

# Mediating Effect of Self-Esteem on Stress-Induced Depression of Korean Nursing Students

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## ABSTRACT

College students are in the process of preparing for adulthood, and they are in an important period of establishing values and identity through college life and deciding their own career path. However, many college students in Korea are experiencing psychological burden and stress due to their adaptation to psychological and social changes and anxiety about the future. This study focuses on the importance of Korean nursing students' self-esteem, which is emotional and behavioral direction, in the process of adapting to a successful college life. Accordingly, the effect of self-esteem on stress-induced depression was carried out to investigate among Korean nursing students.

This study is a causal study using the mediator effect of self-esteem on stress-induced depression. The study was conducted with 179 nursing students who agreed to participate in the questionnaire. The survey was carried out with systematic questionnaire on stress, self-esteem, and depression. In order to prove the mediating effect of self-esteem on stress-induced depression of nursing college students, a three-step mediated effect verification procedure using Baron & Kenny's multiple regression analysis method from the SPSS/PASW 23.0 program and a statistical significance test for mediating effects were used, and the Sobel test was performed.

As a result of empirical analysis, self-esteem had a statistically significant mediating effect on stress-induced depression in Korean nursing students. As variables, self-esteem ( $\beta = -.333$ ,  $p = .000$ ) and stress ( $\beta = .582$ ,  $p = .000$ ) affected subjective depression. The normalized beta value ( $\beta = .582$ ) in the last regression was less than that in step 2 ( $\beta = .798$ ). Through the Sobel test, the Korean nursing students' self-esteem as the parameter had a statistically significant mediating effect on the influence of their stress as the independent variable on their depression as the dependent variable ( $z = 5.409$ ,  $p = .000$ ).

Among nursing college students, self-esteem plays a role in mediating the link between stress and depression. Therefore, a nursing intervention strategy should be developed to improve self-esteem for nursing college students.

**Keywords:** College student; Depression; Mediating effect; Self-esteem

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## INTRODUCTION

College students are in the process of development to prepare for adulthood, and to play a leading role in the future society, they establish values and identity through college life and decide their own career path. However, due to the environmental change of college, they experience a lot of confusion and conflict. They also they experience a lot of psychological burden and stress due to adaptation to psychological and social changes and anxiety about the future (Kim, SB., 2018, Sim, HS., et al., 2015).

In Korea, college students are considered adults and are expected to solve problems by themselves without being restricted from alcohol or tobacco, and to be independent and mature. However, according to reports on psychological status and college adaptation, they are having difficulty adjusting to college life. In terms of psychological health, they were reported being suffered from anxiety and depression, extreme academic stress, psychological depression, relative deprivation, and pressure for an uncertain future (Kim, SB., 2018, Kim, YK., et al., 2018, Sim, HS., et al., 2015). There are urgent needs to support college students' psychological stability and mental health. In fact, college students are reported to have stress in the order of academic problems, future and career problems, interpersonal relationships, economic problems, and values problems. These stresses are reported to increase physiological symptoms (headache, stomach pain and stomach cramps, back pain, neck and shoulder stiffness, fatigue), behavioral symptoms (crying, forgetfulness, yelling, blame, self-show, compulsive chewing gum, compulsive eating) and emotional symptoms (worry, depression, excitement, impatience, anger, frustration, loneliness, helplessness). In addition, since it is almost impossible for them to evade stress in their lifetime, the significance of proper management of stress has been emphasized (Kim, SB., 2018, Sim, HS., et al., 2015). In particular, Korean nursing students are under a lot of stress because of the heavy study compared to other departments, heavy burdens on patient nursing during psychological load to pass the national nurse's license exam and clinical practice. As such, they are suffering from mental problems such as depression (Kim, YK., et al., 2018, Park, K. H., 2008).

According to the predictive model for depression in college students (Park, K. H., 2008), stress accounted for 42% of depression of college students, and stress was the main variable that caused depression of college students. In the result of the studies with nursing college students (Son, YJ., et al., 2010), stress and depression are closely related, and it was reported that the higher the stress score of nursing students, the higher the score for perceived depression (Kim, SB., 2018, Kim, YK., et al., 2018, Sim, HS., et al., 2015). Depression is related to biological factors such as heredity, neuroendocrine and neurochemical factors, and depression occurs as a result of these factors interacting with various psychosocial factors including environmental stress. Here, stress is very closely related to depression. According to another study (Chon, KK., et al., 2000) for college students, students experience stress in terms of economics, employment, study, interpersonal relations, and values issues during college life, and stress showed a positive correlation with depression. In addition, depression is accompanied by intellectual, motivating, physical and behavioral symptoms as well as simply experiencing a depressed mood, and can cause serious pain in interpersonal relationships or even in the daily life. As described above, it is essential for college students to manage stress and depression (Park, K. H., 2008).

Meanwhile, it is reported that the level of stress depends on the perceived interpretation and coping with life events rather than being affected by the life events themselves. Stress perception is the perception of life stress, which means that when a person faces a certain situation, he/she decides whether the situation is related to him/her or not, and whether the situation poses loss, challenge or threat to him/her. Therefore, it is confirmed that the perception of stress has more influence on the level of stress than the life event itself that causes stress (Lee, PS., et al., 1996).

