



RESEARCH ARTICLE

URL article: <http://jurnal.fkmumi.ac.id/index.php/woh/article/view/woh9320>**Determinant Factors Affecting Psychological Well-being of Pregnant Mothers****Lastri Mei Winarni^{1C}, Reni Nofita², Nuryanti³, Septy Ariani⁴, Rini Sartika⁵, Siti Haeriyah⁶, Nurry Ayuningtyas Kusumastuti⁷**^{1,3,4,5,6,7}Midwifery Program, Faculty of Health Science, Universitas Yatsi Madani, Indonesia²Midwifery Program, Sekolah Tinggi Ilmu Kesehatan Banten, IndonesiaEmail Corresponding Author(^C): lastri@uym.ac.idlastri@uym.ac.id¹, reninofita@stikesbanten.ac.id², nuryanti@uym.ac.id³, septyariani@uym.ac.id⁴, rinisartika@uym.ac.id⁵, sitihaeriyah@uym.ac.id⁶, nurri@uym.ac.id⁷**ABSTRACT**

Globally, approximately 10–20% of pregnant women experience mental health disorders. In Indonesia, approximately 12.6% of pregnant women experience common mental disorders, making maternal psychological well-being an important public health concern. Although previous studies have examined individual psychosocial factors, comprehensive analyses integrating physical, psychological, and social determinants remain limited, particularly in Indonesian primary healthcare settings. Therefore, this study aims to identify the determinants of psychological well-being among pregnant mothers. This quantitative study with a cross-sectional design was conducted in 20 public health centers in Tangerang City from January to March 2023. A total of 196 pregnant mothers were selected using cluster random sampling. Data were collected using structured questionnaires, including validated instruments for eating behavior, domestic violence, perceived stress, and psychological well-being. Data analysis used multiple linear regression tests, ANOVA tests, and regression coefficients. Data were analyzed using multiple linear regression in SPSS version 26. Multiple linear regression showed that the model was statistically significant ($F = 4.267$, $p < 0.001$), explaining 21.9% of the variance in psychological well-being ($R^2 = 0.219$; adjusted $R^2 = 0.167$). Acceptance of pregnancy ($B = 15.94$, $\beta = 0.233$, 95% CI: 5.25–26.64, $p = 0.004$), domestic violence ($B = -12.51$, $\beta = -0.230$, 95% CI: -21.30 to -3.72, $p = 0.006$), and attitudes toward pregnancy care ($B = 0.37$, $\beta = 0.167$, 95% CI: 0.07–0.66, $p = 0.016$) were significantly associated with psychological well-being among pregnant women. These findings may inform future psychosocial interventions, although longitudinal studies are required to establish causal relationships.

Keywords: Pregnant mothers; psychological well-being; self-acceptance, attitude; violence abuse

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INTRODUCTION

Maternal health is a major global public health priority that encompasses not only physical health but also psychological and social well-being throughout pregnancy, childbirth, and the postpartum period. The World Health Organization (WHO) recognizes maternal mental health as an integral component of quality maternal healthcare, as psychological well-being influences maternal functioning, pregnancy outcomes, and child development. Globally, approximately 10–20% of pregnant women experience mental health disorders, particularly depression and anxiety, while the prevalence in low- and middle-income countries is even higher. In Indonesia, common mental disorders affect approximately 12.6% of pregnant women, highlighting maternal psychological well-being as an important yet often overlooked public health issue (1,2).

Psychological well-being is a multidimensional concept that reflects an individual's positive psychological functioning, encompassing self-acceptance, autonomy, environmental mastery, positive relations with others, personal growth, purpose in life, and self-development (3,4). During pregnancy, psychological well-being enables women to adapt to the profound physical, emotional, and social changes associated with pregnancy while maintaining positive mental health. Good psychological well-being has been associated with healthier maternal behaviors, stronger maternal–fetal attachment, better utilization of antenatal care, and improved maternal and neonatal outcomes. Conversely, poor psychological well-being increases the risk of antenatal anxiety and depression, adverse birth outcomes, impaired mother–infant bonding, and delayed child development (2,5,6).

