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Psychosocial Factors Associated with Depressive Symptom Severity among Indonesian Adults: An Ordinal Logistic Regression Analysis of IFLS-5 Data

Ghea Weisha[1*)], Mutia Yollanda[1], Yudiantri Asdi[1]
[1] Department of Mathematics and Data Science, Universitas Andalas, Indonesia
*Corresponding author, e-mail: ghea_weisha24@sci.unand.co.id

Abstract
Depression is a major public health concern and one of the most prevalent mental health disorders in Indonesia. However, evidence regarding psychosocial factors associated with depressive symptom severity among Indonesian adults remains limited. This study examined the associations of educational attainment, marital status, and emotional problems with depressive symptom severity using data from the fifth wave of the Indonesia Family Life Survey (IFLS-5). A cross-sectional analysis was conducted among 21,416 adults using descriptive statistics, Chi-square tests, and ordinal logistic regression. The results showed that educational attainment, marital status, and emotional problems were significantly associated with depressive symptom severity. Higher educational attainment and being married were associated with lower odds of more severe depressive symptoms, whereas emotional problems were associated with higher odds. These findings underscore the importance of psychosocial factors in developing targeted mental health interventions for Indonesian adults.

Keywords: depressive symptoms, psychosocial factors, emotional problems, ordinal logistic regression, IFLS-5.

Introduction

Depression is one of the leading mental health disorders worldwide and represents a major public health challenge because of its adverse effects on emotional well-being, daily functioning, social relationships, and quality of life. Individuals experiencing depression commonly report persistent sadness, loss of interest, impaired cognitive functioning, and reduced productivity, which collectively contribute to substantial disability and economic burden. Furthermore, depression frequently coexists with chronic physical conditions, leading to poorer health outcomes and increased healthcare utilization (Ikin et al., 2016). In Indonesia, depression has become an increasingly important public health issue, with recent national studies reporting a considerable prevalence of depressive symptoms across the adult population and emphasizing the need for effective prevention and intervention strategies (Idaiani et al., 2025; Marvianto et al., 2026).

In Indonesia, depression has emerged as an increasingly important mental health issue. Population-based studies have consistently shown that depressive symptoms are prevalent across different age groups and are influenced by complex interactions among demographic, socioeconomic, health-related, and psychosocial factors. National studies have identified education, socioeconomic status, chronic diseases, lifestyle behaviors, and social conditions as important factors associated with depressive

symptoms among Indonesian adults (Alfaqeeh et al., 2025; Astutik et al., 2021; Tama et al., 2021). Similarly, studies using the Indonesia Family Life Survey (IFLS) have demonstrated that depression frequently coexists with chronic diseases, poor sleep quality, and adverse life circumstances, suggesting that depressive symptoms should be understood through a multidimensional psychosocial perspective rather than solely from a clinical viewpoint (Amelia et al., 2022; Irmansyah et al., 2026; Leung et al., 2021).

Within the biopsychosocial framework, psychosocial factors have received increasing attention because they directly influence psychological resilience, coping strategies, emotional regulation, and social adaptation. Individuals who experience unfavorable psychosocial conditions generally exhibit greater vulnerability to emotional distress, which may subsequently increase the severity of depressive symptoms. Previous studies conducted in Indonesia and other countries have consistently demonstrated that socioeconomic characteristics, social relationships, and emotional well-being contribute substantially to depression risk, although the magnitude and direction of these relationships vary across populations and cultural contexts (Alfaqeeh et al., 2025; Pitcairn et al., 2021; Siddik et al., 2023). Therefore, understanding psychosocial determinants remains essential for developing effective mental health prevention strategies and evidence-based counseling interventions.

Educational attainment has consistently been recognized as one of the most important social determinants of mental health. Individuals with higher educational attainment generally possess better health literacy, greater socioeconomic opportunities, stronger problem-solving abilities, and more adaptive coping strategies, all of which contribute to improved psychological well-being. Conversely, lower educational attainment is frequently associated with financial insecurity, limited access to health information, and chronic psychosocial stress, thereby increasing vulnerability to depressive symptoms. Evidence from Indonesia has demonstrated that education exerts both direct and indirect effects on depression through socioeconomic pathways, while international studies have consistently reported an inverse relationship between educational attainment and depressive symptoms across different populations (Chlapecka et al., 2020; Hinata et al., 2021; Patria, 2022).

Besides educational attainment, marital status has also been widely recognized as an important psychosocial determinant of depression. Marriage may provide emotional support, financial stability, companionship, and a sense of belonging that protect individuals from psychological distress. (Inaba et al., 2005; Jang et al., 2009). In contrast, individuals who are unmarried, divorced, or widowed often experience greater social isolation, loneliness, and reduced emotional support, all of which may increase the risk of depression. Although the protective role of marriage has been documented in different countries, the magnitude of its association varies according to cultural and social contexts. Recent evidence also suggests that marital status may influence depression through complex psychosocial mechanisms involving social support and interpersonal relationships rather than marital status itself (Ndayambaje et al., 2020; Zhai et al., 2024).

