

THE EFFECT OF SOCIAL AND ECONOMIC VARIABLES ON BEHAVIORAL AND EMOTIONAL DISORDERS

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ABSTRACT

This study investigates the impact of socioeconomic factors on individuals' behavioral and emotional health using data from the Indonesian National Socioeconomic Survey (SUSENAS). Employing a Multinomial Logistic Regression approach, the analysis reveals that marital status significantly influences mental well-being, with married individuals generally exhibiting a lower probability of experiencing behavioral and emotional problems compared to those who are unmarried or divorced. Economic indicators such as per capita expenditure and educational attainment are found to have a negative and significant association with the likelihood of such disorders, suggesting that higher socioeconomic status contributes to better psychological outcomes. Conversely, residing in urban areas is positively associated with increased risk, possibly due to environmental stressors such as pollution, social pressure, and population density. The study acknowledges limitations related to the exclusion of psychological and environmental factors that may also affect mental health outcomes. These findings underscore the importance of integrating socioeconomic dimensions into mental health policy frameworks and highlight the need for targeted, community-based preventive interventions, particularly for urban populations and individuals without spousal support.

Kata Kunci: Social, Economic, Behavioral and Emotional Disorders

1. INTRODUCTION

In recent years, mental health issues—particularly behavioral and emotional disorders—have shown an upward trend. Mental health disorders such as depression, anxiety, and prolonged stress have increasingly emerged as pressing concerns among the Indonesian population, particularly among younger generations. These mental health challenges significantly disrupt individuals' daily functioning, highlighting the urgent need for comprehensive attention and intervention. Mental health is recognized as a critical component of public health development due to its direct impact on individual well-being, economic productivity, and overall quality of life.

According to the World Health Organization (WHO), mental disorders are characterized by disturbances in an individual's cognitive, emotional, or behavioral functioning. The determinants of mental health disorders are complex and multifaceted, involving interpersonal dynamics, familial and community influences, and broader contextual factors that may vary across time and location. Ingram and Luxton (2005) suggest that mental health conditions result from the interaction between human vulnerabilities and stress induced by life events or chronic stressors. These determinants may originate from internal factors such as psychological or biological conditions, familial

and community-level influences, as well as structural factors including economic conditions, environmental quality, and gender equality

Socioeconomic conditions have also been identified as significant determinants of psychological disorders (Lund et al., 2010). Factors such as household income, educational attainment, employment status, and living conditions are strongly associated with the prevalence of mental health issues, particularly depression and anxiety (Lund et al., 2010; Patel et al., 2018). Moreover, socioeconomic inequality contributes to long-term psychological distress and exacerbates mental health outcomes across generations (Ridley et al., 2020). Further evidence is provided by Singh and Gupta (2023), who argue that individuals in conflict-ridden marriages are at a heightened risk of experiencing depression and other mental health disorders. Marital conflict, especially among young adults, has been shown to increase psychological stress and deteriorate emotional well-being. In addition to marital status, the school environment plays a critical role in shaping mental health outcomes. Research by Kosik et al. (2018) indicates that school attendance may reduce the risk of future mental disorders. However, schools may also serve as sources of psychological stress, particularly at higher levels of education such as secondary school and university, where academic pressure tends to intensify (Ettman et al., 2020).

Based on the aforementioned studies, it can be inferred that the relationship between socioeconomic factors and mental disorders is not always linear. Education, which is typically regarded as a crucial investment in human development and well-being, may paradoxically contribute to the deterioration of an individual's mental health. Similarly, marriage—commonly perceived as a sacred institution aimed at fostering happiness—can, under certain circumstances, lead to heightened levels of stress and depression.

