

Multidimensional Determinants of Depression in University Students

Yeon Ran, Hong¹, Eunyoung, Do^{*2}

¹ professor, Dept. of Nursing, Sunchon National University, 255 Jungang-no, Jeollanam-do, 57922, Rep of KOREA

² professor, Dept. of Nursing, Kwangju Women's University, 165 Sanjung-dong, Gwangsan-gu, Gwangju, Jeollanam-do, 62396, Rep of KOREA

[¹yrhong@sunchon.ac.kr](mailto:yrhong@sunchon.ac.kr) [²eydo@kwu.ac.kr](mailto:eydo@kwu.ac.kr)

Corresponding author^{*}: Eunyoung, Do

Abstract

Purpose: This study was conducted to investigate the level of depression in Korean college students and to identify various factors influencing depressive symptoms. This study investigated the effects of perceived stress, anxiety, and social support and provided basic data for the development of effective interventions for the prevention and management of depression in college students. **Methods:** Using a structured questionnaire, we used a cross-sectional survey design. Data were collected from 206 college students who agreed to participate in the study on their own. Depression was measured using the Beck Depression Inventory (BDI), stress using the Perceived Stress Scale (PSS), anxiety using the State-Trait Anxiety Inventory (STAI), and social support using the Scale of Social Support (SSS). Descriptive statistics such as mean, standard deviation, etc., t-test, ANOVA, Pearson correlation analysis, and multiple regression analyses were performed using the SPSS 25.0 program. **Results:** The results showed that lower academic year, higher trait anxiety, increased perceived stress, and lower levels of social support significantly influenced the level of depression among students ($p < .05$). The regression model explained 48.4% of the variance in depression (Adjusted $R^2 = 0.43$, $F = 30.489$, $p < .001$).

Conclusion: The findings suggest that enhancing social support and addressing trait anxiety

and stress management are critical to reducing depression in university students. Early screening and intervention programs are especially recommended for lower-year students, who are more vulnerable to depressive symptoms.

Keywords: Depression, University students, Trait anxiety, Social support, Stress, Cross-sectional study

I. Introduction

Depression is currently one of the most serious mental health disorders globally and has a profound impact on psychological well-being [1]. It may result from various factors, including stress, anxiety, and lack of social support [2]. University students experience high levels of stress due to physical and psychological changes and the need to adapt to new environments. Such stress is often related to career decisions, academic life, family relationships, and social anxiety [3].

In particular, college students will have a variety of experiences, such as forming new social relationships and coping with academic pressures, which can increase stress and anxiety, which can increase the risk of developing depression [4]. Stress and anxiety in students can lead to poor academic performance, poor physical health, and other problems, which can increase the risk of depression [5]. Studies have also examined the relationship between social support and depression, and have shown that social support plays an important role in preventing depression [6]. Social support includes emotional, instrumental, and informational support from those around the individual, which helps to maintain emotional stability and improve problem-solving ability in stressful situations [7]. If students receive sufficient support from friends, family, and peers, they can reduce the risk of depression and better maintain psychological stability [6].

Depression tends to be highly associated with anxiety. Anxiety can strengthen the stress response, and persistent anxiety can promote depressive symptoms [8]. College students can often experience a variety of anxieties due to stress on academic achievement, comparisons with others, and uncertainty about the future [9]. These anxieties can lead to academic decline, sleep disorders, tension, reduced concentration, and interpersonal problems, which can eventually lead to physical health problems and depression over time [10]. According to the National Health Insurance Service of Korea, among the one million individuals diagnosed with depression in 2022, 185,942 were in their 20s. Compared to 2018, this represents an increase of 90.37%, making this age group the largest both in numbers and in rate of increase. It was also reported that university students in their 20s most frequently experience depressive symptoms, with suicide rates peaking at the beginning of each academic semester. A psychiatrist from Kyunghee University Hospital (former director of the National Center for Suicide Prevention) noted, "Many students report high stress levels during the adjustment period to new environments and relationships at the beginning of the semester."