Emotional problems represent another important factor closely related to depression. Psychological difficulties, including persistent emotional distress, poor emotional regulation, and exposure to stressful life events, may increase susceptibility to depressive symptoms and accelerate their progression toward more severe conditions (Handajani et al., 2022; Idaiani et al., 2025). Previous studies have shown that emotional problems frequently coexist with depression and may exacerbate symptom severity through impaired coping mechanisms and reduced psychological resilience. Recent Indonesian studies have also emphasized that emotional vulnerability and negative life experiences are strongly associated with depressive symptoms, highlighting the importance of considering emotional factors when investigating depression in the Indonesian population (Agus et al., 2025; Istiqlal et al., 2022). Most previous studies have focused on estimating the prevalence of depression or identifying associated factors within specific populations, including older adults, adolescents, individuals with diabetes mellitus, caregivers, or patients with chronic diseases (Azmiardi et al., 2023; Madyaningrum et al., 2019; Yiengprugsawan et

al., 2022). Consequently, limited evidence is available regarding the simultaneous influence of educational attainment, marital status, and emotional problems on depressive symptom severity among the general adult population using nationally representative data.

Statistically, depressive symptom severity represents an ordinal outcome because the response categories reflect a natural progression from low to moderate and high symptom severity. Treating these ordered categories as a binary outcome, as adopted in many previous studies, requires collapsing multiple severity levels into two groups, potentially reducing statistical information, estimation efficiency, and the ability to distinguish factors associated with different stages of depressive symptoms (Viana et al., 2024). Such simplification may mask important variations in psychosocial characteristics among individuals with different levels of depression severity. Therefore, an analytical approach that preserves the ordinal nature of the response variable is required to obtain more reliable and informative estimates.

Ordinal logistic regression is specifically designed for ordinal response variables by simultaneously modelling the cumulative probability of belonging to higher levels of depressive symptom severity while maintaining the ordered structure of the outcome (Hayawi et al., 2025). Unlike binary logistic regression, which only differentiates between the presence and absence of depression, ordinal logistic regression utilizes information from all response categories within a single model, thereby improving estimation efficiency and reducing information loss. In addition, this approach enables simultaneous evaluation of multiple psychosocial factors while controlling for potential confounding effects, resulting in parameter estimates that are more interpretable for understanding the relative contribution of each predictor to increasing depressive symptom severity (Matimbwa et al., 2025; Williams & Louis, 2026). Consequently, ordinal logistic regression provides a more appropriate analytical framework for identifying psychosocial determinants of depression when symptom severity is measured on an ordered scale.

Despite these methodological advantages, the application of ordinal logistic regression to nationally representative mental health data in Indonesia remains relatively limited. Existing IFLS-based studies have primarily estimated depression prevalence or examined associated factors using binary analytical approaches or focused on specific disease conditions and demographic groups (Huang et al., 2024). As a result, evidence regarding psychosocial factors associated with increasing levels of depressive symptom severity among Indonesian adults is still limited. This study addresses this methodological gap by analysing depressive symptom severity as an ordinal outcome and simultaneously evaluating educational attainment, marital status, and emotional problems within a single ordinal logistic regression framework.

Accordingly, this study contributes to the existing literature in three ways. First, it preserves the ordinal structure of depressive symptom severity, thereby minimizing information loss associated with dichotomizing the outcome variable. Second, it integrates educational attainment, marital status, and emotional problems into a unified psychosocial model using nationally representative IFLS-5 data. Third, it applies an analytical framework that provides more efficient parameter estimation and more comprehensive interpretation of factors associated with increasing depressive symptom severity, thereby strengthening the evidence base for psychological counseling, mental health promotion, and public health decision-making in Indonesia. Based on these considerations, this study aimed to examine the associations of educational attainment, marital status, and emotional problems with depressive symptom severity among Indonesian adults using data from the fifth wave of the Indonesia Family Life Survey (IFLS-5).

Method

Data Collection and Preparation

This study employed a cross-sectional design using secondary data obtained from the fifth wave of the Indonesia Family Life Survey (IFLS-5). IFLS is an ongoing longitudinal household survey conducted by the RAND Corporation to provide nationally representative information on demographic, socioeconomic, health, and psychosocial conditions of the Indonesian population. The fifth wave of IFLS was conducted between 2014 and 2015 using a multistage stratified sampling design across 13 provinces representing approximately 83% of the Indonesian population. The initial dataset comprised 21.416 adult respondents who completed the mental health assessment.

