

# Impact of Academic Stress on Depression Among Nursing Students: Testing for the Moderating Effect of Social Support

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## Abstract

*This study aimed to verify the moderating effect of social support on the relationship between academic stress and depression in nursing students. Therefore, 261 nursing students were recruited from October to November 2017. The collected data were analyzed using the SPSS/WIN 22.0 program with the Johnson-Neyman method in PROCESS. The effect of academic stress on depression was not statistically significant among nursing students with high social support. It was found that high social support can alleviate the impact of academic stress on depression in nursing students. To prevent depression among nursing students, it is necessary to continuously monitor the level of social support that nursing students receive.*

**Keywords:** *Student, Stress, Social, Support, Depression*

## 1. Introduction

### 1.1. Background

Nursing students are under substantial stress due to the psychological pressure of having to pass a national examination and secure a job, the excessive amount of learning expected due to the rigorous curriculum, and the practice in various clinical situations [1]. In particular, the severity of academic stress was the highest among the other stresses experienced by nursing students [2], and it was higher than that experienced by dental and medical students [2][3]. Excessive academic stress can lead students to drop out of the program and may cause depression [4]. A study on medical graduate students found a significant correlation between depression and academic stress [5], and other studies reported that academic stress is an important factor affecting depression [3].

Most nursing students were found to be in a mild depressive state [6] or to experience "mild" or "moderate" depression [2]. Studies on the relationship between stress, depression, and social support among Korean college students revealed that the level of their depressive symptoms and stress symptoms was lower because they perceived higher levels of social support from their parents [7]. The effect of stress on the depression of college students was found to be moderated by social support [8][9]. In addition, social support was found to have a buffering effect on the relationship

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between academic stress and depression in medical graduate schools [5]. Social support acts as a moderating variable in the relationship between stress and depression. However, few studies have examined the moderating effect of social support on the relationship between academic stress and depression in nursing students, who have been reported to experience higher academic stress than students from other departments do. Thus, the purpose of this study was to investigate the moderating effects of social support on academic stress and depression in nursing students and to help them prevent depression and adapt to the process of becoming a nurse.

## **1.2. Purpose**

This study aimed to examine the moderating effects of social support on the relationship between academic stress and depression in nursing students.

## **2. Methods**

### **2.1. Study design**

This study employed a descriptive design to confirm the moderating effect of social support on the relationship between academic stress and depression in nursing students.

### **2.2. Participants**

The subjects of this study were nursing students from 3 universities who understood the purpose of the research and agreed to participate in the survey. The required sample size, determined by G-Power 3.1.9.2, was 222 to obtain an effect size of 0.15 at an alpha level of 0.05 and a power of 0.95, with 20 variables in the multiple regression analysis. Thus, the sample size of 240 exceeded the requirements of the power analysis.

### **2.3. Instruments**

#### **2.3.1. Academic stress**

Academic stress was assessed using ten study-related items from the 39 items assessing nursing students' stress developed by Yoo et al. [10]. Higher scores on these items indicate more severe stress levels. The reliability for the 10-item scale was Cronbach's alpha = .88 in the present study.

#### **2.3.2. Depression**

Depression was assessed using the integrated Korean version of the Center for Epidemiologic Studies Depression (CES-D) scale, which was developed for Korea by Chon et al. [11], based on the CES-D developed by Radloff [12]. Higher scores on this scale indicate more severe depression levels and scores over 25 indicate probable depression. The reliability for this scale was Cronbach's alpha = .93 in the present study.

#### **2.3.3. Social support**

Social support was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS) developed by Zimet et al. [13] and translated by Shin and Lee [14].

The MSPSS scale comprises three sub-scales (family support, friend support, and exceptional support) and 12 items. Higher scores indicate a higher social support level. The reliability for this scale was Cronbach's alpha = .77 in the present study.

## 2.4. Data analysis

The collected data were analyzed using SPSS/WIN 22.0. The general characteristics of the participants and the degree of academic stress, depression, and social support were analyzed using descriptive statistics. Further, the academic stress, depression, and social support scores were examined regarding the general characteristics using the t-test, an ANOVA, and the Scheffé test. The correlations between variables were analyzed using Pearson's correlation coefficient. The moderating effect of social support on the relationship between academic stress and depression was examined using hierarchical multiple regression analysis by centering the independent variables and moderating variables according to the method proposed by Baron and Kenny. This was followed by the study using the Johnson-Neyman method in PROCESS [15] to confirm the significance area and compare the simple slope. The reliability of the tools used in the study was confirmed using Cronbach's  $\alpha$  coefficient.

## 3. Results

### 3.1 Students' academic stress, depression, and social support

In this study, the depression, academic stress, and social support scores of nursing students were  $15.17 \pm 9.20$ ,  $34.15 \pm 7.03$ , and  $46.09 \pm 11.37$ , respectively. Depression and academic support showed a negative correlation ( $r = .28$ ,  $p < .001$ ), while depression and social support showed an inverse correlation ( $r = .23$ ,  $p < .001$ ). There was no statistically significant correlation between academic stress and social support.

