



Determinants of Depressive Symptoms Among University Students at the State Islamic University of North Sumatra, Medan, Tuntungan Campus IV

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Abstract. Mental health disorders, particularly depression, pose a serious challenge for university students during the transition phase of emerging adulthood. This study aimed to analyze the determinants of depressive symptoms among students at the Universitas Islam Negeri Sumatera Utara (UINSU), Tuntungan Campus IV. A quantitative cross-sectional design was used with a sample of 403 active students from the 2nd to the 8th semester, selected through proportionate stratified random sampling. Data were analyzed using Spearman rank correlation, the Mann-Whitney test, the Kruskal-Wallis test, and multiple linear regression. The results showed that the prevalence of “extremely severe” depressive symptoms reached 61.0%. Bivariately, depressive symptoms were significantly associated with socio-demographic characteristics (age, semester, gender, faculty, employment status), lifestyle factors (sleep duration, smoking habit), and psychosocial factors (psychological distress, academic stress, peer support, and family support). Simultaneously, the model explained 49.0% of the variance in depression scores (Adjusted $R^2 = 0.49$, $p = 0.000$). Multivariate analysis identified psychological distress ($\beta = 0.603$) as the dominant determinant, followed by family support as the main protective factor ($\beta = -0.202$), academic stress ($\beta = 0.101$), spirituality ($\beta = 0.089$), and daily sleep duration ($\beta = -0.079$). In conclusion, student depression is dominantly driven by the accumulation of psychological distress and academic pressure combined with insufficient sleep, while family support serves as the main protector and increased spirituality functions as a coping mechanism. Preventive measures should include accessible campus counseling services, strengthening family support, facilitating religious activities, and educating students on healthy sleep management.

Keywords: Depression; Family Support; Psychological Distress; Spirituality; Undergraduate Students.

1. INTRODUCTION

Mental health problems, particularly depression, have become a major concern in global public health (Astuti, 2024). The World Health Organization (2025) reported that the number of people affected by mental disorders is estimated to have surpassed one billion, with the majority still lacking access to adequate services (Deviany, n.d.). Approximately 300 million people worldwide live with depression, making it one of the leading causes of disability globally amid the epidemiological transition toward non-communicable diseases (Cuijpers, 2025; Siswati et al., 2022). In Southeast Asia, the disease burden attributable to mental disorders has exceeded 10% of total Disability-Adjusted Life Years, with an eightfold higher risk of suicidal ideation among adolescents experiencing depressive symptoms, further exacerbated by financial pressure, the psychological impact of the post-pandemic period, stigma (Puyat et al., 2025), and limited access to psychiatric services across countries (Zubair et al., 2025).

In Indonesia, the large population size (approximately 270 million people) combined with limited mental health facilities has resulted in a substantial cumulative disease burden (Pandeglang, 2024; Gunawan et al., 2022). The prevalence of emotional mental disorders rose

from 6.0% (2013 Basic Health Research/Riskesdas) to more than 12 million depression cases in the 2018 Riskesdas (Purnamasari & Fitri, 2023), and the 2023 Indonesia Health Survey (SKI) recorded 630,827 individuals affected by depression, revealing clear inter-provincial disparities; North Sumatra has consistently ranked among the 5th to 7th provinces with the highest depression burden nationally (Agustin et al., 2025; Ministry of Health of the Republic of Indonesia, 2024).

The 15–24 age group is known to be the most vulnerable to depression (Azima et al., 2023), as academic pressure, career prospects, and the influence of social media interact with unhealthy lifestyle patterns to produce clinical manifestations such as prolonged sadness, anhedonia, and sleep disturbances (Putri et al., 2024; Zuhriyah, 2025). This phenomenon is reflected at the State Islamic University of North Sumatra (UINSU), Tuntungan Campus IV, where a preliminary survey of 44 students found that 45.4% reported depressive symptoms, with chronic fatigue, difficulty concentrating, and sleep disturbances as the main complaints, linked to academic burden, financial worries, limited social support, and the dual demands of academic and religious obligations characteristic of an Islamic campus (Maulana et al., 2025).

Previous studies have generally examined determinants of depression separately and have rarely integrated a comprehensive biopsychosocial-spiritual approach, particularly among students facing dual academic and religious demands (Fahrudin, 2022). This study offers novelty by simultaneously analyzing socio-demographic factors, lifestyle, social support, academic stress, spirituality, and psychological distress in relation to depressive symptoms among UINSU students, while also determining the most dominant factor acting as either a risk or protective factor when all variables are analyzed simultaneously. In general, this study aims to analyze the relationship between these various determinant factors and depressive symptoms among UINSU students at Medan Tuntungan Campus IV.