Variable Measurement

The outcome variable in this study was depressive symptom severity (dep_level) derived from the mental health assessment available in IFLS-5. Based on the total depression score, respondents were classified into three ordered categories representing increasing levels of depressive symptoms, namely low, moderate, and high. These categories were treated as an ordinal response variable because they reflect a natural progression in symptom severity rather than independent outcome categories.
Three psychosocial variables were included as predictor variables.
Educational attainment was categorized into four levels:

- Primary school or below (reference category)
- Junior high school
- Senior high school
- Higher education

Marital status was classified into two categories:

- Unmarried (including never married, divorced, and widowed)
- Married

Emotional problems were measured as a dichotomous variable based on respondents' self-reported emotional condition in IFLS-5 and coded as:

- 0 = No emotional problems
- 1 = Emotional problems

The presence of emotional problems was hypothesized to increase the likelihood of experiencing more severe depressive symptoms.

Statistical Analytic

1. Bivariate Analysis
   - The association between each explanatory variable and depressive symptom severity was initially evaluated using Pearson's Chi-square test. The Chi-square statistic is given by

$$\chi^2 = \sum_{i=1}^{r}\sum_{j=1}^{c}\frac{\left(O_{ij} - E_{ij}\right)^2}{E_{ij}}$$

     where O_{ij} and E_{ij} denote the observed and expected frequencies, respectively.

   - To complement the significance test, the strength of association was assessed using Cramer's V,

$$V = \sqrt{\frac{\chi^2}{n(k-1)}},$$

     where n is the total sample size and k is the smaller number of rows or columns in the contingency table.

2. Ordinal Logistic Regression
   Variables identified from theoretical considerations and previous studies were simultaneously entered into an ordinal logistic regression model to determine factors associated with depressive symptom severity. Because the response variable consisted of three naturally ordered categories (low, moderate, and high), the proportional odds model was employed. The cumulative logit model is expressed as

$$\log\left(\frac{P(Y \leq j)}{P(Y > j)}\right) = \alpha_j - (\beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3), j = 1,2.$$

   where Y denotes depressive symptom severity, α_j represents the intercept for the j-th cumulative logit, X_1 denotes educational attainment, X_2 marital status, X_3 emotional problems, and β represents the corresponding regression coefficients.

3. Model Evaluation
   The goodness-of-fit of the ordinal logistic regression model was evaluated using the Likelihood Ratio Test (LRT) by comparing the fitted model with the null model. A statistically significant result ($p < 0.05$) indicated that the explanatory variables collectively improved the model compared with the intercept-only model.

Results and Discussion

1. Respondent Characteristics

Table 1 presents the distribution of respondents according to depressive symptom severity and psychosocial characteristics. A total of 21,416 respondents were included in the final analysis after the data cleaning process. Overall, the majority of respondents were classified as having low depressive symptom severity, while smaller proportions were categorized as having moderate and high depressive symptom severity.

Regarding educational attainment, respondents with primary school or below constituted the largest proportion, followed by those with junior high school, senior high school, and higher education. Most respondents were married, whereas a smaller proportion were unmarried. In addition, the majority of respondents reported no emotional problems, while only a limited proportion indicated the presence of emotional problems.

Although descriptive statistics provide an overview of respondent characteristics, they do not indicate whether psychosocial factors are significantly associated with depressive symptom severity. Therefore, bivariate analyses were subsequently conducted to examine these associations.

Table 1. Characteristics of the Study Participants ($N = 24.416$)

Characteristic	Category	n	%
Depressive symptom severity	Low	8,516	39.76
	Moderate	6,477	30.25
	High	6,423	29.99
Educational attainment	Primary school (SD)	5,151	24.05
	Junior high school (SMP)	4,560	21.29
	Senior high school (SMA)	8,315	38.83
	Higher education	3,390	15.83
Marital status	Unmarried	6,197	28.94

	Married	15,219	71.06
Emotional problems	No	21,385	99.86
	Yes	31	0.14

2. Bivariate Analysis

To provide a preliminary assessment of the relationships between psychosocial factors and depressive symptom severity, bivariate analyses were conducted using Pearson's Chi-square test. In addition to statistical significance, Cramer's V was calculated to evaluate the strength of the association between variables. The results of the bivariate analyses are presented in Table 2.