This suggests that both marital status and educational attainment may play a significant role in shaping an individual's mental health outcomes. Additionally, several studies have highlighted the influence of gender differences on mental and psychological conditions, often driven by social pressures and the burden of multiple roles, particularly among women. Moreover, residential location may also exert an indirect influence on mental health. Individuals residing in urban areas tend to experience greater psychological strain due to intense competition and the high cost of living, resulting in a higher prevalence of mental health issues compared to those living in rural regions (Peen et al., 2010). While various related studies have been conducted, this research contributes to the literature by examining the effects of socioeconomic and demographic variables on behavioral and emotional disorders. By utilizing a categorical outcome framework, this study seeks to quantify and better capture the nuanced influences of these factors on mental health conditions.

Therefore, this study aims to analyze how socioeconomic indicators—such as educational attainment, marital status, gender, household expenditure levels, and residential location—affect individuals' mental health conditions. A deeper understanding of the interrelationships among these variables is expected to provide valuable insights for the formulation of mental health policies in Indonesia, particularly in identifying vulnerable groups and designing effective, evidence-based interventions

2. METHODOLOGY

In this study, we utilize secondary data obtained from the National Socioeconomic Survey (SUSENAS) to examine the impact of socioeconomic factors on mental health outcomes. The data are sourced from the Core Welfare Module (KOR) and the Consumption and Expenditure Module (KP), published by Statistics Indonesia (Badan Pusat Statistik). These modules provide comprehensive information on socioeconomic characteristics, ranging from the individual to the household level. SUSENAS was selected

due to its national coverage and its capacity to represent the socioeconomic conditions and overall welfare of the Indonesian population. Sampling from the SUSENAS dataset was conducted by extracting individual-level data. This implies that all variables used in the analysis—ranging from behavioral and emotional disorder status (*Mental*), expenditure (*Spending*), years of education (*School*), Marital Status (*Married*), to gender—are structured as individual cross-sectional observations. The dataset comprises approximately 200,000 individuals sampled across all provinces in Indonesia, representing a nationally representative cross-section of the population. This extensive coverage allows for a comprehensive examination of individual-level socioeconomic and health-related characteristics across diverse demographic and regional contexts.

The status of individual mental health is represented as a non-ordinal categorical dependent variable, consisting of four categories: no disorder, mild disorder, frequent disorder, and persistent disorder. Given the categorical nature of this variable, which is conceptually similar to a binary response structure, this study employs a Multinomial Logit estimation approach. This model allows for the estimation of the probability that an individual falls into one of the mental health status categories based on variations in socioeconomic characteristics.

The estimation begins with a baseline regression framework, namely the Multiple Linear Regression (MLR) model. The general form of the model can be specified as follows:

$$\begin{aligned} \text{Mental} = & \beta_0 + \beta_1 \text{married} + \beta_2 \text{School} + \beta_3 \text{female} \\ & + \beta_4 \text{urban} + \beta_5 \ln \text{Spending} + u \end{aligned} \quad (1)$$

The regression model includes *Mental* as the dependent variable, which represents an individual's mental health status, encompassing both behavioral and emotional disorders. This variable is categorical and non-ordinal, defined as follows: 0 = no disorder, 1 = mild disorder, 2 = frequent disorder, and 3 = persistent disorder. The key explanatory variable is *Married*, a non-ordinal categorical variable indicating marital status: 0 = never married, 1 = currently married, 2 = divorced, and 3 = widowed (divorced because death). This variable is included based on the premise that marital status may influence an individual's risk of experiencing mental health issues (Morasae et al., 2012). The model also includes *Schooling* as a proxy for the number of years of formal education completed by the individual. Previous studies suggest that longer durations of education may contribute to increased emotional or psychological stress (Ettman et al., 2020). Several control variables are incorporated into the model. These include *Female* (1 = female, 0 = male), *Urban* (1 = resides in an urban area, 0 = otherwise), and *lnSpending*, which represents the natural logarithm of average individual household expenditure. These variables are included to account for differences in mental health outcomes across gender, geographic location, and economic status (Nagasu et al., 2019).

