 2. Respondents characteristics

Characteristics	Category	Frequency (n)	Percentage (%)
Age	≤20 years old	8	5.3
	21-35 years old	123	82.0
	≥35 years old	19	12.7
Education	Elementary school	14	9.3
	Junior high school	26	17.3
	Senior high school	83	55.3
	University	26	17.3
Parity	≤2	103	68.7
	>2	47	31.3
Employment Status	Employed	23	15.3
	Housewife	127	84.7
Income	<Rp. 1.000.000	38	25.3
	Rp. 1.000.000 - Rp. 2.500.000	54	36.0
	Rp. 2.500.000 - Rp. 5.000.000	46	30.7
	>Rp. 5.000.000	12	8.0
Family Support	No support	1	0.7
	Insufficient support	1	0.7
	Adequate support	41	27.3
	Highly adequate support	107	71.3
Postpartum Age	<1 month	38	25.3
	1-2 months	43	28.7
	≥2 months	69	46.0

Table 2 shows that most respondents were in the 21–35 age group (82.0). In terms of education, most participants had completed senior high school (55.3). Regarding parity, the majority had ≤2 children (68.7). Most respondents were housewives (84.7), and the largest proportion of family income fell within the range of Rp. 1,000,000–Rp. 2,500,000 (36.0). In terms of family support, the majority reported receiving highly adequate support (71.3). Furthermore, based on postpartum age, most respondents were in the group of ≥2 months postpartum (46.0).

Based on the descriptive analysis, the data distribution for PSS and PAQ was normal, whereas EPDS showed a non-normal distribution (Table 3). A distribution is considered normal when the skewness value falls within the range of -1 to +1. Assessing normality is essential since many statistical techniques require this assumption. In addition, the mean and standard deviation of each item were calculated, and the results indicated no extreme data spread (i.e., outliers). These findings served as the foundation for the subsequent analysis, namely Confirmatory Factor Analysis (CFA) within the framework of Structural Equation Modeling (SEM), to examine construct

validity and assess the model fit with the observed data.

Table 3. Descriptive statistics and reability

Item	Mean	Standard deviation	Skewness	Cronbach's α	McDonald's ω
PSS				**0.787**	**0.795**
P1	1.670	0.882	-0.169	0.783	0.790
P2	1.480	0.964	-0.071	0.762	0.768
P3	1.590	1.010	0.215	0.759	0.767
P4	2.380	1.180	-0.258	0.785	0.792
P5	2.170	0.970	-0.184	0.779	0.791
P6	1.600	0.966	0.152	0.759	0.765
P7	1.930	1.040	0.081	0.771	0.784
P8	1.930	0.948	0.177	0.776	0.789
P9	1.590	0.967	-0.035	0.754	0.760
P10	1.410	0.967	0.198	0.761	0.765
PAQ				**0.951**	**0.956**
Q1	2.170	1.210	3.350	0.955	0.958
Q2	2.140	0.910	0.491	0.948	0.955
Q3	2.520	1.140	0.465	0.954	0.958
Q4	1.870	0.832	0.625	0.948	0.954
Q5	1.970	0.849	0.479	0.948	0.954
Q6	2.010	0.838	0.477	0.947	0.954
Q7	1.950	0.866	0.775	0.946	0.953
Q8	1.770	0.843	0.947	0.947	0.953
Q9	1.900	0.847	0.730	0.948	0.954
Q10	2.330	0.764	0.112	0.948	0.955
Q11	2.020	0.891	0.641	0.947	0.953
Q12	2.000	0.831	0.705	0.946	0.952
Q13	1.830	0.801	0.756	0.948	0.954
Q14	1.860	0.765	0.663	0.947	0.953
Q15	2.020	0.751	0.667	0.948	0.954
Q16	2.030	0.911	0.720	0.947	0.953
Q17	2.260	0.953	0.522	0.947	0.954
Q18	2.350	0.873	0.305	0.949	0.955
Q19	1.860	0.773	0.734	0.948	0.954
Q20	2.150	0.850	0.425	0.948	0.954
EPDS				**0.842**	**0.849**
E1	0.139	0.396	2.960	0.844	0.850
E2	0.193	0.466	2.790	0.842	0.848
E3	1.450	0.842	-0.505	0.833	0.841
E4	1.140	0.889	0.182	0.833	0.840
E5	1.320	1.020	0.098	0.822	0.831
E6	1.260	0.873	0.021	0.824	0.834
E7	0.886	0.841	0.405	0.815	0.824
E8	0.705	0.773	1.040	0.810	0.817
E9	0.759	0.625	0.676	0.824	0.831
E10	0.259	0.641	2.500	0.825	0.830

