JOURNAL OF CULTURAL ANALYSIS AND SOCIAL CHANGE

Journal of Cultural Analysis and Social Change,
2025, 10(4), 5188-5198
ISSN: 2589-1316

Postpartum Maternal Stress in Rural and Urban Areas: A Cross-Sectional Study in Indonesia

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Citation: Nasriani, Stang, Abdullah, M. T., Citrakesumasari, Erika, K. A., Jumrah, Mappaware, N. A., Mallongi, A., Samiun, Z., Nur, M. P., Aslinda, Marwang, S. (2025). Postpartum Maternal Stress in Rural and Urban Areas: A Cross-Sectional Study in Indonesia, *Journal of Cultural Analysis and Social Change*, 10(4), 5188-5198. https://doi.org/10.64753/jcasc.v10i4.4329

Published: December 23, 2025

ABSTRACT

Perinatal mental health, including postpartum stress, is a global health issue with a high prevalence, particularly in low- and middle-income countries. Nearly 1 in 5 women experience mental disorders during pregnancy or in the year after delivery, and postpartum stress can persist and progress to depression or anxiety disorders if left untreated. Multiple risk factors, such as age, socioeconomic status, stressful life events, and domestic violence, contribute to maternal vulnerability. Several studies have shown that environmental contexts, including rural and urban differences, contribute to maternal vulnerability. urban areas , influencing the experience of stress through variations in social support, economic stress, and access to health services. This study aims to analyze differences in postpartum stress levels between mothers living in urban and rural areas in Indonesia, and to identify sociodemographic factors associated with postpartum stress. This is an observational analytical study with a cross-sectional design conducted on 309 postpartum mothers (155 rural, 154 urban) in South Sulawesi, Indonesia. The sample was selected using consecutive sampling technique with the inclusion criteria of postpartum mothers ≤ 6 months. Data were collected through face-to-face interviews using a demographic questionnaire and a validated Perceived Stress Scale (PSS-10) . Data analysis was performed using the Chi-Square test for categorical variables and the Mann–Whitney U test to compare stress scores, with a significance level of $p < 0.05$. The study showed that the majority of postpartum mothers in both rural and urban areas experienced moderate levels of stress, at 91.0% and 96.1%, respectively. Low and high stress levels were only found in a small proportion of respondents (<7%). Demographic characteristics analysis showed that age and income variables differed significantly between the two regions, while education, occupation, and place of residence did not show significant differences. However, there was no significant difference in stress levels between mothers in rural and urban areas ($p = 0.163$). These findings indicate that postpartum stress is a common condition experienced by mothers after childbirth, regardless of differences in social and economic environments, and emphasize the importance of social support and psychological interventions to maintain maternal mental well-being in the postpartum period. Overall levels of postpartum stress are similar in rural and urban areas, but certain dimensions are more prominent in urban areas.

Age and income emerged as key factors, so interventions need to be tailored to the socioeconomic conditions of each region.

Keywords: Stress, Depression, Postpartum, Urban, Rural

INTRODUCTION

Perinatal mental health, including stress during pregnancy and up to one year after delivery, is a global priority. The World Health Organization (WHO) emphasizes that nearly 1 in 5 women experience mental health conditions during pregnancy or in the year after delivery. Rates of perinatal anxiety disorders and depression also tend to be higher in low- and middle-income countries, so the integration of mental health services into maternal and child care is highly recommended (1). Postpartum stress is defined as a psychological response of distress, overwhelm, and anxiety experienced by mothers after childbirth as a result of new demands in caregiving, hormonal changes, and family dynamics (2).

According to Kaplan & Sadock, in their book entitled Clinical Psychiatry, (3)explain that postpartum stress can appear from the early days after delivery up to 12 months after giving birth, with manifestations such as sleep disturbances, excessive anxiety, irritability, and an inability to manage the burden of motherhood. This condition is different from the temporary "baby blues," because postpartum stress tends to persist and can develop into depression or anxiety disorders if left untreated. The postpartum period is a critical phase for maternal mental health. A global meta-analysis noted that 10–30% of women experience emotional difficulties such as stress during this period caused by daily challenges such as baby care, lack of sleep, and adapting to new roles.(4)

Global studies also show that around 70% of new mothers experience "baby blues ," while 10–20% experience more severe postpartum stress or depression, which can have long-term impacts on maternal health and child development (5). In developing countries, rates of postpartum depression and stress tend to be higher than in developed countries. A longitudinal study in France (IGEDEPP study) reported an incidence of postpartum depression of 18.1% within one year of delivery , with nearly half of mothers (47.7%) reporting significant stressful events (6). In Indonesia, maternal mental health issues are also a serious concern. The results of the 2018 Basic Health Research (Riskesdas) , analyzed in international publications, reported a prevalence of common mental disorders (CMDs) of 12.6% in pregnant women and 10.1% in postpartum women. (7).