To obtain estimates of the parameter vector β , the Ordinary Least Squares (OLS) method is commonly employed. OLS is a widely used estimation technique in regression analysis, where the goal is to minimize the sum of squared residuals, ideally reducing it to a value close to zero or zero itself (Greene, 2012; Gujarati & Porter, 2010; Turner, 2021; Wooldridge, 2016). The mathematical formulation of the OLS estimator is given by

$$\hat{\beta}_1 = \frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{\sum(x_i - \bar{x})^2} \quad (2)$$

$$\hat{\beta}_0 = \bar{y} - \hat{\beta}_1 \bar{x} \quad (3)$$

In this context, $\hat{\beta}_1$ represents the estimated coefficient for the independent variable with respect to the dependent variable, while $\hat{\beta}_0$ denotes the intercept term in the multiple linear regression equation. Within the OLS framework, the estimated coefficients serve as predictors of the change in the dependent variable y resulting from a one-unit change in the independent variable x .

However, it is important to note that OLS provides the best linear unbiased estimators (BLUE) only under the fulfillment of the Classical Linear Regression Model (CLRM) assumptions, as derived from the Gauss–Markov theorem (Wooldridge, 2016). Furthermore, when the dependent variable is binary or categorical in nature, OLS becomes inappropriate due to the violation of key assumptions such as linearity, homoscedasticity, and normality of errors.

As previously mentioned, since the dependent variable in this study is a non-ordinal categorical variable, applying OLS would not yield reliable or efficient estimates. To obtain more accurate and comprehensive results, this study adopts the Multinomial Logit (MNL) estimation approach. According to (Greene, 2012) and (Baum, 2006), the MNL model can be expressed as follows:

$$Prob(w_i) = \frac{\exp(w_i \beta_j)}{\sum_{j=0}^n \exp(w_i \beta_j)}, \text{ for } j = 1, 2, \dots, n \quad (4)$$

The Multinomial Logit (MNL) method estimates the probability of an individual falling into a particular categorical outcome as a function of one or more explanatory variables. Unlike the Ordinary Least Squares (OLS) method, which provides a direct and continuous estimate of changes in the dependent variable resulting from changes in the independent variables, the MNL model does not yield precise changes in outcome values. Instead, it produces probability estimates indicating the likelihood of an observation belonging to each possible outcome category, conditional on the values of the independent variables.

3. RESULTS AND ANALYSIS

As an initial step, we estimated a Linear Probability Model (LPM) or Multiple Linear Regression to examine the direction of the dependent variable's response to changes in the independent variables. The results presented in Table 1 indicate that key socioeconomic factors—such as marital status and educational attainment—exert a statistically significant influence on behavioral and emotional disorder status. In addition, other covariates, including individual expenditure, residential location, and gender, also appear to affect the likelihood of experiencing behavioral and emotional disorders. Multiple Linear Regression (MLR)

The results show that marital status and residential location exhibit positive and statistically significant coefficients, indicating a higher likelihood of experiencing behavioral and emotional disorders among married individuals and those living in urban

areas. Conversely, individual expenditure, years of schooling, and gender (female) are associated with negative and statistically significant coefficients, suggesting a reduced likelihood of experiencing such disorders.

Table 1. MLR

	LPM (Mental Health)	LPM with Robust SE (Mental Health)
Married History (0 = no married (base); 1= married; 2= Divorced; 3 = Divorced because Death)	.0051 (.0003)***	.0051 (.0004)***
Spending (log form)	-.0054 (.0003)***	-.0054 (.0004)***
Urban (1 = urban; 0 = other)	.0040 (.0005)***	.0040 (.00053)***
Years of Schooling (year)	-.0006 (.0000)***	-.0006 (.0000)***
Female (1 = female; 0 = otherwise)	-.0032 (.0005)**	-.0032 (.0004)**
Cons_	.095 (.005)	.095 (.0007)
F	143.3	100.55
Prob(F)	0.0000	0.0000
Obs	289,153	289,153