Previous studies have identified several modifiable determinants of maternal psychological well-being (4,7). Pregnancy acceptance facilitates emotional adjustment and maternal role adaptation, thereby promoting positive psychological functioning. In contrast, domestic violence acts as a chronic psychosocial stressor that undermines emotional security and increases the risk of poor mental health during pregnancy. Positive attitudes toward pregnancy care encourage adaptive health behaviors, improve engagement with antenatal services, and enhance women's sense of control and environmental mastery. Together, these psychosocial factors may influence psychological well-being through their effects on emotional adaptation, coping capacity, and maternal resilience during pregnancy.

Although previous studies have identified several determinants of maternal mental health, most have focused on individual factors such as stress, anxiety social support, domestic violence, or pregnancy intention in isolation (8). However, maternal psychological well-being is a multidimensional construct influenced by the complex interaction of physical, psychosocial, behavioral, and environmental factors. Examining these determinants separately may not adequately capture their relative contributions or identify the most influential factors affecting maternal psychological well-being. Research by Ulfah et al., in 2021 in Banyumas on 60 pregnant mothers respondents identified that the variables of age, parity, gestational age, and stress levels were related to the psychological well-being of pregnant mothers (9). Another study conducted by Hafizhah et al. in 2024 in South Aceh on 68 pregnant mothers respondents had just raised the variables of knowledge, anxiety levels, and causal

factors for maternal mental health (10). This study provides evidence that, after simultaneously accounting for physical, behavioral, and psychosocial factors, psychological well-being among pregnant women is primarily associated with pregnancy acceptance, domestic violence, and maternal attitudes toward pregnancy care. These findings highlight the dominant role of psychosocial determinants over demographic and obstetric characteristics within Indonesian primary healthcare settings. This approach provides a realistic picture of the psychological well-being of pregnant mothers in the community. This study is expected to contribute to maternal health intervention strategies that are more oriented towards psychosocial aspects. The most significant determinants can be directed at strengthening the assistance of pregnant mothers to support their psychological well-being and health (11).

METHOD

A. Research Design

This study employed a quantitative cross-sectional design to identify factors associated with psychological well-being among pregnant women. The study was conducted from January to March 2023 in 20 public health centers in Tangerang City, Banten Province, Indonesia. A cross-sectional design was selected because the primary objective of this study was to identify factors associated with psychological well-being among pregnant women at a single point in time rather than to establish causal relationships. This design allows simultaneous assessment of multiple psychosocial, behavioral, and obstetric factors in a relatively large population and is appropriate for identifying potential determinants that may inform future longitudinal studies.

B. Population and Sample

The population in this study were all pregnant mothers who underwent examinations at PHCs under the auspices of the Tangerang City Health Service Office in January-March 2023. A two-stage sampling approach was employed. In the first stage, 20 of the 34 public health centers (Puskesmas) in Tangerang City were selected using cluster random sampling. Each public health center was assigned a unique identification number, and Microsoft Excel's randomization function was used to randomly select the participating health centers. In the second stage, eligible pregnant women attending antenatal care at each selected public health center were recruited consecutively until 20 participants were enrolled from each center. Initially, 200 pregnant women participated in the study. After data cleaning, four questionnaires with incomplete responses were excluded, resulting in a final analytical sample of 196 participants. Eligible participants were pregnant mothers attending antenatal care who met the inclusion criteria and provided informed consent. Questionnaires with incomplete responses were excluded from the final analysis.

C. Data Collection Technique

Data were collected by trained enumerators consisting of Diploma III Midwifery students. Prior to data collection, the enumerators received standardized training from the principal investigator

regarding the study objectives, ethical procedures, participant recruitment, informed consent, and standardized questionnaire administration to ensure consistency throughout the data collection process. The minimum sample size was estimated using Green's formula for multiple linear regression ($N \geq 50 + 8m$), where m represents the number of predictor variables included in the regression model (12). Twelve independent variables were entered simultaneously into the regression model, resulting in a minimum required sample size of 146 participants. To increase statistical power and account for potential incomplete responses, the target sample size was increased to 200 pregnant women. After excluding four incomplete questionnaires, 196 participants were included in the final analysis.