The purpose of this study was to investigate the level of depression in Korean college students and to identify the influencing factors accordingly, and the ultimate goal was to obtain basic data for intervention to prevent depression in the college student group. These findings indirectly indicate the importance of depression in college students. Therefore, in order to develop effective prevention and management strategies, it is necessary to understand related factors such as the role of the ripple effect of depression, stress, anxiety, and social support. Understanding the findings can help college students improve their mental health by developing management methods tailored to their unique characteristics and situations, and setting up customized coping strategies to protect their psychological health.

II. Methods

1. Study Design

This study employed a cross-sectional survey design to examine the relationships among social support, stress, and anxiety, and to explore their effects on depression among university students through structured questionnaires..

2. Participants

Participants were college students who understood the purpose and method of the study and voluntarily agreed to participate. Data were collected through an online survey, and a total of 206 students responded. Data from all 206 participants were included in the analysis because there were no valid or incomplete responses.

3. Instruments

1) Depression

To assess depression, the Beck Depression Inventory (BDI), developed by Beck, Ward, Mock, and Erbaugh [11] and validated for Korean use by Lee and Song [12], was used. The BDI consists of 21 items that measure the emotional, cognitive, motivational, and physiological symptoms of depression. Each item is evaluated on a 4-point Likert scale, from 0 to 3. The total possible score ranges from 0 to 63, with scores of 0–9 indicating no depression, 10–15 mild depression, 16–23 moderate depression, and 24–63 severe depression. The original scale's

Cronbach's alpha ranged from .85 to .90, and the reliability coefficient in this study was .899.

2) Social Support

To measure perceived social support, the Scale of Social Support (SSS) developed by Park [13] was used. The scale consists of 25 items and measures emotional support (e.g., empathy, encouragement), informational support (e.g., problem-solving information), evaluative support (e.g., feedback), and material support (e.g., tangible aid). Each item is evaluated on a 5-point Likert scale from 1 point (not at all) to 5 points (not very much), with higher scores indicating higher social support. The original scale's Cronbach alpha was .94, and in this study it was .974.

3) Stress

Stress was measured using the Perceived Stress Scale (PSS) developed by Cohen et al. [14], which Park & Seo [15] translated and validated in Korean. This scale measures perceived stress levels in an individual's life. It consists of 10 items scored on a 5-point Likert scale (0 = never, 4 = very often). Questions 4, 5, 6, 7, and 8 are reverse-coded when measuring positive perception. Higher total scores indicate higher perceived stress. The Cronbach's alpha of the original scale ranged from .84 to .86, and was .830 in this study.

4) Anxiety

Trait Anxiety:

Trait anxiety was measured using the Trait Anxiety Subscale from the State-Trait Anxiety Inventory (STAI) developed by Spielberger, Gorsuch, and Rushen [16], which was translated into Korean by Kim [17]. This subscale is a 4-point Likert scale and consists of a total of 20 items, with a score of 20-80 points. Higher scores indicate higher characteristic anxiety. The Cronbach alpha was .86 in the original study and .842 in this study.

State Anxiety:

State anxiety was also measured using the State Anxiety subscale of the STAI by Spielberger et al. [16] and translated by Kim [17]. It assesses how respondents feel "at the moment" and includes 20 items rated on a 4-point Likert scale, yielding scores from 20 to 80. Higher scores reflect greater state anxiety. Cronbach's alpha was .67 in the original version and .731 in this study.

4. Data Analysis

Data were analyzed using SPSS version 27.0. Descriptive statistics (means, standard deviations, frequencies, and percentages) were used to describe the general characteristics of participants and main variables. Cronbach's alpha was used to assess reliability. Group differences in depression levels according to demographic variables were analyzed using t-tests and one-way ANOVA, with Scheffé post-hoc tests. Stepwise multiple regression analysis was conducted to identify predictors of depression.

5. Ethical Considerations

Prior to data collection, participants were informed of the study's purpose and procedures. They were assured that all data would be used for research purposes only and that anonymity and confidentiality would be maintained. Informed consent was obtained from all participants before they completed the questionnaire..