3. Reliability

In addition, the reliability analysis for each item and each scale is presented in Table 3. Two reliability coefficients were employed, namely Cronbach's Alpha and McDonald's Omega. Since the theoretical assumptions required for Cronbach's Alpha are often difficult to meet, Omega reliability is recommended as an alternative. The results indicated that the PSS, PAQ, and EPDS scales demonstrated good reliability (≥0.70), as did the reliability of individual items. However, for the PSS scale, item reliability varied, ranging from fair (0.60–0.69) to good (≥0.70).

4. Construct Validity

For the PSS instrument, internal construct testing revealed a two-dimensional structure (Figure 1). The model fit indices were $p < 0.001$, RMSEA= 0.05, CFI= 0.94; TLI = 0.92, and SRMR= 0.05, indicating a good model fit.

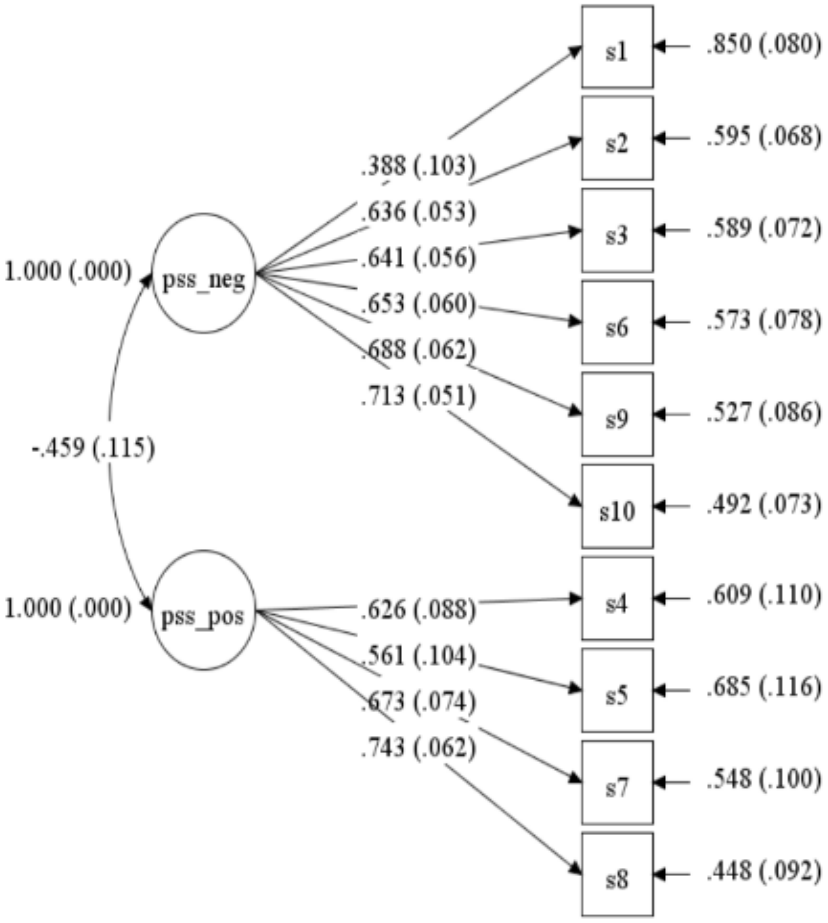

Figure 1. Internal Structure of the Perceived Stress Scale (PSS)