Untreated postpartum stress can develop into more severe clinical disorders. In addition to depression and anxiety, postpartum stress can also manifest as Postpartum Post-Traumatic Stress Disorder (PP-PTSD), the prevalence of which is reported to be quite high in various countries. A community-based study in Ethiopia found that 21.6% of postpartum mothers experienced PP-PTSD, with risk factors including primiparity, cesarean or instrumental delivery, lack of antenatal care, and experiences of postpartum violence (8). A study in China also reported a prevalence of postpartum depression of 23.5% and PP-PTSD of 6.1% , with a strong association between the two (9). More broadly, a systematic review reported that in low- and middle-income countries, approximately 1 in 10 perinatal women exhibit symptoms of PTSD and 1 in 20 meet clinical criteria for PTSD. This confirms that postpartum stress and trauma are serious problems that are often underdiagnosed in developing countries (10).

A longitudinal study in Pakistan found that stressful life events play a significant role in increasing the risk of domestic violence (DV) in postpartum mothers. The prevalence of physical, psychological, and sexual DV was high, with nearly half of respondents reporting experiencing some form of DV in the past 12 months. Furthermore, both the type and severity of DV were independently associated with increased levels of postpartum stress. These findings confirm that stressful social environments and life experiences directly contribute to maternal mental health vulnerability after childbirth (11).

Furthermore, environmental factors also influence the expression and experience of stress. A social media analysis study in China found that urban residents tended to express stress related to work, economic, and social pressures, while rural residents more often emphasized emotional and personal aspects (12). Other research has shown that urban residential crowding is significantly associated with an increased risk of depression, especially among women with children and those living separately from their parents (13). These findings support the view that social and environmental contexts significantly influence maternal vulnerability to postpartum stress.

This study aims to analyze differences in postpartum stress levels between mothers living in urban and rural areas in Indonesia, and to identify sociodemographic factors associated with postpartum stress. Although various studies have been conducted, most studies in Indonesia still focus on postpartum depression , while studies specifically analyzing postpartum stress and its differences between mothers in rural and urban areas are still limited. In fact, the context of the residential environment can influence psychological experiences. Therefore, this study is important to conduct to provide empirical evidence regarding differences in postpartum maternal stress

levels in rural and urban areas , which can form the basis for community-based interventions to improve maternal mental health in Indonesia.

METHOD

Research Design

This research used an observational analytical design with a cross-sectional study approach. This design was chosen to explore the relationship between demographic characteristics (age, education, occupation, income, and residence) and postpartum stress levels in mothers in rural and urban areas.

Population and Sample

The study population was postpartum mothers residing in rural and urban areas of South Sulawesi, Indonesia. The sample was selected using a consecutive sampling technique, namely all postpartum mothers who met the inclusion criteria during the data collection period. Inclusion criteria: mothers ≤ 6 months postpartum, able to communicate well, willing to participate in the study. Exclusion criteria: mothers with a history of previously diagnosed severe psychiatric disorders and mothers who did not complete the questionnaire completely. The sample size was calculated by considering a 95% confidence level and a 5% margin of error, so that a representative sample size was obtained for the study population. The total number of respondents analyzed was 309 postpartum mothers (155 from rural areas and 154 from urban areas).

Research Instruments

Data collection was conducted through a questionnaire consisting of: Demographic Questionnaire, covering age, highest education, occupation, family income, and residential status. The main instrument used to assess postpartum stress levels in this study was the Perceived Stress Scale (PSS-10), a self-report scale developed by Cohen, Kamarck, and Mermelstein (14), to assess the extent to which individuals perceive their lives as stressful. This scale consists of 10 statements with a 5-point Likert scoring system (0 = never to 4 = very often) and includes five positive items that are reversed in the scoring process (reverse scoring). The total score ranges from 0–40, with higher scores indicating greater stress levels. Based on commonly used guidelines, stress levels are classified into three categories, namely low stress (0–13), moderate stress (14–26), and high stress (27–40). The PSS-10 has been shown to have good reliability and validity, including in pregnant and postpartum populations, with a Cronbach's α value of 0.74 (15).

Data Collection Procedures

Data were collected through face-to-face interviews using a structured questionnaire. The process took place at primary healthcare facilities and in respondents' homes, while maintaining confidentiality and research ethics.

Data Analysis

Data were analyzed using SPSS version 25. Univariate analysis was used to describe the frequency distribution of respondent characteristics including age, education, occupation, income, and residence. Bivariate analysis used Chi-Square test to see the relationship between demographic characteristics with postpartum maternal stress both in rural and urban areas and differences in demographic characteristics with postpartum maternal stress both in rural and urban areas as well as comparison of postpartum maternal stress score levels in rural and urban areas with a significance level set at $p < 0,05$.