III Results

3.1 General Characteristics of Participants

The general characteristics of the study participants are shown in <Table 1>. Among the 206 participants, 46 were male (22.3%) and 160 were female (77.7%). The largest proportion of students were in their fourth year (39.8%), followed by third year (21.4%), second year (16.5%), and first year (14.1%). In terms of academic performance, the most common GPA range was between 3.5 and 4.0 (36.9%).

Regarding living arrangements, the majority (61.7%) lived separately from their parents. Most students perceived their economic status as average (62.1%). In terms of financial support, more than half (52.4%) received an allowance, and 31.6% received an allowance while also working part-time.

With regard to physical activity, 50% of students reported engaging in aerobic exercise 1–3 times per week, while 37.4% did not exercise at all. The most common average sleep duration was between 5.5 and 7 hours per night (51.5%), followed by 7 to 8.5 hours (28.2%).

<Table 1> General Characteristics (n=206)

Variable	Category	N	%
Gender	Male	46	22.3
	Female	160	77.7
Academic Year	1st year	29	14.1
	2nd year	34	16.5
	3rd year	44	21.4

	4th year	82	39.8
	5th year or above	17	8.3
Grade Point Average (GPA)	< 2.5	2	1.0
	2.5 – < 3.0	20	9.7
	3.0 – < 3.5	60	29.1
	3.5 – < 4.0	76	36.9
	≥ 4.0	48	23.3
Living with Parents	Living with both parents	73	35.4
	Living with one parent	5	2.4
	Living independently	127	61.7
	No parents	1	.5
Economic Status	High	7	3.4
	Upper-middle	40	19.4
	Middle	128	62.1
	Lower-middle	27	13.1
	Low	4	1.9
Economic Activity Type	Allowance	108	52.4
	Part-time job	26	12.6
	Allowance + Part-time job	65	31.6
	Others	7	3.4
Aerobic Exercise	0 times/week	77	37.4

Frequency		1–3 times/week	103	50.0
		4–5 times/week	20	9.7
		6–7 times/week	6	2.9
Average Sleep Duration	Sleep	< 4 hours	5	2.4
		4 – < 5.5 hours	28	13.6
		5.5 – < 7 hours	106	51.5
		7 – < 8.5 hours	58	28.2
		≥ 8.5 hours	9	4.4

3.2. Descriptive Statistics for Key Variables

The means and standard deviations for social support, stress, state anxiety, trait anxiety, and depression are shown in <Table 2>. The results indicated that the average score for social support was 100.89 (SD = 16.91) out of a maximum of 125; for stress, 20.40 (SD = 5.03) out of 50; for state anxiety, 48.75 (SD = 4.54) out of 80; for trait anxiety, 50.12 (SD = 6.45) out of 80; and for depression, 10.76 (SD = 8.32) out of 63..

<Table 2> Descriptive Statistics of Major Variables

	N	Min	Max	M±SD
Social Support	206	38.00	125.00	100.89±16.91
Perceived Stress	206	5.00	34.00	20.40±5.03
State Anxiety	206	36.00	61.00	48.75±4.54
Trait Anxiety	206	33.00	64.00	50.12±6.46
Depression	206	0.00	40.00	10.76±8.32

3.3. Depression According to General Characteristics

The results of depression levels according to the general characteristics of the participants are shown in <Table 3>. First, regarding gender, the average depression score for female students was 11.15 ± 8.38 , while for male students it was 9.41 ± 8.06 , indicating that female students had higher average depression scores than male students. There was a statistically significant difference in depression levels according to academic year. The Scheffé test revealed

that first-year students had the highest average depression score (15.41 ± 9.01), whereas fourth-year students had the lowest (9.16 ± 7.26), indicating that students in lower academic years experienced higher levels of depression compared to those in higher years ($p < .05$).

Depression levels also showed statistically significant differences according to perceived economic status. Students who considered themselves to be in a "high" economic group had an average depression score of 18.14 ± 14.19 , whereas those in the "low" economic group had a mean score of 9.75 ± 7.63 , indicating that perceived higher economic status was associated with higher depression levels ($p < .05$).

No statistically significant differences in depression scores were found based on academic performance, living arrangements with parents, method of financial support, frequency of aerobic exercise, or average sleep duration according to ANOVA analysis.