2. RESEARCH METHODS

This quantitative study used a cross-sectional design and was conducted at the State Islamic University of North Sumatra, Medan, Tuntungan Campus IV, from January to July 2026. The study population comprised 13,287 active undergraduate students (semesters 2–8) across four faculties: the Faculty of Islamic Economics and Business, the Faculty of Social Sciences, the Faculty of Science and Technology, and the Faculty of Public Health (FEBI, FIS, FST, and FKM). Using the Lemeshow formula (Firmansyah & Dede, 2022) and a proportionate stratified random sampling technique (Ramadani et al., 2025; Amin & Garancang, 2023), a final sample of 403 respondents was obtained. The inclusion criteria consisted of active

students willing to participate as respondents (informed consent), while the exclusion criteria included students on academic leave, those who provided incomplete data, or those currently undergoing active psychiatric treatment.

Data were collected through an electronic questionnaire using validated standard instruments: the Depression Anxiety Stress Scales-21 (DASS-21) to measure depressive symptoms (Lovibond & Lovibond, 1995; Hakim & Aristawati, 2023), the Perceived Stress Scale (PSS-10) for psychological distress (Cohen et al., 1983), the Multidimensional Scale of Perceived Social Support (MSPSS) for family and peer support (Zimet et al., 1988), the Educational Stress Scale for Adolescents (ESSA) for academic stress (Sun et al., 2011), and the Daily Spiritual Experience Scale (DSES) for spirituality (Underwood & Teresi, 2002). Sleep duration was categorized based on the recommendations of the American Academy of Sleep Medicine (Watson et al., 2015).

Data analysis was conducted in stages, comprising univariate analysis, bivariate analysis (Spearman rank correlation, Mann-Whitney U, and Kruskal-Wallis tests), and multivariate analysis using multiple linear regression at a significance level of $\alpha = 0.05$. Prior to hypothesis testing, the regression model was confirmed to meet the classical assumption tests of parameter adequacy (normality, heteroscedasticity, and multicollinearity). This study complied with research ethics principles, including informed consent and the assurance of respondent data confidentiality.

3. RESULTS AND DISCUSSION

The study at the State Islamic University of North Sumatra, Medan, Tuntungan Campus IV showed that the majority of respondents were aged 19–20 years (39.2%), female (56.8%), and came from the Faculty of Science and Technology (35.7%) and the Faculty of Islamic Economics and Business (34.0%). Most respondents (85.4%) belonged to the lower-to-middle tuition fee (UKT (*Uang Kuliah Tunggal*, single tuition fee)) group. Nevertheless, 78.4% of students felt that their living allowance was sufficient, with daily eating patterns dominated by a frequency of twice a day (49.4%) and three times a day (44.9%). A notable finding was the high rest deficit, with 69.2% of students having poor sleep duration (<7 hours/day) and an average of only 6.5 hours per day. In contrast, risk behaviors such as alcohol and drug use were recorded at very low levels (<2% each). All respondents (100%) reported no family history of mental disorders, likely influenced by sociocultural stigma (under-diagnosis). Due to the homogeneous nature of responses on this variable, family mental health history was excluded from further testing (bivariate/multivariate) and is not presented in Table 2 or Table 3.

Distribution of Psychosocial Variables and Prevalence of Depressive Symptoms

Table 1. Distribution of Psychosocial Variable Categories and Respondents' Depressive Symptoms.

Variable	Category	<i>n</i>	%	Mean
Family support (MSPSS)	Low	57	14.1	18.83
	Moderate	179	44.4	
	High	167	41.4	
Peer support (MSPSS)	Low	191	47.4	35.07
	Moderate	212	52.6	
	High	0	0.0	
Academic stress (ESSA)	Low	53	13.2	50.81
	Moderate	248	61.5	
	High	102	25.3	
Spirituality (DSES)	Low	49	12.2	60.90
	Moderate	199	49.4	
	High	155	38.5	
Psychological distress (PSS-10)	Mild	66	16.4	18.67
	Moderate	292	72.5	
	Severe	45	11.2	
Depressive symptoms (DASS-21)	Normal	39	9.7	35.41
	Mild	26	6.5	
	Moderate	55	13.6	
	Severe	37	9.2	
	Extremely Severe	246	61.0	

Source: Primary data, 2026.