RESULTS

Demographic Characteristics

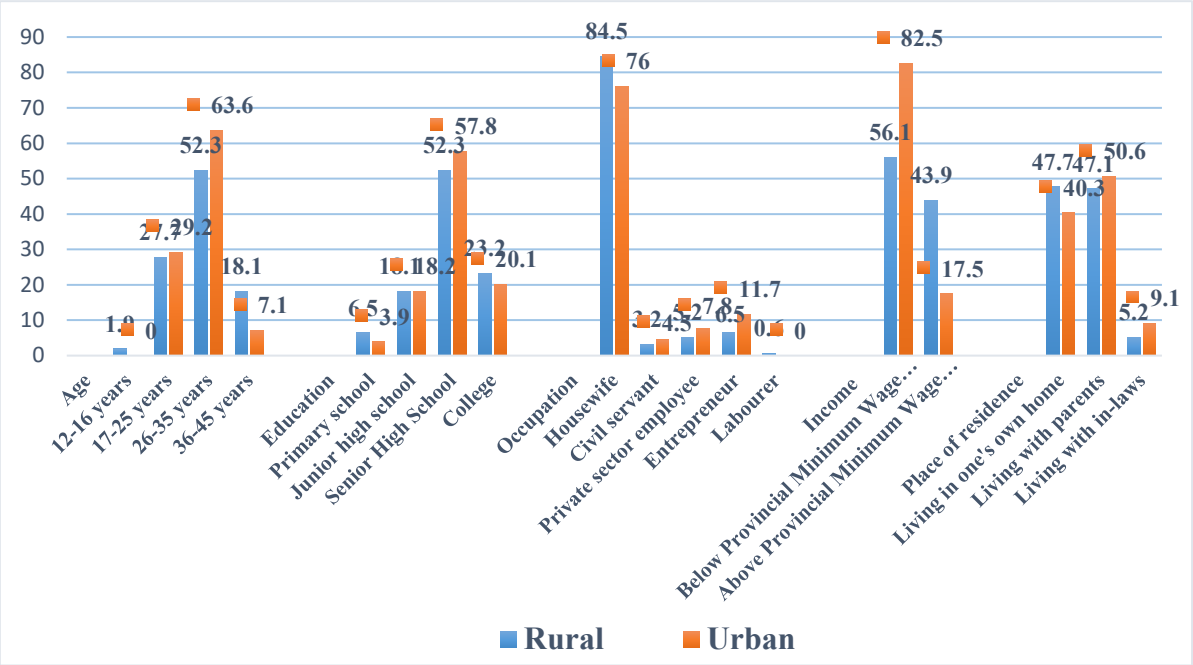

Figure 1. Demographic Characteristics in Rural and Urban Areas

Based on the demographic characteristics of respondents in Figure 1, most are in the 26–35 age group, both in rural areas (52.3%) and in urban areas (63.6%). In terms of education, the majority of respondents have a high school education (52.3% in rural areas and 57.8% in urban areas). The type of employment is dominated by housewives (IRT), with 84.5% in rural areas and 76.0% in urban areas, respectively. Most respondents have incomes below the Provincial Minimum Wage (<Rp 3,434,298), namely 56.1% in rural areas and 82.5% in urban areas. Based on residence, most respondents live in their own homes or their parents' homes, with a relatively balanced proportion between rural and urban areas. In general, these results indicate that respondents are predominantly from the productive age group, have secondary education, most are housewives, and have income levels below the provincial minimum wage.

Table 1. Relationship between Demographic Characteristics in Rural and Urban Areas

Demographic variables	Group		Amount	p-value
	Rural	Urban		
Age				
12-16 years	3 (1.9%)	0 (0.0%)	3 (1.0%)	(0.007)*
17-25 years	43 (27.7%)	45 (29.2%)	88 (28.5%)	
26-35 years old	81 (52.3%)	98 (63.6%)	179 (57.9%)	
36-45 years	28 (18.1%)	11 (7.1%)	39 (12.6%)	
Education				
Elementary School	10 (6.5%)	6 (3.9%)	16 (5.2%)	(0.627)*
JUNIOR HIGH SCHOOL	28 (18.1%)	28 (18.2%)	56 (18.1%)	
SENIOR HIGH SCHOOL	81 (52.3%)	89 (57.8%)	170 (55.0%)	
PT	36 (23.2%)	31 (20.1%)	67 (21.7%)	
Work				
Housewife	131 (84.5%)	117 (76.0%)	248 (80.3%)	(0.267)*
civil servant	5 (3.2%)	7 (4.5%)	12 (3.9%)	
Private	8 (5.2%)	12 (7.8%)	20 (6.5%)	
Self-employed	10 (6.5%)	18 (11.7%)	28 (9.1%)	
Laborer	1 (0.6%)	0 (0.0%v	1 (0.3%)	
Income				
Brought by UMP (<3,434,298)	87 (56.1%)	127(82.5%)	214 (69.3%)	(0.000)*
Above UMP (>3,434,298)	68 (43.9%)	27 (17.5%)	95 (30.7%)	