<Table 3> Depression by General Characteristics

Variable	Category	N	M $\pm$ SD	t or χ^2 (p)
Gender	Male	46	9.41 $\pm$ 8.06	.062(.432)
	Female	160	11.15 $\pm$ 8.38	
Academic Year	1st year	29	15.41 $\pm$ 9.01	3.630(.007)
	2nd year	34	12.21 $\pm$ 8.10	
	3rd year	44	9.80 $\pm$ 8.29	
	4th year	82	9.16 $\pm$ 7.26	
	Others	17	10.18 $\pm$ 8.57	
GPA	< 2.5	2	13.00 $\pm$ 2.83	.061(.430)
	2.5 – < 3.0	20	13.60 $\pm$ 10.34	
	3.0 – < 3.5	60	9.70 $\pm$ 8.84	
	3.5 – < 4.0	76	10.41 $\pm$ 8.25	

	≥ 4.0	48	11.38±9.26	
Parental Cohabitation	With both parents	73	10.41±8.43	.476(.699)
	With one parent	5	12.00±8.80	
	Living independently	127	10.98±8.29	
	No parents	1	2.00±0	
Economic Status	High	7	18.14±14.19	3.050(.018)
	Upper-middle	40	13.38±8.72	
	Middle	128	9.70±7.38	
	Lower-middle	27	10.15±9.03	
	Low	4	9.75±7.63	
Economic Activity	Allowance	108	10.86±8.62	.850(.468)
	Part-time job	26	9.42±8.20	
	Allowance + Part-time	65	11.52±8.10	
	Others	7	7.14±5.49	
Aerobic Frequency	0 times/week	77	11.91±8.54	.812(.489)
	1–3 times/week	103	10.19±8.18	
	4–5 times/week	20	9.55±7.92	
	6–7 times/week	6	9.83±9.56	
Average Sleep Duration	< 4 hours	5	18.00±4.00	2.125(.079)
	4 – < 5.5 hours	28	10.43±7.48	
	5.5 – < 7 hours	106	11.38±8.58	
	7 – < 8.5 hours	58	8.81±7.98	
	≥ 8.5 hours	9	13.11±9.27	

3. 4. Correlations Between Depression and Major Variables

As shown in <Table 4>, depression was positively correlated with trait anxiety ($r = .514$, $p < .001$) and stress ($r = .356$, $p < .001$), and negatively correlated with social support ($r = -.389$,

$p < .001$). State anxiety was not significantly correlated with depression ($p = .058$).

<Table 4> Correlation Between Depression and Major Variables

Variable	Correlation Coefficient (r)	p-value
Trait Anxiety	0.514	< .001
State Anxiety	0.110	.058
Social Support	-0.389	< .001
Perceived Stress	0.356	< .001

3. 5. Factors influencing depression among Korean university students

The results of the factors influencing depression among the participants are presented in <Table 5>. The regression model was statistically significant ($F = 30.489$, $p < .001$), with an explanatory power of $R^2 = .484$ and adjusted $R^2 = .431$. All variance inflation factor (VIF) values were below 10, indicating no issues with multicollinearity.

After controlling for gender, academic performance, parental cohabitation status, and perceived economic level, the main predictors of depression were: trait anxiety ($t = 6.43$, $p < .001$), social support ($t = -5.40$, $p < .001$), perceived stress ($t = 4.13$, $p < .001$), and academic year ($t = -2.61$, $p < .001$).

<Table 5> Factors Influencing Depression

Variable	Unstandardized Coefficient (B)	Standardized Coefficient (β)	t	p-value	Tolerance	VIF
Academic	-1.06	-0.15	-2.61	.010	0.79	1.25

Year						
Trait Anxiety	0.51	0.40	6.41	< .001	0.70	1.41
Social Support	-0.14	-0.30	-5.40	< .001	0.89	1.11
Perceived Stress	0.40	0.24	4.13	< .001	0.79	1.25
Model Summary	$R^2 = 0.48$ $\text{Adj. } R^2 = 0.43$ $F = 30.489$ $p < .001$					

IV. Discussion

This study analyzed the relationships between psychological variables—such as social support, perceived stress, and trait anxiety—and depression levels among university students to identify the factors that influence depression. The analysis revealed that the most influential variables were, in order: trait anxiety, social support, perceived stress, and academic year. State anxiety was not found to be a significant factor.