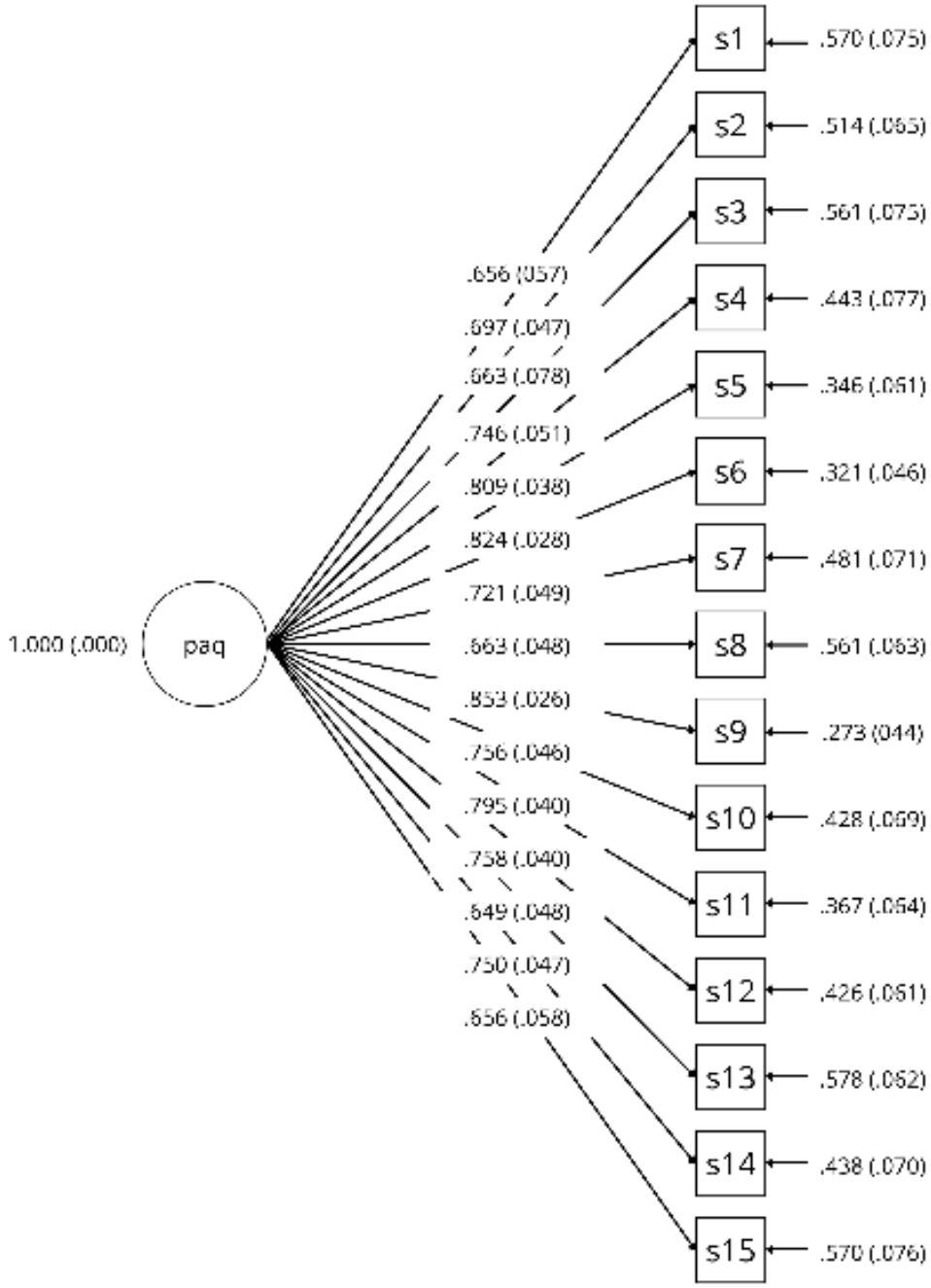

Figure 2. Internal Structure of the Postpartum Adjustment Questionnaire (PAQ)

For the PAQ, which consists of 15 items, the internal structure was validated as a unidimensional model (Figure 2), with fit indices $p < 0.001$, RMSEA= 0.07, CFI= 0.94, TLI= 0.92, and SRMR= 0.05. These results suggest that the model demonstrates an acceptable fit.