Residence				
Living in my own home	74 (47.7%)	62 (40.3%)	136 (44.0%)	
Living at my parents' house	73 (47.1%)	78 (50.6%)	151 (48.9%)	(0.240)*
Living at the in-laws' house	8 (5.2%)	14 (9.1%)	22 (7.1%)	

**Chi-Square Test*

The analysis results show varying relationships between the demographic characteristics of respondents in rural and urban areas. Significant differences were found in age ($p = 0.007$) and income ($p < 0.000$), indicating that the age distribution and economic level of respondents differ significantly between the two regions. In contrast, the variables of education ($p = 0.627$), occupation ($p = 0.267$), and place of residence ($p = 0.240$) did not show statistically significant differences, so it can be concluded that these three factors are relatively similar between rural and urban areas. Overall, these findings indicate that age and income are the demographic aspects that most differentiate the characteristics of respondents in the two study areas.

Demographic Characteristics of Postpartum Maternal Stress in Rural Areas

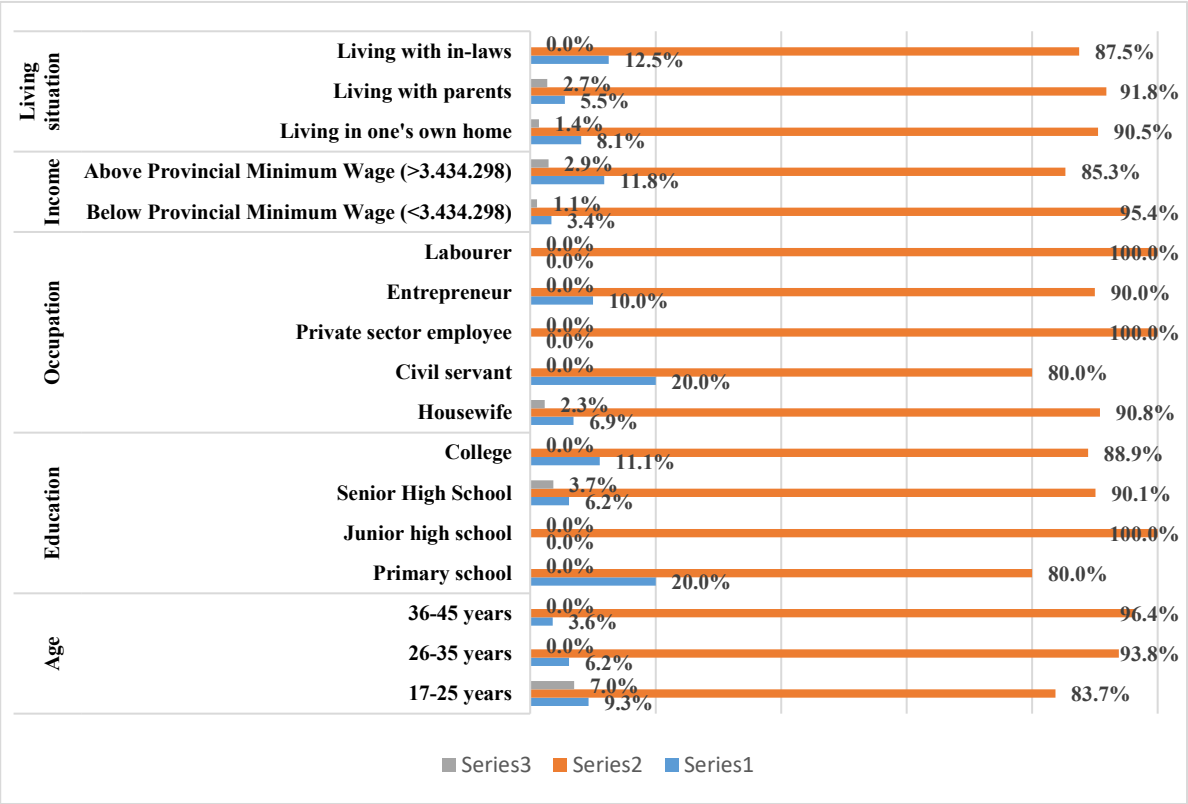

Figure 2. Distribution of demographic characteristics with postpartum maternal stress in rural areas

Most respondents in rural areas experienced moderate stress levels (87.5%), while a small proportion experienced low stress (12.5%), and none were classified as highly stressed. Moderate stress levels were most common in the 26–35 age group (93.8%). Based on education, the majority of respondents with high school and college education experienced moderate stress levels (88% or more). Based on occupation, the majority of housewives (IRT) experienced moderate stress (90.8%). Most respondents with incomes below the minimum wage (UMP) also experienced moderate stress (95.4%). Thus, it can be concluded that the majority of respondents in rural areas fell into the moderate stress category.