The significant positive correlation between trait anxiety and depression indicates that chronic anxiety tendencies may trigger or worsen depressive symptoms. This finding aligns with previous studies that frequently report the co-occurrence of anxiety and depression [10], and it underscores the need for anxiety management in university populations. Previous studies have also found that higher levels of trait anxiety are associated with higher levels of depression [20].

Social support was negatively correlated with depression, indicating that students who perceived higher levels of social support had lower levels of depression. This is consistent with existing research that shows social support contributes positively to emotional stability and psychological resilience [12, 14]. Park (2021) also reported that students in low social support groups had significantly higher levels of depression [21]. In other words, students who feel emotionally secure through positive interactions and support from those around them are less likely to experience depressive tendencies. These results suggest that university students who

perceive higher social support experience fewer mental health challenges, including depression.

Perceived stress was positively correlated with depression, indicating that higher levels of stress are associated with higher levels of depression. This reaffirms that various stressors experienced during university life can have detrimental effects on mental health [11, 13]. Kim et al. (2020) reported that academic stress had a significant effect on depression among university students [22].

Lower academic year levels were associated with higher depression scores. This suggests that students in the early stages of university life may be more psychologically vulnerable due to difficulties in adjustment and environmental changes. Therefore, it is necessary to implement early intervention programs and enhance mental health education targeting lower-year students [7]. Lee (2021) also found that depression scores were significantly higher among lower-year students compared to upper-year students [23]. This finding implies that students in the initial stages of university may experience transitional vulnerability related to academic adjustment, autonomy, and identity formation—consistent with previous research [3, 18]. Interventions such as orientation programs, peer mentoring, and mental health literacy education may be particularly effective for this group.

State anxiety was not found to be a significant predictor in this study. This suggests that overall anxiety tendencies (trait anxiety) have a more direct impact on depression than temporary anxiety states. Jung (2019) also reported that trait anxiety had greater explanatory power for depression than state anxiety [24].

This study has several limitations. As a cross-sectional design was used, it is not possible to draw causal conclusions. Additionally, the use of self-report questionnaires introduces the possibility of response bias. Future research should adopt more diverse methodologies, including physiological indicators and longitudinal designs.

The findings of this study highlight the need for regular assessment of psychological factors and suggest that an integrated approach focusing on social support and stress management can be effective in preventing and addressing depression in university students. The study also emphasizes the importance of implementing tailored interventions based on academic year.

Conclusion

Depression among university students is influenced by the interaction of various psychological and environmental factors, including social support, trait anxiety, perceived stress, and academic year. To promote mental health, integrated strategies encompassing early screening, preventive education, and multidimensional interventions are required.

However, this study has limitations in that it used a cross-sectional design, which restricts the ability to infer causal relationships, and the use of self-report questionnaires may introduce response bias. Future research should include longitudinal studies incorporating physiological or behavioral indicators.

Social support showed a significant negative correlation with depression, consistent with previous findings that suggest social support serves as a psychological protective factor across various populations [7, 6, 20]. Universities can enhance social support through structured peer networks, improved faculty-student interactions, and community-linked services.

Higher levels of perceived stress were associated with higher levels of depression. This finding reaffirms that chronic stress is a major mental health risk factor among university students [2, 1, 4]. Customized stress management programs, mindfulness-based interventions, and flexible academic systems may help alleviate this risk.

The finding that trait anxiety was the strongest predictor of depression, showing a strong positive correlation, supports previous research indicating that chronic anxiety can trigger or intensify depressive symptoms [9, 5]. Therefore, regular counseling services and emotional regulation programs aimed at managing anxiety should be provided on campus.

This study identified key psychological and environmental factors affecting depression among Korean university students. Students with lower academic year standing, higher levels of trait anxiety and perceived stress, and lower levels of social support exhibited significantly higher levels of depression.

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