However, due to inherent limitations of the Linear Probability Model (LPM)—such as the possibility of predicted probabilities falling outside the [0,1] interval and the violation of key OLS assumptions—its estimates cannot be interpreted directly in terms of probabilities. To address these issues and obtain more accurate estimates of the probability of categorical outcomes given changes in the independent variables, we proceed with a Multinomial Logit (MNL) estimation. In the MNL framework, the analysis is divided into three parts, each estimating the probability of an individual falling into a specific mental health disorder category compared to the base outcome. Specifically, we estimate the conditional probabilities of $Pr Pr(w) : \text{Mild disorder}$, relative to the base outcome, $Pr Pr(w) : \text{Frequent disorder}$, and $Pr Pr(w) \text{ Persistent disorder}$, relative to the base outcome (where the base outcome $Y = 0$ represents individuals who do **not** experience behavioral and emotional disorders).

Multinomial Logit Regression

Table 2. Multinomial Logit Regression

	1 (Mild Disturbance)	2 (Frequent Disturbance)
Married History (0 = Base)		
1 = Married	.1338 (.0617)**	-1.067 (.113)***
2 = Divorced	1.307 (.114)***	.948 (.180)***
3 = Divorced because Death	1.631 (.0745)***	.397 (.147)***
Spending (log form)	-.362	-.481

	(.039)***	(.079)***
Urban (1 = urban; 0 = other)	.367	.211
	(.351)***	(.099)**
Years of Schooling (year)	-.067	-.092
	(.008)***	(.0174)***
Female (1 = female; 0 = otherwise)	-.351	-.374
	(.050)***	(.098)**
Cons_	.543	2.012
	(.588)	(1.181)
LR chi2		1418.26
Prob > (chi2)		0.0000
Obs		289,153
Pseudo R		0.0416

(Severe Disturbance)

Married History (0 = Base)	
1 = Married	-1.218
	(.170)***
2 = Divorced	.1848
	(.337)
3 = Divorced because Death	-.1972
	(.255)
Spending (log form)	-1.000
	(.131)***
Urban (1 = urban; 0 = other)	.123
	(.152)
Years of Schooling (year)	-.0381
	(.025)
Female (1 = female; 0 = otherwise)	-.4036
	(.154)***
Cons_	8.65
	(1.93)
LR chi2	1418.26
Prob > (chi2)	0.0000
Obs	289,153
Pseudo R	0.0416

In the first outcome category, where the probability of experiencing mild behavioral and emotional disorders is compared to having no disorder (base outcome), marital status shows a consistently positive association. The coefficients for 1 = *Married*, 2 = *Divorced*, and 3 = *Widowed* (divorced due to death) are all positive (with odds ratio per indicator: OR 1 \approx 1.14; OR 2 \approx 3.66; OR 3 \approx 5.10), indicating that individuals who are currently married or have previously been divorced or widowed have a higher probability of experiencing mild emotional disorders. Other variables such as expenditure (with odds ratio: OR \approx 0.69), gender (with odds ratio: OR \approx 0.70), and years of schooling (with odds ratio: OR \approx 0.93) exhibit negative coefficients, suggesting that increased spending, longer educational attainment, and being female are associated with a lower probability of experiencing mild behavioral and emotional disorders. In particular, women appear to be less likely than men to experience mild mental health issues.

In the second outcome category, which refers to moderate levels of behavioral and emotional disorders, the results are generally consistent with those observed in the first category, with one notable exception. In this case, being married (coefficient for 1 = *married* is -1.067 with odds ratio: OR \approx 0.344) is associated with a *lower* probability of

experiencing moderate mental health issues, suggesting a potentially protective effect of marriage at higher levels of emotional distress. In the third outcome category, referring to severe behavioral and emotional disorders, the findings show that individuals who are married and those with higher levels of expenditure are less likely to experience severe mental health problems. These results imply that greater socioeconomic well-being—as proxied by household spending—and marital stability may serve as protective factors against severe emotional and behavioral disorders. By contrast, other variables such as years of schooling and urban residence do not exhibit statistically significant effects on the probability of severe mental health conditions