### 3.2. The moderating effect of social support on the relationship between students' academic stress and depression

Academic stress had significant positive effects on depression ( $\beta = 0.29$ ,  $p < .001$ ), while social support had substantial adverse effects on depression ( $\beta = -0.29$ ,  $p < .001$ ).

Table 1. Moderating effect of social support on the relationship between stress and depression (N=240)

Characters	B	SE	$\beta$	t	p	VIF	Durbin-Watson	-
Constant	0.07	.54		0.13	.899		1.57	R <sup>2</sup> =17.2%, Adjusted R <sup>2</sup> =16.1%, F=16.32, p<.001
Academic stress (centered)	0.38	.08	0.29	4.90	<.001	1.00		
Social support (centered)	-0.23	.05	-0.29	-4.73	<.001	1.06		
Academic Stress×Social Support	0.00	0.01	-0.19	-3.05	.003	1.06		

Additionally, the interaction between academic stress and social support was a significant predictor of depression ( $\beta = -.19$ ,  $p = .003$ ). The total explanatory power of academic stress, social support, and the interaction between these variables was 16.1%. As a result of exploring the significant areas using the John-Neyman method in PROCESS [17], the social support (centered values) were from 34.10. to 13.90. The effect of academic stress on depression was statistically significant only in areas with a

social support score of less than 10.46, and it was not statistically significant in the regions that exceeded this value.

Figure 1 shows that the simple slopes identify the academic stress and depression values at the point where the social support values are -1 standard deviations ( $\beta=-0.00$ ,  $t=0.0918$ ,  $p<.001$ ) and the mean values ( $\beta=-0.00$ ,  $t=0.0918$ ,  $p<.001$ ) are +1 standard deviations ( $\beta=11.37$ ,  $t=1.75$ ,  $p=.082$ ). In other words, high academic stress in those who receive low or moderate social support is associated with high depression. In contrast, academic stress is not significantly related to depression in highly-supported nursing students. The simple slope analysis showed that social support plays a moderating role in the relationship between academic stress and depression.

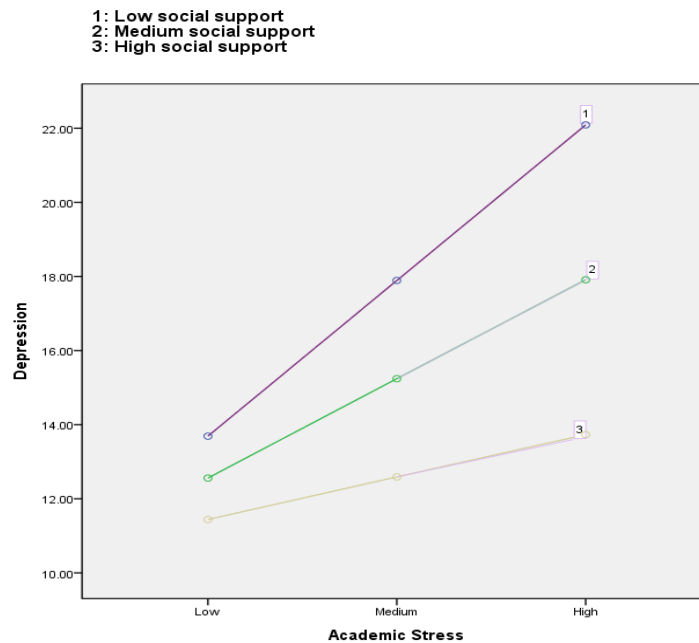


Figure 1. Interaction between academic stress and depression in nursing students: The moderating effect of social support

#### 4. Discussion

Our findings confirmed that academic stress and social support are significant predictors of depression in nursing students and that academic stress and social support had significant interaction effects on depression. Furthermore, social support was confirmed as a moderator in the relationship between academic stress and depression. These results are consistent with those of a study on university students and with the results of previous studies examining the moderating effect of social support on the relationship between stress and depression [8][9]. Because a hierarchical regression analysis only reveals the presence or absence of moderating effects, in the present study, the significance area was examined using the John-Neyman method in PROCESS [15]. It was found that the influence of academic stress on depression was not significant among students with high social support. In addition, the simple slope revealed that high social support could alleviate depression. In other words, when the

social support score was above 56.55, the effect of academic stress on depression was not significant. Thus, to prevent depression due to academic stress, it is possible to provide clear criteria for the sufficient level of social support required for nursing students. These findings also provide essential data for developing and evaluating various intervention programs. However, as the present study was limited to a few nursing students and the survey cannot be considered when it was performed, the generalizability of these findings is limited. Therefore, we propose that this study be replicated using a study design that distinguishes between the test and non-test periods.

## 5. Conclusion

In this study, nursing students showed higher depression and academic stress than those from other departments. Further, we found that social support has a moderating effect on the relationship between academic stress and depression in nursing students. Additionally, we analyzed this moderating effect regarding the extent of social support and confirmed that high social support can reduce the impact of academic stress on depression. Based on the present results, it is evident that we need to continuously review the social support level of nursing students and accordingly develop strategies to improve the same. In addition, we should continue to pay attention to the prevention of depression among nursing students.

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