Table 2. Relationship between Demographic Characteristics and Postpartum Maternal Stress in Rural Areas

Rural and urban demographic characteristics		Stress level			Amount	p-value
		Low	Currently	Tall		
Age	12–16 years	1 (33.3%)	2 (66.7%)	0 (0.0%)	3 (100%)	0.057
	17–25 years	4 (9.3%)	36 (83.7%)	3 (7.0%)	43 (100%)	
	26–35 years	5 (6.2%)	76 (93.8%)	0 (0.0%)	81 (100%)	
	36–45 years	1 (3.6%)	27 (96.4%)	0 (0.0%)	28 (100%)	

Education	Elementary School	2 (20.0%)	8 (80.0%)	0 (0.0%)	10 (100%)	0.211
	JUNIOR HIGH SCHOOL	0 (0.0%)	28 (100%)	0 (0.0%)	28 (100%)	
	SENIOR HIGH SCHOOL	5 (6.2%)	73 (90.1%)	3 (3.7%)	81 (100%)	
	PT	4 (11.1%)	32 (88.9%)	0 (0.0%)	36 (100%)	
Work	housewife	9 (6.9%)	119 (90.8%)	3 (2.3%)	131 (100%)	0.955
	civil servant	1 (20.0%)	4 (80.0%)	0 (0.0%)	5 (100%)	
	Private	0 (0.0%)	8 (100.0%)	0 (0.0%)	8 (100%)	
	Self-employed	1 (10.0%)	9 (90.0%)	0 (0.0%)	10 (100%)	
	Laborer	0 (0.0%)	1 (100%)	0 (0.0%)	1 (100%)	
Income	Below UMP (<3,434,298)	3 (3.4%)	83 (95.4%)	1 (1.1%)	87 (100%)	0.092
	Above UMP (>3,434,298)	8 (11.8%)	58 (85.3%)	2 (2.9%)	68 (100%)	
Residence	Living in my own home	6 (8.1%)	67 (90.5%)	1 (1.4%)	74 (100%)	0.87
	Living at my parents' house	4 (5.5%)	67 (91.8%)	2 (2.7%)	73 (100%)	
	Living at the in-laws' house	1 (12.5%)	7 (87.5%)	0 (0.0%)	8 (100%)	

**Chi-Square Test*

The analysis results show that there is no significant relationship between stress levels and the demographic characteristics of respondents in rural areas. The p-value for all demographic variables shows results above 0.05, namely age (p = 0.057), education (p = 0.211), occupation (p = 0.955), income (p = 0.092), and residence (p = 0.870). This indicates that respondents' stress levels are not significantly influenced by factors such as age, education, occupation, income, or residence. Thus, statistically, there is no significant difference in stress levels based on respondents' demographic characteristics in rural areas.

Demographic Characteristics of Postpartum Maternal Stress in Urban Areas

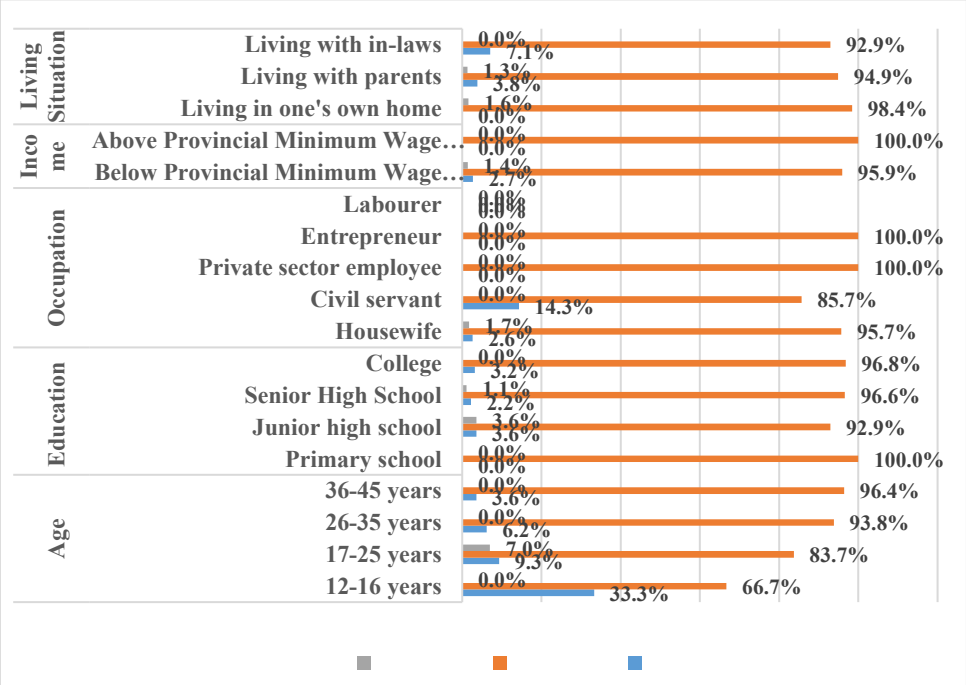

Figure 3. Distribution of demographic characteristics with postpartum maternal stress in urban areas

Most respondents in urban areas experienced moderate stress levels (87.5%), while only a small proportion experienced low stress (12.5%), and none were classified as high. The 26–35 age group showed the highest proportion of moderate stress (93.8%). Based on education, the majority of respondents with high school and college educations experienced moderate stress levels above 90%. Housewives (IRT) dominated the occupation with moderate stress at 95.7%. Most respondents with incomes below the minimum wage (UMP) also experienced moderate stress (95.9%). Based on residence, the majority of those living alone or with their parents experienced

moderate stress levels above 90%. In general, urban respondents tended to have moderate stress levels with no significant differences based on demographic characteristics.