Based on Table 1, the descriptive analysis using the DASS-21 showed that 61.0% of UINSU Medan Tuntungan Campus IV students were identified as experiencing depressive symptoms in the “extremely severe” category. This figure provides empirical evidence of the high psychological vulnerability of individuals during the emerging adulthood transition phase, likely influenced by the timing of data collection, which coincided with a critical academic period such as exams, accumulating assignments, and thesis preparation. The most commonly reported complaints were loss of energy amid anxiety (31.5%), feelings of hopelessness about the future (28.6%), profound sadness (28.1%), and anhedonia or loss of interest (25.1%), consistently indicating that depressive symptoms among UINSU students are closely tied to emotional exhaustion and loss of hope. This finding is in line with studies concluding that students are highly vulnerable to depressive symptoms characterized by loss of motivation and difficulty concentrating due to substantial academic pressure (Maulana et al., 2025). It should

be emphasized that the DASS-21 was used strictly as an initial screening tool and was not intended to replace formal clinical diagnosis (Hakim & Aristawati, 2023).

Regarding other psychosocial variables, the majority of students fell into the moderate academic stress category (61.5%) and the moderate psychological distress category (72.5%). A notable finding concerns the peer support variable, where not a single respondent (0%) fell into the high support category, indicating that peer relationships on campus tend to be superficial. In contrast, family support was more positively distributed, with the majority falling into the moderate-to-high category (85.8%), confirming that family remains the primary source of emotional support for students.

Table 2. Correlation between Independent Variables and Depressive Symptoms.

Independent Variable	<i>r</i>	<i>p</i> -value	Conclusion
Respondent's age	0.218	0.000	Significant
Current semester	0.224	0.000	Significant
UKT group (tuition fee)	0.023	0.648	Not significant
Adequacy of pocket money	0.012	0.814	Not significant
Daily eating frequency	-0.092	0.066	Not significant
Daily sleep duration	-0.137	0.006	Significant
Total cigarette consumption	0.191	0.000	Significant
Total alcohol volume	0.051	0.310	Not significant
Psychological distress (PSS-10)	0.705	0.000	Significant
Spirituality level (DSES)	-0.078	0.119	Not significant
Peer support (MSPSS)	-0.199	0.000	Significant
Family support (MSPSS)	-0.283	0.000	Significant
Academic stress (ESSA)	0.374	0.000	Significant

Source: Primary data, 2026.

Based on Table 2, the variable with the strongest positive association with depressive symptoms was psychological distress ($r = 0.705$; $p = 0.000$), followed by academic stress ($r = 0.374$; $p = 0.000$). Significant positive associations were also found for age, semester, and total cigarette consumption, while significant negative (protective) associations were found for family support, peer support, and sleep duration. The remaining five variables (UKT group, adequacy of pocket money, daily eating frequency, alcohol volume, and spirituality level) showed no statistically significant association at the bivariate stage.

The Mann-Whitney U test results showed a significant difference in depressive symptoms based on gender ($p = 0.000$), with male students recording a higher Mean Rank (239.03) than female students (173.86), as well as based on part-time employment status ($p = 0.013$), with the working group recording a higher Mean Rank (229.26) than the non-working

group (194.38). In contrast, history of drug use showed no significant difference ($p = 0.838$), although this result is less representative due to the extreme sample size imbalance (3 versus 400 respondents). The Kruskal-Wallis test further demonstrated a significant difference in depression levels based on faculty of origin ($p = 0.004$; $X^2 = 13.266$), with FEBI students (Mean Rank = 221.87) and FST students (Mean Rank = 209.35) recording the highest vulnerability, while FIS students recorded the lowest Mean Rank (167.92).

A total of 13 variables meeting the bivariate selection criteria ($p < 0.25$) were included in the multiple linear regression analysis. The classical assumption tests showed that the model residuals were normally distributed, with no heteroscedasticity and no multicollinearity (all Tolerance values > 0.10 and VIF values < 10), indicating that the regression model satisfied the Best Linear Unbiased Estimator (BLUE) criteria.

Table 3. Results of Multiple Linear Regression Analysis on Depression Scores.

Variable	B	Beta	t	p-value
Constant	24.306	-	1.384	0.167
Respondent's age	-1.450	-0.114	-1.638	0.102
Gender	-1.067	-0.025	-0.546	0.585
Faculty of origin	0.703	0.037	0.940	0.348
Current semester	0.942	0.107	1.555	0.121
Daily eating frequency	-1.825	-0.051	-1.423	0.155
Daily sleep duration (minutes)	-0.026	-0.079	-2.120	0.035*
Part-time employment status	0.155	0.003	0.078	0.938
Psychological distress (PSS-10)	2.267	0.603	13.362	0.000*
Spirituality level (DSES)	0.118	0.089	2.148	0.032*
Peer support (MSPSS)	0.146	0.077	1.518	0.130
Family support (MSPSS)	-0.703	-0.202	-3.878	0.000*
Academic stress (ESSA)	0.177	0.101	2.338	0.020*
Total cigarette consumption	0.032	0.011	0.255	0.799

Note: *significant at $p < 0.05$. Source: Primary data, 2026.