The questionnaires were self-administered by the participants in a private setting. Enumerators were available only to provide clarification when necessary and did not influence participants' responses, thereby minimizing interviewer bias. Completed questionnaires were checked immediately after collection for completeness. Four questionnaires with incomplete responses were excluded prior to statistical analysis using listwise deletion, resulting in 196 complete datasets.

D. Research instrument

Validated instruments were used to measure the study variables. Psychological well-being was assessed using the Indonesian version of the 18-item Ryff Psychological Well-being Scale, which had previously undergone translation, cultural adaptation, and psychometric evaluation among Indonesian pregnant women in our earlier study (13). The psychological well-being questionnaire, it has been validated through the Confirmatory Factor Analysis (CFA) test with a Bartlett test of sphericity value of p value 0.0001; and the six dimensions of psychological well-being can explain 68.768% and a Cronbach's Alpha value of 0.705.

The eating behavior, domestic violence, and stress level questionnaires were translated by the University of Indonesia Language Institute and have been consulted with experts and tested for readability in pregnant women. was translated into Indonesian by the research team and underwent cognitive debriefing (readability testing) with five pregnant women to ensure linguistic clarity, cultural appropriateness, and comprehensibility before data collection. Domestic violence was assessed using the Domestic Violence Safety Assessment Tool, which has been widely used in previous studies (14–16).

E. Data Analysis

Prior to multiple linear regression analysis, regression assumptions were evaluated. Multicollinearity was assessed using tolerance and variance inflation factor (VIF) values. Normality of residuals was examined using normal probability (P–P) plots, while homoscedasticity was evaluated by visual inspection of scatterplots of standardized residuals against predicted values. Independence of residuals was assessed using the Durbin–Watson statistic. Variables meeting these assumptions were entered simultaneously into the multiple linear regression model. Statistical analyses were performed using IBM SPSS Statistics version 26, with a significance level of $p < 0.05$.

This research has obtained permission (ethical clearance) from the Research and Community Service Ethics Committee of the Faculty of Public Health, University of Indonesia number: Ket-510/UN2.F10.D11/PPM.00.02/2022

RESULTS

Based on data collection, it is known that there were 196 pregnant women with the following results:

Table 1. Characteristic of Study Participants (n=196)

Variables	N	Percent
Education		
Elementary	10	5.2
Middle school	33	16.8
High school	139	70.9
University	14	7.1
Occupation		
Housewife	146	74.5
Work	50	25.5
Parity		
Primigravida	97	49.5
Multigravida	99	50.5
Marital status		
Legal	191	97.4
Doubtful;	5	2.6
Complication		
Yes	30	15.3
No	166	84.7
History of miscarriage		
Yes	15	7.7
No	181	92.3
Eating Behavior		
Control	86	43.9
No control	110	56.1
BMI		
Underweight	4	2.0
Normal	63	32.1
Overweight	35	17.9
Obesity 1	79	40.3
Obesity 2	15	7.7
Acceptance		
Yes	180	91.8
Doubtful	16	8.2
Domestic violence		
Doubtfull	27	13.8
No	169	86.2

Based on Table 1, it is known that most mothers have a high school education of 70.9%; with the status of Housewife 74.5%; multigravida 50.5%; legal marital status 97.4%; no complications 84.7%; no history of miscarriage 92.3%; BMI Obesity 1 40.3%; acceptance yes 91.8%; and do not experience Domestic Violence 86.2%.

Table 2. Descriptive Statistics of Continuous Variables

Variabel	Mean	Min-Max	SD
Age	28.6	18-39	4.8
Husband support	31.2	20-40	4.2
Knowledge	15.8	10-20	2.3
Attitude	83.2	62-100	8.6
Behavior	47.6	41-60	3.5
Stress	19.4	10-29	4.7
Psychological well-being	184.8	142-222	18.8

Based on Table 2, the mean age is 28.6 years old, husband support 31.2, knowledge 15.8, attitude 83.2, behavior 47.6, stress 19.4, and psychological well-being 184.8.