Table 3. Relationship between Demographic Characteristics and Postpartum Maternal Stress in Urban Areas

Demographic characteristics		Stress level			Amount	p-value
		Low	Currently	Tall		
Age	12–16 years	1 (33.3%)	2 (66.7%)	0 (0.0%)	3	0.789*
	17–25 years	4 (9.3%)	36 (83.7%)	3 (7.0%)	43	
	26–35 years	5 (6.2%)	76 (93.8%)	0 (0.0%)	81	
	36–45 years	1 (3.6%)	27 (96.4%)	0 (0.0%)	28	
Education	Elementary School	0 (0.0%)	6 (100.0%)	0 (0.0%)	6	0.919*
	JUNIOR HIGH SCHOOL	1 (3.6%)	26 (92.9%)	1 (3.6%)	28	
	SENIOR HIGH SCHOOL	2 (2.2%)	86 (96.6%)	1 (1.1%)	89	
	PT	1 (3.2%)	30 (96.8%)	0 (0.0%)	31	
Work	housewife	3 (2.6%)	112 (95.7%)	2 (1.7%)	117	0.516*
	civil servant	1 (14.3%)	6 (85.7%)	0 (0.0%)	7	
	Private	0 (0.0%)	12 (100.0%)	0 (0.0%)	12	
	Self-employed	0 (0.0%)	18 (100.0%)	0 (0.0%)	18	
	Laborer	0 (0.0%)	0 (0.0%)	0 (0.0%)	0	
Income	Below UMP (<3,434,298)	4 (2.7%)	142 (95.9%)	2 (1.4%)	148	0.881*
	Above UMP (>3,434,298)	0 (0.0%)	6 (100.0%)	0 (0.0%)	6	
Residence	My own house	0 (0.0%)	61 (98.4%)	1 (1.6%)	62	0.481*
	Parents' house	3 (3.8%)	74 (94.9%)	1 (1.3%)	78	
	In-laws' house	1 (7.1%)	13 (92.9%)	0 (0.0%)	14	

**Chi-Square Test*

Based on the analysis results, there is no significant relationship between stress levels and the demographic characteristics of respondents in urban areas. This is indicated by all *p- values* greater than 0.05, namely in the variables of age ($p = 0.789$), education ($p = 0.919$), occupation ($p = 0.516$), income ($p = 0.881$), and residence ($p = 0.481$). These values indicate that respondents' stress levels are relatively similar across various demographic groups, both based on age, education level, type of employment, economic status, and residence. Thus, it can be concluded that demographic characteristics do not significantly influence stress levels in respondents in urban areas.

Demographic Characteristics of Postpartum Maternal Stress in Rural and Urban Areas

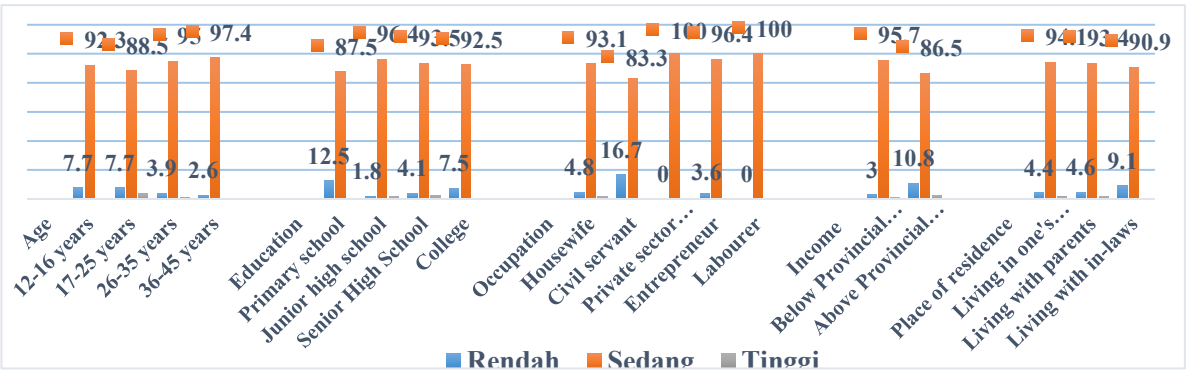

Figure 4. Distribution of demographic characteristics with postpartum maternal stress levels in rural and urban areas