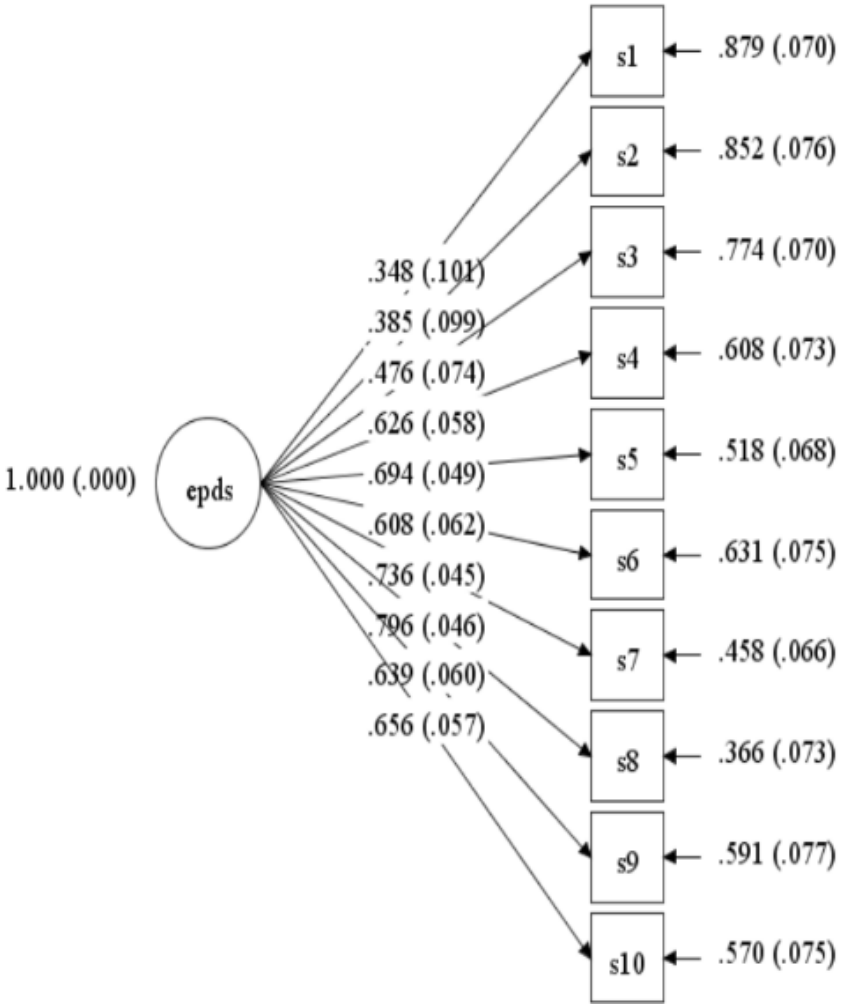

Figure 3. Internal Structure of the Edinburgh Postnatal

Similarly, the EPDS was validated as a unidimensional model (Figure 3), with p= 0.003, RMSEA= 0.07, CFI= 0.93, TLI= 0.91, SRMR= 0.06. Overall, these fit indices indicate that the model structure is acceptable and appropriate for use in this study.

5. Structural Equation

Hypothesis testing was conducted using Structural Equation Modeling (SEM) as a comprehensive approach to examine the relationships between manifest and latent variables. The model estimation employed Maximum Likelihood Robust (MLR) to address violations of normality assumptions in both SEM and CFA. As presented in Figure 4, the structural model was constructed to test the influence of stress levels and maladaptive psychological responses as risk factors for postpartum depression. The model fit yielded a chi-square statistic [χ^2 (554, n = 150) = 805.957, p < 0.001], with additional fit indices of RMSEA = 0.055, 90 CI [0.047, 0.063], CFI = 0.888, TLI = 0.880, and SRMR = 0.067. Based on these benchmarks, most indices indicated acceptable model fit, except for CFI and TLI, which fell below the recommended threshold (poor fit).