Analysis

The findings summarized above suggest that marital status exhibits both positive and negative associations with behavioral and emotional disorders. Individuals who are married—particularly those who marry at an early age—may lack the emotional maturity necessary to sustain a harmonious household, which in turn may lead to increased psychological distress (Roswendi et al., 2025). However, in some cases, as reflected in Tables 2 and 3, being married appears to reduce the likelihood of experiencing behavioral and emotional disorders. This may be attributed to the emotional support and companionship provided by a spouse, which enhances overall mental well-being and happiness, in contrast to individuals who are divorced or widowed (Soulsby & Bennett, 2015; Uecker, 2012). Further evidence suggests that individuals who are married exhibit a significantly lower likelihood of experiencing mental health disorders—particularly depression and anxiety—compared to their unmarried counterparts. This protective association underscores the potential role of marital relationships in promoting psychological well-being (Scott et al., 2011). A similar pattern can be observed in relation to residential location. Individuals residing in urban areas are likely to encounter environmental and social stressors that differ significantly from those in rural settings. The urban context—characterized by fast-paced lifestyles, social competition, air pollution, and population density—may increase emotional vulnerability and exacerbate mental health conditions (Frey et al., 2024; Xu et al., 2023).

Additionally, individual expenditure and years of schooling are negatively associated with behavioral and emotional disorders. Higher levels of spending are often linked to elevated standards of living, while extended educational attainment is frequently associated with increased social status. Both indicators serve as proxies for socioeconomic well-being, which may buffer individuals from psychological stress and contribute to more stable mental health outcomes (Hermawan, 2023). Moreover, further studies have confirmed that higher levels of education are associated with a reduced risk of depression. In addition, higher income levels have been shown to significantly lower the risk of various mental health disorders, particularly depression and generalized anxiety. These findings suggest that both educational attainment and economic well-being may serve as protective factors against poor mental health outcomes, potentially through mechanisms related to improved access to resources, greater psychological resilience, and enhanced social standing (Baranova et al., 2024; Jareebi & Alqassim, 2024).

Finally, Table 2 highlights that gender plays a significant role, with males exhibiting a higher probability of experiencing behavioral and emotional disorders compared to females. This finding aligns with previous studies indicating that men are more prone to externalizing symptoms—such as anger, aggression, and oppositional behavior—when responding to emotional distress. In contrast, women are more likely to internalize emotional problems, often expressing them through crying or seeking social support (Adhikari et al., 2023; Ilomäki et al., 2012; Sun et al., 2025).

4. CONCLUSION

This study aims to examine how socioeconomic factors affect behavioral and emotional health conditions. To capture the effect of these factors, we used the Multinomial Logistic Regression (MNL) approach. Using data from the National Socioeconomic Survey (SUSENAS), our findings indicate that marital status has varying probabilities for different outcomes. In general, individuals who are married are more likely to avoid behavioral and emotional disorders compared to those who are unmarried. Economic factors such as per capita expenditure also show a negative effect on behavioral and emotional issues, while other variables such as years of schooling and gender also have a significant and negative effect on these health conditions. An additional variable, place of residence, shows a positive association with behavioral and emotional disorders—meaning that individuals living in urban areas are more likely to experience such disorders compared to those in rural areas.

Of course, this study has several limitations, such as the exclusion of factors that theoretically and practically influence behavioral and emotional health, including individual environmental conditions, past experiences, and other internal psychological factors. These omitted variables may play a significant role in shaping an individual's mental health status, and their absence from the analysis could potentially bias the estimated relationships or limit the comprehensiveness of the findings. Moreover, more advanced analytical methods might provide a better explanation of how these mental health conditions develop compared to the MNL regression method.

The findings of this study carry important implications for mental health policymaking, particularly in identifying vulnerable groups based on their socioeconomic characteristics. Preventive and community-based interventions, especially in urban areas and among unmarried individuals, are therefore highly relevant.

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