Based on Table 4, the majority of postpartum mothers in both rural and urban areas were in the moderate stress category across almost all demographic characteristics studied. In terms of age group, moderate stress was most commonly experienced by respondents aged 26–35 years (95.0%), while in terms of education level, the highest proportion was among respondents with high school (93.5%) and college (92.5%) education. Based on

occupation, the majority of housewives (93.1%) experienced moderate stress. Mothers with incomes below the minimum wage (UMP) tended to experience higher levels of moderate stress (95.7%) compared to those with incomes above the UMP (86.5%). Based on residence, moderate stress levels were most commonly experienced by respondents living alone (94.1%) or living with their parents (93.4%), although this difference did not show a significant difference (p = 0.843). Overall, these results indicate that moderate stress levels are the dominant condition among postpartum mothers.

Table 4. Relationship between Demographic Characteristics and Postpartum Maternal Stress Levels in Rural and Urban Areas

Category		Stress level			Amount	p-value
		Low	Currently	Tall		
Age	12–16 years	1 (7.7%)	12 (92.3%)	0 (0.0%)	13	0.413*
	17–25 years	6 (7.7%)	69 (88.5%)	3 (3.8%)	78	
	26–35 years	7 (3.9%)	170 (95.0%)	2 (1.1%)	179	
	36–45 years	1 (2.6%)	38 (97.4%)	0 (0.0%)	39	
Education	Elementary School	2 (12.5%)	14 (87.5%)	0 (0.0%)	16	0.403*
	JUNIOR HIGH SCHOOL	1 (1.8%)	54 (96.4%)	1 (1.8%)	56	
	SENIOR HIGH SCHOOL	7 (4.1%)	159 (93.5%)	4 (2.4%)	170	
	PT	5 (7.5%)	62 (92.5%)	0 (0.0%)	67	
Work	housewife	12 (4.8%)	231 (93.1%)	5 (2.0%)	248	0.642*
	civil servant	2 (16.7%)	10 (83.3%)	0 (0.0%)	12	
	Private	0 (0.0%)	20 (100.0%)	0 (0.0%)	20	
	Self-employed	1 (3.6%)	27 (96.4%)	0 (0.0%)	28	
	Laborer	0 (0.0%)	1 (100.0%)	0 (0.0%)	1	
Income	Below UMP (<3,434,298)	7 (3.0%)	225 (95.7%)	3 (1.3%)	235	0.015*
	Above UMP (>3,434,298)	8 (10.8%)	64 (86.5%)	2 (2.7%)	74	
Residence	Living in my own home	6 (4.4%)	128 (94.1%)	2 (1.5%)	136	0.843*
	Living at my parents' house	7 (4.6%)	141 (93.4%)	3 (2.0%)	151	
	Living at the in-laws' house	2 (9.1%)	20 (90.9%)	0 (0.0%)	22	

**Chi-Square Test*

The majority of postpartum mothers in both rural and urban areas experienced moderate stress levels, at 91.0% in rural areas and 96.1% in urban areas, while the proportions of low and high stress were each just under 7%. Overall, of the 309 respondents (155 in rural areas and 154 in urban areas), 93.5% were classified as having moderate stress. Analysis showed no significant difference between postpartum maternal stress levels in the two areas (p-value = 0.163). These results indicate that postpartum stress is a common condition experienced by postpartum mothers, regardless of differences in social, economic, or residential environment. Factors such as productive age (26–35 years), secondary to higher education level, and the mother's employment status did not appear to significantly influence stress levels, suggesting that postpartum stress is more related to emotional and psychological adjustment after childbirth than to demographic factors.

Postpartum Maternal Stress in Rural and Urban Areas

In general, the characteristics of respondents in both regions indicate that the majority of individuals, both those living in rural and urban areas, fall into the moderate stress category. This finding suggests that the levels of stress experienced by respondents are relatively similar between the two regions, with a tendency for most individuals to adapt to the pressures faced in daily life, although still within the stress range that requires attention to maintain psychological well-being.

Table 5. Relationship between Postpartum Maternal Stress Levels in Rural and Urban Areas

Category	Stress level		Amount	p-value
	Rural	Urban		

Stress level	Low	11 (7.1%)	4 (2.6%)	15 (4.9%)	0.163*
	Currently	141 (91%)	148 (96.1%)	289 (93.5%)	
	Tall	3 (1.9%)	2 (1.3%)	5 (1.6%)	

**Chi-Square Test*

Based on the analysis, a *p -value* of 0.163 was obtained, indicating no significant difference between the stress levels of respondents in rural and urban areas. This indicates that residential location does not significantly influence individual stress levels, with the majority of respondents in both areas falling into the moderate stress category.