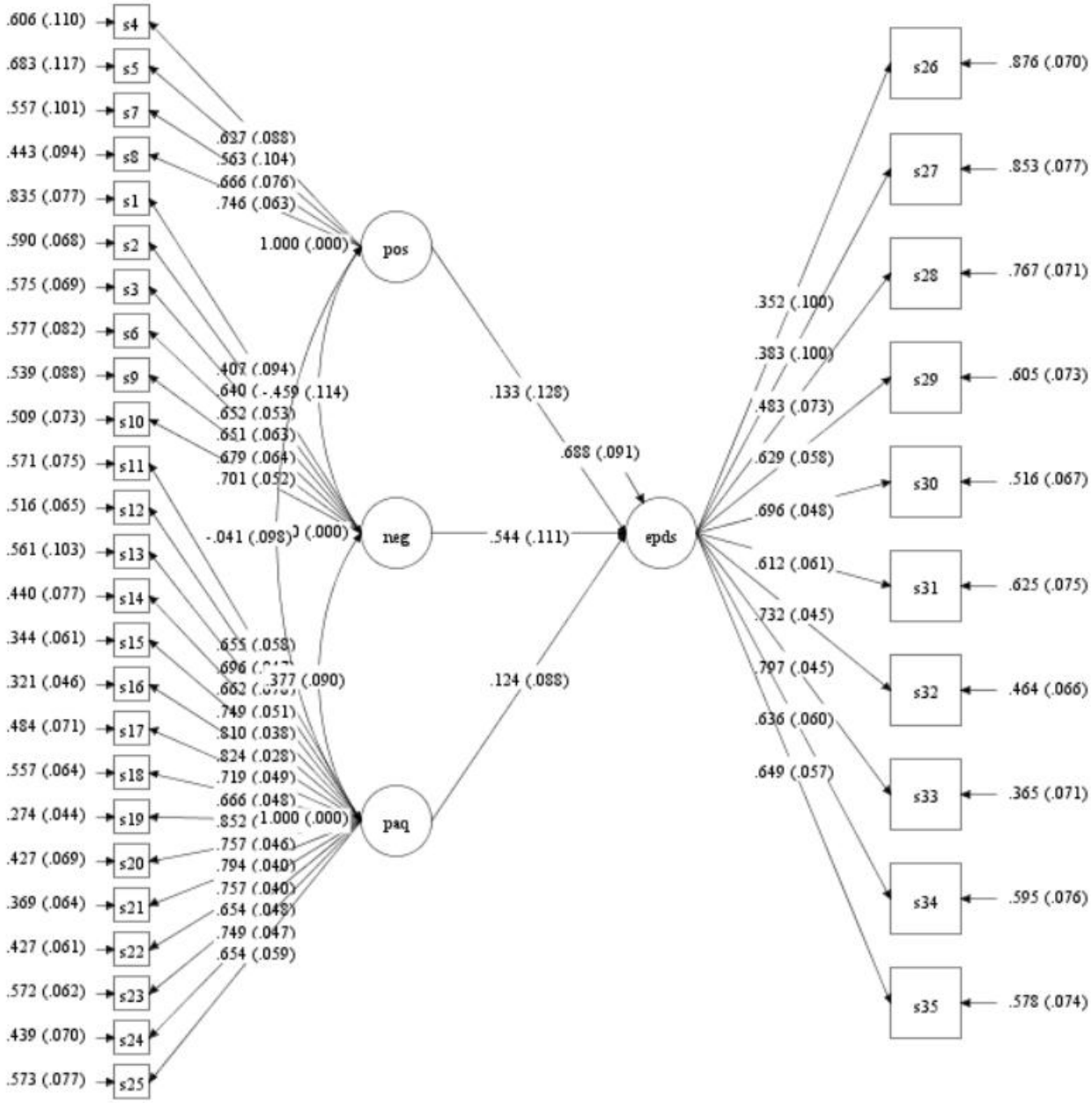

Figure 4. Structural Equation Model of the Variables

The structural model results further revealed that postpartum adjustment difficulties, as measured by the PAQ, exerted a non-significant effect on postpartum depression (β = 0.124, p = 0.159). In contrast, the negative dimension of the PSS, reflecting difficulties in managing stress, demonstrated a significant effect (β = 0.544, p = 0.002). Meanwhile, the positive dimension of the PSS exerted only a small and non-significant effect (β = 0.133, p = 0.302). These findings suggest that the inability to cope with stress significantly contributes to postpartum depression, whereas postpartum adjustment and positive stress perception do not have a meaningful effect.

Table 4. Correlation matrix

	POS	NEG	PAQ	EPDS
POS	1.000			
NEG	-0.459 (p<0.001)	1.000		
PAQ	-0.041 (p=0.673)	0.377(p<0.001)	1.000	
EPDS	-0.122(p=0.263)	0.530 (p<0.001)	0.324 (p<0.001)	1.000

Table 4 shows that the correlation between the positive dimension of the PSS and EPDS was 0.122 (p= 0.263), indicating no significant association. In contrast, the negative dimension of the PSS demonstrated a relatively strong correlation with EPDS (r = 0.530, p < 0.001), suggesting that difficulties in coping with stress are associated with an increased risk of postpartum depression. Postpartum adjustment, as measured by the PAQ, also exhibited a positive correlation with EPDS (r = 0.324, p < 0.001), implying that a higher risk of postpartum depression accompanies lower adjustment ability. However, the effect of postpartum adjustment appeared relatively small and non-significant. This may be attributed to the diverse responses provided by participants, as reflected in the intercept values of PAQ items, which ranged from 2.266 to 3.079. Given the PAQ scoring range from 1 (very capable) to 5 (very incapable), respondents tended to select mid-range responses, falling between "fair" and "good". Moreover, the variance of responses was relatively narrow (0.520–2.273), which may explain the limited effect observed.

DISCUSSION

This study examined the influence of stress and postpartum psychological adjustment difficulties on postpartum depression, using measurement instruments validated through confirmatory analysis before testing intervariable relationships with structural equation modeling (SEM). The model fit results were p <0.001, RMSEA= 0.06, CFI= 0.89, TLI = 0.88, and SRMR= 0.07. Given the sensitivity of chi-square to