Table 3. Multiple Linear Regression Model Summary

Statistic	Value
R	0.468
R ²	0.219
Adjusted R ²	0.167
F	4.267
p-value	<0.001
Standard Error	17.13

Based on table 3, the F value is 4.267 and the model significance is $0.001 < p < 0.05$ indicating that this model is statistically significant. The combination of independent variables simultaneously affects the psychological well-being of pregnant women. $R^2 = 0.219$, which means that 21.9% of the variation in psychological well-being of pregnant women can be explained by 12 predictor variables in this model. Adjusted $R^2 = 0.167$ indicates that the model explains a modest proportion of the variance in psychological well-being after accounting for the number of predictors included in the model.

Tabel 4 Multiple Linear Regression Analysis of Factors Associated with Psychological Well-being

Variabel	B	SE	Standardized β	95% CI	Sig	VIF
Acceptance	15.942	5.41	0.233	5.25 – 26.64	.004	1.144
Domestic violence	-12.512	4.46	-0.230	(-21.30) – (-3.72)	.006	1.500
Attitude	0.367	0.15	0.167	0.07-0.66	.016	1.122

The regression model equation is as follows: $Y = a + \beta_1 \text{ Acceptance} + \beta_2 \text{ Domestic Violence} + \beta_3 \text{ Attitude} + e$

$$Y = 116.691 + 15.942 (\text{acceptance}) - 12.512 (\text{Domestic Violence}) + 0.367 (\text{Attitude}) + e$$

This regression model shows that several psychosocial and cognitive factors such as acceptance and attitudes towards pregnancy have a significant contribution to the psychological well-being of pregnant mothers. Associated with domestic violence conditions that have a negative relationship with the psychological well-being of pregnant mothers.

DISCUSSION

This study identified three key determinants of psychological well-being among pregnant women, namely pregnancy acceptance, domestic violence, and attitudes toward pregnancy care, after simultaneously adjusting for demographic, obstetric, behavioral, and psychosocial factors. These findings suggest that psychosocial factors play a more prominent role in maternal psychological well-being than demographic or clinical characteristics within the context of primary healthcare. Similar observations have been reported in international studies, which consistently demonstrate that maternal psychological well-being is shaped by complex interactions between emotional adaptation to pregnancy, interpersonal relationships, and cognitive responses to pregnancy rather than by biological characteristics alone (5,17). In contrast, maternal age, marital status, pregnancy complications, history of miscarriage, eating behavior, husband's support, knowledge, health behavior, and perceived stress were not independently associated with psychological well-being in the final regression model. Although some previous studies have reported significant associations between maternal age, stress, knowledge, and psychological well-being (9,10), these variables may have lost their independent effects after adjustment for stronger psychosocial determinants. This finding suggests the presence of complex interrelationships among predictors, whereby certain variables may exert indirect effects through mediating or moderating pathways rather than demonstrating direct associations within a multivariable regression model.

Although the regression model explained 21.9% of the variance in psychological well-being ($R^2 = 0.219$; adjusted $R^2 = 0.167$), the overall model was statistically significant, indicating that the selected predictors collectively contributed to explaining maternal psychological well-being. In psychosocial research, a relatively modest coefficient of determination is not uncommon because psychological well-being is a multidimensional construct influenced by numerous interrelated biological, psychological, social, cultural, and environmental factors that cannot be fully captured within a single regression model (2,3). Consistent with Ryff's conceptual framework, psychological well-being encompasses multiple dimensions, including self-acceptance, positive relationships with others, autonomy, environmental mastery, purpose in life, and personal growth (18). Furthermore, contextual factors such as religiosity and spirituality, which are particularly relevant in the Indonesian sociocultural context, may contribute to strengthening maternal psychological well-being. Other potentially important determinants—including support from healthcare professionals, the quality of antenatal care services, coping strategies, resilience, maternal self-efficacy, socioeconomic conditions, and family functioning—were not measured in the present study and may explain the remaining unexplained variance (13). Therefore, the

relatively modest R^2 should not be interpreted as a weakness of the model but rather as a reflection of the inherently complex and multifactorial nature of maternal psychological well-being. Importantly, despite the moderate explanatory power of the model, the identified psychosocial determinants demonstrated meaningful associations with psychological well-being, suggesting that they remain relevant targets for maternal health interventions.