DISCUSSION

This study examines the relationship between demographic characteristics and postpartum maternal stress in both rural and urban areas. Although the results showed no significant relationship between maternal age and postpartum stress levels, this finding aligns with research by *Burdecka & Szablewska (2025)* in *Frontiers in Psychology* , which found that age was not a major predictor of postpartum stress or PTSD symptoms after childbirth. While the study noted that younger mothers had a slightly higher tendency to experience postpartum anxiety, multivariate analysis showed that other psychosocial factors such as social support, economic conditions, and childbirth experience had a much stronger influence on postpartum stress levels.(16)

Formal education is not a variable that differentiates postpartum stress levels between regions. Maternal education is often associated with postpartum mental health. However, empirical evidence suggests that the effect of education on postpartum stress is not always direct or significant. Research in Indonesia showed that the prevalence of postpartum depression was higher in urban (5.7%) than in rural (2.9%) mothers, but formal education did not emerge as a major predictor in multivariate models (17). Furthermore, cross-Asian analyses indicate that social support is a substantial predictor of postpartum depression, significantly more influential than demographic factors such as education.(18)

Employment status, particularly formal or informal employment, was not a major determinant of demographic distribution between the two groups. Although most respondents did not work outside the home, the literature suggests that the quality and conditions of employment may influence the risk of postpartum stress or psychological distress. A longitudinal study from Germany found that job insecurity, effort/reward imbalance, and work-privacy conflict during pregnancy predicted the development of postpartum stress and depression (PPD) symptoms, even while some women were on maternity leave (19). Recent studies have confirmed that unstable working conditions and psychosocial stress at work increase the risk of developing postpartum depression symptoms during maternity leave (20).

The study results showed that income level was significantly associated with postpartum maternal stress levels, with mothers earning below the minimum wage tending to experience higher levels of stress than those earning higher incomes. This indicates that less stable economic conditions can be a trigger for postpartum stress.

Research shows that socioeconomic factors, including income and housing status, significantly influence postpartum maternal mental health. Mothers from lower socioeconomic backgrounds are more susceptible to stress, anxiety, and depression due to financial pressures and limited social support.(21) (22). A study of this group of low-income mothers showed that low income level was a predictive factor for stress, depression, and anxiety during the first year postpartum (23).

The tendency for moderate stress in both urban and rural postpartum mothers suggests that the postpartum period is vulnerable to psychological stress, regardless of residence. Indonesian culture, strong family systems, and the value of mutual cooperation (gotong royong) enable mothers living with their families, both parents and in-laws, to receive sufficient social and emotional support, which can act as a protective factor against stress. However, living with extended family also has the potential to cause additional stress due to differences of opinion, social expectations, and pressures related to childcare. A literature review related to postpartum stress and infant well-being suggests that interpersonal relationships and family dynamics can be both protective factors and triggers of postpartum stress, depending on the quality of support provided.(24)

Postpartum stress is influenced by hormonal adaptations, changes in sleep rhythms, fatigue, and the demands of the new role as a mother. These biological and psychological factors are universal and not always influenced by the physical environment of the home. A study conducted in Saudi Arabia showed that fatigue and sleep disturbances are the main factors triggering postpartum stress, while social support plays a role in mitigating its negative effects. This study confirmed that postpartum stress is more influenced by the quality of social relationships and emotional support than by physical housing factors.(25)

Postpartum stress levels in rural and urban areas did not differ significantly. This finding indicates that, in general, postpartum stress experiences are universal and experienced relatively similarly by mothers in both regions.

Residential location did not significantly influence postpartum stress levels. Although the physical and social environments differ between rural and urban areas, maternal emotional adaptation after childbirth is likely influenced by other, more dominant factors such as family support, economic conditions, and psychological preparedness during pregnancy. These results align with research in Indonesia that found that differences in the prevalence of postpartum psychological disorders between urban and rural areas were not always significant after taking social factors and family support into account.(17)

The high proportion of moderate stress in both urban and rural areas indicates that the postpartum period is a psychologically vulnerable phase for most mothers. Hormonal changes, sleep disturbances, fatigue, and the demands of the new role as a mother can be universal stressors (25). Therefore, although there are no significant differences based on location, mental health treatment is still necessary to support mothers in the postpartum adaptation process. Recommended interventions include education on stress management, partner support, peer support groups , and the integration of mental health services into maternal and child care programs. These strategies have been shown to be effective in reducing postpartum stress levels and improving maternal well-being (26).

CONCLUSION

The results of this study indicate that the majority of postpartum mothers, both in rural and urban areas, are in the moderate stress category, indicating that the postpartum period is a vulnerable phase for psychological distress. No significant differences were found between demographic characteristics such as age, education, occupation, and residence with postpartum stress levels, but economic factors appear to play a significant role, with mothers with incomes below the minimum wage tending to experience higher levels of stress. These findings emphasize the importance of promotive and preventive interventions based on social and economic support to reduce postpartum stress levels, through education, increased family support, and the integration of mental health services into maternal care at the community level.

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