Based on Table 3, the F test (ANOVA) produced an F value of 30.689 with a significance of $p = 0.000$, so H_0 was rejected, indicating that all independent variables simultaneously had a significant effect on students' depression scores. The Adjusted R^2 value of 0.490 indicates that 49.0% of the variance in depression scores can be explained by the thirteen variables in the model, while the remaining 51.0% is explained by other factors outside this study, such as genetic, environmental, and broader economic factors.

The partial t -test identified five variables with a significant effect on depression scores: psychological distress ($\beta = 0.603$; $p = 0.000$) as the most dominant determinant, family support

($\beta = -0.202$; $p = 0.000$) as the main protective factor, academic stress ($\beta = 0.101$; $p = 0.020$), spirituality ($\beta = 0.089$; $p = 0.032$), and daily sleep duration ($\beta = -0.079$; $p = 0.035$). The other variables (age, gender, faculty, semester, eating frequency, employment status, peer support, and smoking habit) had no significant partial effect, indicating that the influence of demographic and economic identity is essentially fully mediated by the actual psychological burden personally carried by students.

Discussion

The 61.0% prevalence of “extremely severe” depressive symptoms in this study is considerably high and confirms that students constitute a vulnerable group during the emerging adulthood phase, particularly as data collection coincided with the examination period and final project preparation. Although demographic characteristics such as age ($r = 0.218$; $p = 0.000$), gender, semester ($r = 0.224$; $p = 0.000$), and faculty of origin showed significant associations at the bivariate stage, all of these variables lost their independent influence at the multivariate stage. This is consistent with the view that demographic factors function more as risk markers mediated by the actual stress burden rather than as direct causes (Wahyuni & Pratiwi, 2022). Regarding gender, male students in this population actually recorded a higher depression Mean Rank than female students, a finding that differs from some classical literature, suggesting that once accumulated stress reaches a tolerance threshold, depressive symptoms can affect individuals regardless of gender identity (Roni et al., 2024). Differences in depression levels across faculties (Kruskal-Wallis, $p = 0.004$) are likely influenced by variations in course credit load, practicum difficulty, and academic culture within each faculty (Wewo et al., 2025), while the part-time employment variable confirms that the dual demands of academics and work force students to allocate extra energy, which can chronically trigger physical and mental fatigue (Putri et al., 2026).

Within the economic factors group, neither UKT group nor adequacy of pocket money was found to be associated with depressive symptoms, given that the majority of respondents (78.4%) considered their financial condition adequate (Ningsih & Oktavia, 2024). In contrast, biological lifestyle factors showed a more complex pattern. Sleep duration proved to be a consistent protective determinant at both the bivariate ($r = -0.137$; $p = 0.006$) and multivariate stages ($\beta = -0.079$; $p = 0.035$), consistent with evidence that sleep disturbance (insomnia) is a clinical symptom accompanying depression that pathologically disrupts emotional resilience regulation (Avita et al., 2026; Dudo et al., 2022). As many as 69.2% of respondents experienced a sleep deficit, underscoring the importance of sleep management interventions as a prevention strategy. Meanwhile, smoking habit was positively correlated at the bivariate stage ($r = 0.191$;

$p = 0.000$) but was eliminated at the multivariate stage ($p = 0.799$), suggesting that this behavior is more appropriately interpreted as a maladaptive coping mechanism for temporarily diverting anxiety rather than as a root cause of depression (Rahayu & Sumarni, 2026). Alcohol consumption, drug use, and daily eating frequency were not found to be associated with depressive symptoms in this population, likely because their prevalence was very low and insufficiently varied to serve as predictors of emotional state changes (Suryani et al., 2026).

In the domain of social support, a sharp contrast was found between the roles of family and peers. Family support emerged as the most consistent primary protective factor, both at the bivariate ($r = -0.283$; $p = 0.000$) and multivariate stages ($\beta = -0.202$; $p = 0.000$), confirming the role of parents as an effective supporting system in reducing student depression rates (Mailoa et al., 2022; Najwalillah, 2023). In contrast, although peer support was negatively correlated at the bivariate stage ($r = -0.199$; $p = 0.000$), its influence disappeared at the multivariate stage ($p = 0.130$). The absence of any respondent in the “high” peer support category (0%) confirms that peer relationships on campus tend to be superficial, making them less capable of functioning as a deep psychological buffer, even though social support is generally regarded as essential in alleviating campus-related stress (Amelia et al., 2023).