Pregnancy acceptance was positively associated with maternal psychological well-being, indicating that women who positively embrace their pregnancy are more likely to adapt successfully to the emotional and physical changes experienced during gestation. This finding is consistent with the study by McNamara et al, which demonstrated that pregnancy acceptance plays a central role in maternal psychological adjustment and strengthens maternal–fetal attachment. Women who accept their pregnancy are more likely to develop positive expectations about motherhood and their baby's future, thereby facilitating emotional adaptation throughout pregnancy (7). From the perspective of Mercer's Maternal Role Attainment Theory, acceptance of pregnancy represents an essential developmental process through which women gradually internalize the maternal role, develop maternal identity, and gain confidence in their ability to care for their child. This adaptive process contributes to greater emotional stability and psychological well-being. Similarly, Self-Determination Theory proposes that psychological well-being is enhanced when individuals experience autonomy, competence, and supportive interpersonal relationships (19). Pregnancy acceptance may foster these psychological needs by encouraging adaptive coping, active engagement in antenatal care, and positive interactions with family members and healthcare providers. Furthermore, pregnancy acceptance aligns with Ryff's concept of psychological well-being, particularly the dimensions of self-acceptance, purpose in life, and environmental mastery, enabling women to perceive pregnancy as a meaningful life transition. Conversely, inadequate pregnancy acceptance has been associated with higher levels of depression, anxiety, stress, poorer quality of life, and weaker maternal–fetal attachment during pregnancy. These findings are also supported by previous international studies demonstrating that positive emotional adaptation during pregnancy is associated with better maternal mental health outcomes (5).

Domestic violence was negatively associated with maternal psychological well-being, indicating that women who experienced violence during pregnancy were more likely to report poorer psychological well-being than those who did not. This finding is consistent with the study by Gebreksitos et al. (2023), which reported that approximately 40% of pregnant women exposed to domestic violence were at an increased risk of developing postpartum depressive symptoms, suggesting that the adverse effects of violence extend beyond pregnancy into the postpartum period (20). The association between domestic violence and poor psychological well-being can be explained through biopsychosocial mechanisms. Chronic exposure to violence activates the hypothalamic–pituitary–adrenal (HPA) axis, leading to prolonged cortisol secretion and dysregulation of the physiological stress response. Sustained activation of this stress pathway has been associated with anxiety, depressive symptoms, emotional dysregulation, and sleep disturbances, all of which negatively affect maternal

mental health. Psychologically, domestic violence may diminish self-esteem, reduce perceived control, and impair adaptive coping capacity, making pregnant women more vulnerable to emotional distress (21). Socially, women experiencing domestic violence often withdraw from family members and healthcare providers because of fear, shame, or stigma, thereby reducing opportunities to receive emotional and professional support. These interconnected biological, psychological, and social pathways may explain the substantial negative impact of domestic violence on maternal psychological well-being and highlight the importance of routine screening and psychosocial support during antenatal care.

Positive maternal attitudes toward pregnancy care were significantly associated with better psychological well-being, suggesting that women who perceive pregnancy positively are more likely to adapt successfully to the challenges of pregnancy. This finding is consistent with the Theory of Planned Behavior, which proposes that favorable attitudes strengthen behavioral intentions and increase engagement in health-promoting behaviors. During pregnancy, women with positive attitudes are more likely to seek health information, attend antenatal care regularly, and actively participate in decisions related to their pregnancy, thereby enhancing their confidence and preparedness for motherhood (22). In a study conducted by Reyes et al. among pregnant women in the United States, positive attitudes toward seeking health information were associated with greater perceived control, competence, and social connectedness, which are important psychological resources that support maternal well-being (23). These psychological resources may strengthen maternal self-efficacy and encourage the use of adaptive coping strategies when facing physical and emotional changes during pregnancy. Consequently, women with positive attitudes are better equipped to manage pregnancy-related stress, maintain emotional balance, and engage more effectively with healthcare services. From a practical perspective, these findings highlight the importance of strengthening positive maternal attitudes through antenatal education, counseling, and supportive communication from healthcare providers to promote maternal psychological well-being.