sample size, evaluation relied on alternative indices, where RMSEA ≤ 0.08 and SRMR ≤ 0.10 indicated acceptable fit, but CFI and TLI fell slightly below the ≥ 0.90 threshold (Cho et al., 2020; Kline, 2023; McNeish and Wolf, 2023). However, as Sarmento and Costa (2019) note, such limitations may be tolerable in fully confirmatory models, thus supporting the conclusion that the SEM model is valid and adequately fits the data for further interpretation.

1. Stress and Postpartum Depression

The Perceived Stress Scale (PSS) comprises two domains: a positive dimension (self-efficacy in handling stress) and a negative dimension (inability to cope with stress). This study found that the positive dimension had only a minor, non-significant effect on postpartum depression (β= 0.133, p= 0.302), whereas the negative dimension exerted a significant impact (β = 0.544, p = 0.002). These results suggest that maternal self-efficacy alone does not substantially reduce depression risk, consistent with evidence showing its influence is relatively minor or becomes significant only when combined with education, employment, and family support (Munisah et al., 2021; Selvan and Surjaningrum, 2023), and may also be shaped by cultural and subjective factors (Afiyanti and Solberg, 2015). In contrast, inability to cope with stress strongly predicts postpartum depression, corroborating prior findings that poor emotional regulation and ineffective coping are major risk factors, with more than one-third of mothers reporting mild symptoms and some

experiencing moderate to severe depression (Agrawal et al., 2022; Aqila and Dinni, 2022; Amna and Khairani, 2024). Stress has been consistently identified as one of the strongest psychosocial predictors of postpartum depression (Slomian et al., 2019; Leonard et al., 2020), with mechanisms involving HPA axis dysregulation, inflammatory disruption, impaired sleep, and reduced coping capacity (Yim et al., 2015). Longitudinal studies further highlight stress as a mediator between reduced social support and subsequent depressive symptoms (Leonard et al., 2020), while protective factors such as partner support, resilience, and adaptive coping may buffer these effects (Cho et al., 2022). Overall, the findings underscore that stress—particularly maternal inability to cope—significantly increases the risk of postpartum depression, whereas self-efficacy is only marginally relevant, suggesting that broader psychosocial determinants warrant further investigation.