Table 2. Association between psychosocial factors and depressive symptom severity

Variable	χ^2	df	p-value	Cramer's V	Interpretation
Educational attainment	14.574	6	0.024	0.018	Negligible
Marital status	348.630	2	<0.001	0.128	Weak
Emotional problems	6.797	2	0.033	0.018	Negligible

Pearson's Chi-square test demonstrated that all psychosocial variables were significantly associated with depressive symptom severity ($p < 0.05$). However, the corresponding effect sizes indicated that the observed associations were generally small. Educational attainment and emotional problems exhibited negligible associations with depressive symptom severity, whereas marital status showed a weak association and represented the strongest bivariate relationship among the variables examined. Since all variables were statistically significant and supported by theoretical considerations, they were retained for inclusion in the subsequent ordinal logistic regression analysis.

3. Ordinal Logistic Regression

To identify psychosocial factors independently associated with depressive symptom severity, all variables were simultaneously entered into an ordinal logistic regression model. This multivariable analysis was performed to estimate the adjusted effect of each explanatory variable while controlling for the influence of the other variables included in the model. The regression coefficients, odds ratios (OR), 95% confidence intervals (95% CI), and corresponding p-values are presented in Table 3.

Table 3. Results of the Ordinal Logistic Regression Analysis

Predictor		β	SE	OR	95% CI	p-value
Educational Attainment	Junior high school	-0.067	0.038	0.935	0.868–1.007	0.076
	Senior high school	-0.091	0.034	0.913	0.854–0.976	0.007*
	Higher education	-0.148	0.042	0.862	0.794–0.936	<0.001***
Marital Status	Married	-0.532	0.029	0.588	0.555–0.622	<0.001***
Emotional Problem	Yes	0.934	0.335	2.546	1.321–4.908	0.005**

Table 3 presents the results of the ordinal logistic regression analysis examining the associations between psychosocial factors and depressive symptom severity after adjustment for other explanatory

variables. Overall, the findings indicate that educational attainment, marital status, and emotional problems were important predictors of depressive symptom severity among Indonesian adults, although the magnitude and direction of their effects differed across variables.

Regarding educational attainment, respondents who had completed senior high school were significantly less likely to experience higher levels of depressive symptom severity than those with primary school education or below (OR = 0.913, 95% CI: 0.854–0.976, p = 0.007). Similarly, respondents with higher education exhibited an even lower likelihood of belonging to more severe depressive symptom categories (OR = 0.862, 95% CI: 0.794–0.936, p < 0.001). These findings indicate a gradient effect, whereby increasing educational attainment was associated with progressively lower odds of severe depressive symptoms. In contrast, respondents with junior high school education did not differ significantly from the reference group (p = 0.076), suggesting that this level of education alone may not provide sufficient protection against increasing depression severity.

A significant association was also observed for marital status. Compared with unmarried respondents, those who were married had 41.2% lower odds of belonging to a higher depressive symptom category (OR = 0.588, 95% CI: 0.555–0.622, p < 0.001). This result indicates that marital status contributed substantially to explaining variations in depressive symptom severity and was the strongest protective factor identified in the present study.

In contrast, respondents who reported emotional problems had 2.55 times greater odds of experiencing more severe depressive symptoms than those without emotional problems (OR = 2.546, 95% CI: 1.321–4.908, p = 0.005). Among all predictors included in the model, emotional problems exhibited the largest odds ratio, indicating that this variable had the strongest positive association with increasing depressive symptom severity. These findings suggest that emotional problems remain an important psychosocial indicator for identifying individuals at greater risk of severe depressive symptoms.

Overall, the ordinal logistic regression model demonstrated that educational attainment, marital status, and emotional problems independently explained variations in depressive symptom severity. Higher educational attainment and being married were associated with lower probabilities of experiencing more severe depressive symptoms, whereas the presence of emotional problems substantially increased the likelihood of belonging to higher depression severity categories.

Conclusion

This study investigated the associations between educational attainment, marital status, and emotional problems with depressive symptom severity among Indonesian adults using nationally representative IFLS-5 data. The findings demonstrated that all three psychosocial factors were significantly associated with depressive symptom severity. Higher educational attainment and being married were associated with lower odds of experiencing more severe depressive symptoms, whereas emotional problems substantially increased the likelihood of belonging to higher depression severity categories. These findings emphasize that psychosocial characteristics remain important determinants of depressive symptom severity within the Indonesian adult population.

This study contributes to the existing literature by simultaneously examining educational attainment, marital status, and emotional problems using a nationally representative dataset while treating depressive symptom severity as an ordinal outcome. Unlike many previous studies that analyzed depression as a dichotomous variable, the application of ordinal logistic regression preserved the ordered structure of depressive symptom severity, allowing a more comprehensive assessment of psychosocial factors across different severity levels. These findings provide empirical evidence to support targeted mental health promotion, counseling services, and early screening strategies for vulnerable populations. Future research should incorporate additional psychosocial, behavioral, and

clinical factors and employ longitudinal data to further investigate changes in depressive symptom severity over time.

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