Contrary to the findings of Wu et al. (2023), eating behavior was not significantly associated with psychological well-being in the present study. Wu et al. reported that uncontrolled eating behavior was associated with postpartum depressive symptoms and emphasized the importance of healthy dietary behaviors during pregnancy (24). This discrepancy may be explained by methodological and contextual differences. The present study adjusted for multiple psychosocial variables, which may have attenuated the independent effect of eating behavior. In addition, the AEBQ primarily measures appetitive traits rather than dietary quality, while cultural dietary practices among Indonesian pregnant women may also influence eating behaviors differently.

Contrary to the findings of Wahyuni et al. (2024), husband's support was not significantly associated with psychological well-being in the present study. Previous studies have shown that husband's support enhances maternal confidence and facilitates psychological adaptation to pregnancy, thereby promoting maternal mental health (25). The nonsignificant finding in this study may be

explained by the indirect influence of husband's support through other psychosocial factors, such as pregnancy acceptance or maternal coping, which were not specifically examined. Further studies using mediation or path analysis are recommended to clarify these relationships.

Contrary to the findings of Rauzatul Jannah (2022), knowledge about pregnancy health care was not significantly associated with psychological well-being in the present study. Previous research has shown that improving pregnant women's knowledge through psychological self-help education and continuous support from healthcare providers can help prevent postpartum depression (26). The nonsignificant finding may indicate that knowledge alone is insufficient to improve psychological well-being without being accompanied by positive attitudes, adaptive coping, and adequate psychosocial support (27).

Contrary to the findings of Winarni et al. (2023), knowledge about pregnancy health care was not significantly associated with psychological well-being in the present study. Winarni et al. reported that psychoeducation significantly improved health behavior among pregnant women compared with the control group (13). Similarly, a study conducted in Iran found that higher stress levels were associated with poorer maternal self-care behaviors (28). The nonsignificant finding in this study suggests that knowledge alone may not be sufficient to improve psychological well-being without being translated into positive health behaviors and supported by adequate psychosocial resources.

Contrary to the findings of Pascal et al. in Spain, perceived stress was not significantly associated with psychological well-being in the present study. Pascal et al. reported that higher stress levels during pregnancy were associated with increased anxiety, insomnia, and poorer quality of life, which may reduce maternal psychological well-being (29). The nonsignificant finding in this study may reflect the influence of other psychosocial factors that were stronger predictors in the multivariable model. Future studies are needed to explore whether stress affects psychological well-being indirectly through mediating variables.

Practical implications in the context of midwifery services in particular or public health in general are: It is necessary to strengthen psychosocial-based intervention programs that can increase self-acceptance and positive attitudes of mothers towards pregnancy. This can be done by organizing integrated pregnancy classes, counseling, or family assistance. Prevention of domestic violence needs to be socialized for the protection of mothers and is an important component in maintaining the psychological well-being of pregnant women. This is in line with research by Kirk et al, which states that barriers to providing education about domestic violence need to be identified to help women get their rights. Policies, regulations, and guidelines for health workers to convey domestic violence issues to pregnant women also need to be developed (30).

CONCLUSIONS AND RECOMMENDATIONS

The regression model explained 21.9% of the variance in psychological well-being. This indicates that the predictors included in the model accounted for a modest proportion of the variability

in maternal psychological well-being, while the remaining unexplained variance may reflect the influence of other biological, psychological, social, and environmental factors not measured in this study. These findings emphasize the importance of incorporating psychosocial assessment, counseling, and domestic violence screening into routine antenatal care to improve maternal psychological well-being. Future longitudinal studies are recommended to confirm these associations and explore additional determinants of maternal psychological well-being.

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