2. Maladaptive psychological responses and postpartum depression

This study found that postpartum mothers generally demonstrated moderate to high levels of psychological adaptation; however, SEM analysis showed only a small and non-significant effect on postpartum depression ($\beta = 0.124$; $p = 0.159$). This aligns with prior evidence suggesting that while psychological adaptation is linked to postpartum depression, its influence is often weaker than biological or social determinants (Amna and Khairani, 2024). The relationship between maladaptive responses and depression is strongly moderated by protective factors such as partner support, socioeconomic stability, and resilience, which can buffer adaptation difficulties and reduce the likelihood of clinical depression (Cardoso and Fonseca, 2023; An et al., 2024). Indeed, mothers with adaptive coping strategies or access to structured psychosocial interventions exhibit lower risk even when facing early postpartum challenges (Massoudi et al., 2023; Crombag et al., 2025).

Alternative perspectives highlight that maladaptive responses may act as mediators between stress, limited social support, and depression, reflecting accumulated contextual stressors rather than intrinsic vulnerability (Folkman, 2013; Ungar, 2021; Tseliou and Ashfield-Watt, 2022). Interventions addressing contextual determinants—such as poverty, domestic conflict, and restricted healthcare access—may therefore enhance adaptation and lower depression risk. Still, maladaptive coping and poor adjustment remain important risk factors. Higher maternal self-efficacy has been shown to improve role competence and reduce depressive symptoms (Dlamini et al., 2023), while negative self-appraisal and poor maternal role adjustment strongly predict PPD even after controlling for sociodemographic factors (Fathi, Mohammad-Alizadeh-Charandabi and Mirghafourvand, 2018). These findings reinforce theoretical models viewing the maternal role transition as a sensitive period where psychological adjustment capacity critically determines emotional outcomes (Mangeli et al., 2017; Shrestha et al., 2019).

Mechanistically, maladaptive responses may contribute to depression through diminished self-efficacy, rumination, stress amplification, and social withdrawal, all of which heighten the risk of both onset and persistence of depressive symptoms (Wu et al., 2020; Selvan and Surjaningrum, 2023; Fang et al., 2024). Longitudinal studies further suggest that adaptation difficulties not only affect immediate postpartum mood but also serve as chronic risk factors for recurrent depression (Cardoso and Fonseca, 2023). Taken together, although psychological adaptation was not a significant

predictor in this study, it remains clinically relevant within the multifactorial framework of postpartum depression and should be integrated into maternal health promotion and preventive strategies.

This study has several limitations. The relatively small sample size, due to declining birth rates in the study area, reduced statistical power and calls for cautious interpretation of the findings. The cross-sectional design also restricts causal inferences, and the exclusion of biological, sociocultural, and social support factors limits the comprehensiveness of the model. Future research should adopt longitudinal designs and integrate these variables to provide a more complete understanding of postpartum depression. Nonetheless, this study underscores the importance of early detection of maternal psychological conditions and the development of contextually tailored psychosocial interventions, including maternal self-efficacy enhancement, partner and family support, and adaptive coping strategies through structured community-based programs.

AUTHORS CONTRIBUTION

Conceptualization and study design: Faujiah IN; Methodology: Faujiah IN; Data Collection: Faujiah IN, Ambari AAT; Formal analysis: Saefudin MA; Data Processing and interpretation: Faujiah IN, Saefudin MA; Writing – original draft: All authors; Writing – review & editing: Faujiah IN, Saefudin MA.

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CONFLICT OF INTEREST

The authors declare that the study was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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