Academic and psychological factors proved to be the main drivers of depressive symptoms in this study. Academic stress had a significant effect both at the bivariate ($r = 0.374$; $p = 0.000$) and multivariate stages ($\beta = 0.101$; $p = 0.020$), consistent with findings that exhaustion from completing accumulated coursework and anxiety over fear of disappointing parental expectations contribute substantially to increased depression scores (Purnamasari et al., 2024). Psychological distress (PSS-10) was recorded as the most dominant predictor in the overall model ($r = 0.705$; $\beta = 0.603$; $p = 0.000$), reinforcing the notion that the accumulation of unresolved problems gradually diminishes life motivation and leads to depressive symptoms (Usmi et al., 2025). In this study, 24.3% of respondents felt that their problems had become uncontrollably overwhelming, a condition empirically validated as triggering the high prevalence of “extremely severe” depression among the UINSU student population (Kusumawati et al., 2025; Nursadrina et al., 2025).

Another interesting finding concerns the spirituality variable, which was not significant at the bivariate stage ($p = 0.119$) but became significantly positive at the multivariate stage ($\beta = 0.089$; $p = 0.032$). This pattern should not be interpreted as spiritual activity causing depression, but rather as indicating its function as a coping mechanism: the heavier the psychological and academic burden carried by students, the greater their tendency to engage in religious activities to attain inner peace (Arrayan et al., 2026; Darmawan et al., 2025). This

response pattern is consistent with the unique characteristics of UIN students at a campus grounded in Islamic integration, where spirituality serves as an additional psychological resource amid the dual pressures of academics and religious obligations (Harits, 2026).

Islamic Integration Perspective on Mental Health

Conceptually, the five main determinants acting as triggers and protective factors for depressive symptoms in this study's multivariate analysis are closely linked to the concept of human *fitrah* (innate nature). Students experiencing an accumulation of psychological distress and academic stress are prone to falling into states of *al-hamm* (anxiety about the future) and *al-huzn* (deep sorrow) (Mikraj et al., 2026). The remedy for this condition is affirmed in Surah Ar-Ra'd, verse 28, namely the tranquility of heart attained through *dhikr* (remembrance) of Allah (Kementerian Agama RI, 2019). In line with *Tafsir Ibn Kathir* regarding inner peace through a spiritual approach, the statistical findings confirm that the level of spirituality functions as a coping mechanism when students face academic stress and daily distress (Asma & Hakim, 2026).

The principle of optimism is also emphasized in Surah Ali 'Imran, verse 139, which forbids despair, consistent with the exhortation that students should not allow mental fatigue to undermine their enthusiasm for seeking knowledge (Noqiova & Fadilah, 2026). The integration of these statistical findings with Qur'anic values formulates a holistic approach to addressing depression on an Islamic campus: mitigating distress cannot rely solely on physical management, such as improving sleep duration (fulfilling the body's rights), but must be combined with spiritual strengthening and harmonious family support. Balancing outward and inward efforts is the key to comprehensive depression prevention. These findings carry practical implications for university-level policymakers. Going forward, student mental health intervention programs should be designed to focus more on direct interventions, such as personal stress management training, family support engagement, and facilitation of spiritual activities, rather than relying solely on students' demographic or administrative background profiles.

4. CONCLUSION

The majority of students at the State Islamic University of North Sumatra, Medan, Tuntungan Campus IV were identified as experiencing depressive symptoms in the extremely severe category, with a prevalence rate reaching 61.0%. Although correlations were found for several socio-demographic factors in the initial testing, the final results demonstrate that identity background, financial factors, and risky lifestyle behaviors did not have a significant

independent effect on students' depressive symptoms. Simultaneously, 49.0% of the variance in students' depression levels can be explained by this study's model. Five main determinants were found to influence this condition: psychological distress and academic stress act as the most dominant triggers of depression. On the other hand, family support proved to be the main protective factor, supported by adequate daily sleep duration and a high level of spirituality as an essential coping mechanism in reducing depressive symptoms among students.

Recommendations

Based on the research findings, the university (UINSU Campus IV) is advised to evaluate the academic workload and provide confidential psychological counseling services integrated with the value of *Wahdatul 'Ulum*. For the Public Health Study Program, these findings can be utilized as literature or an empirical case study in mental health and epidemiology courses. Furthermore, future researchers are advised to employ qualitative methods and incorporate new variables, such as gadget addiction or parenting style, in order to explore the root causes of students' psychological problems more comprehensively.

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