Many previous studies have shown how positive self-esteem promotes goal setting, the burden of students' major learning, assignment selection, intrinsic motivation, endurance and effort, the use of strategies, achievements, and achievements, and even career choices (Kim, S. K., 2003). Although Korean college students have mature bodies, but their economic independence, social relationships, and psychological maturity are still insufficient (Kim, S. K., 2003, Kim, M. J., et al., 2016). The complex stresses and conflicts and the problem-solving process they experience have a huge impact on adjusting to their college-life. This period in their lives also calls for the task of preparing for life after a successful graduation (Sim, HS., et al., 2015, Kim, S. K., 2003, Kim, M. J., et al., 2016, Lee, SJ., et al., 2008, Lee, HE., 2004).

Therefore, in this viewpoint, this study attempts to establish whether the level of self-esteem perceived by Korean nursing students has a mediating effect of self-esteem on stress-induced

depression. Furthermore, to provide basic data to prepare alternatives for preventing and managing depression in consideration of the level of self-esteem of nursing students in the field of college counseling and education, the objective of this study is in this. As such, this study has been carried out to establish the mediating effect of self-esteem on stress-induced depression of Korean nursing students.

## **MATERIALS AND METHODS**

This study is a causal and descriptive cross-sectional study using the mediator effect of self-esteem on stress-induced depression of Korean nursing students, and to understand the mediating effect of these variables on the depression.

### **Subjects**

This study collected data from 185 students enrolled in a nursing college located in A city, Korea. The researcher explained the objective of the study to the participating students and promised that participation in this study was not related to the class, and anonymity and confidentiality. The researcher also explained that if they do not wish to respond to the questionnaire, they can stop at any time and received their written consent to participate in the study. In addition, the researcher's contact information was provided to them so that they can contact the researcher. It took total 10 minutes for responding to the questionnaire. Among the collected data, six questionnaires that were difficult to use for analysis due to insufficient information were excluded from the analysis of this study, so total number of subjects was 179.

### **Instrumentations**

#### ***Self-esteem***

To measure self-esteem, the Korean version (Won, HT., et al., 1995) of the Rosenberg Self-esteem Scale was used. The tool used consisted of 10 questions and consisted of a 4-point Likert scale from 1 point for 'very not likely' to 4 for 'very likely'. The questions consisted of 5 positive and 5 negative questions, and negative questions were calculated and graded after converting to inverse score. The higher scores mean the higher level of the self-esteem. With Cronbach's  $\alpha$  of .87 as the reliability of the tool and the total score ranged from 10 to 50.

#### ***Stress***

To measure stress, the 30-item questionnaire that was revised and supplemented to measure the level of stress perception of peptic ulcer patients in Korea (Lee, PS., et al., 1996), a measurement tool developed by Levenstein to evaluate the perception of stress of people with mental and physical disorders and can evaluate the stress perception for the latest 1 week. This

scale is composed of total 30 questions and represents the state of feeling about stress events. This tool has a score structure of a 5-point Likert scale, and the higher score means the higher level of stress perception. The total score ranges from 30 to 150, with Cronbach's  $\alpha$  of .96 as the Korean version and .93 in this study.

### ***Depression***

To measure depression, the 21-item scale of the Korean version (Chung, YC., et al., 1995, Rhee, MK., et al., 1995) based on the Beck Depression Scale 10 was used. This tool has a score structure of a 4-point Likert scale, and the higher score means the higher level of depression perception. The Korean version of Beck Depression Inventory (K-BDI) score distribution is 0 to 63 points, 0 to 9 points are normal, 10 to 18 points are mild, and 19 points or more are judged as severe, with Cronbach's  $\alpha$  of .93 in this study.

### **Data analysis method**

The mediating effect of self-esteem was evaluated using 3-step linear regression from the SPSS/PASW 23.0 program. To prove the mediating effect of self-esteem in the association between stress as an independent variable and depression as a dependent variable, an analysis was conducted using the 3-step mediating effect verification method of Baron and Kenny (Baron, R. M., et al., 1986) utilizing the stepwise regression analysis method from the SPSS/PASW 23.0 program. Sobel test was performed to evaluate the statistical significance (Sobel Test, 2020).

The following procedure was performed to verify the mediating effect of self-esteem on depression caused by stress; In the regression analysis in the first step, the effect of stress, an independent variable, on the parameter, self-esteem, was verified. In the second stage of skepticism analysis, the influence of the independent variable, that is, stress on the dependent variable, depression was verified. Finally, the influence of self-esteem, a parameter on the dependent variable, was verified when the independent variable was controlled. The Sobel test was conducted to evaluate whether the mediating effect of self-esteem was statistically significant.

## **RESULTS AND DISCUSSION**

In this study, multi collinearity and autocorrelation of variables were analyzed to examine the appropriateness of the regression model analysis. It was confirmed that there was no problem in multi collinearity between independent variables through tolerance limit, Variance Inflation Factor and VIF test to confirm multi collinearity. Through the Durbin-Watson index, it was

confirmed that the criterion for independence was recognized without autocorrelation problems, and the regression model was suitable for this study.

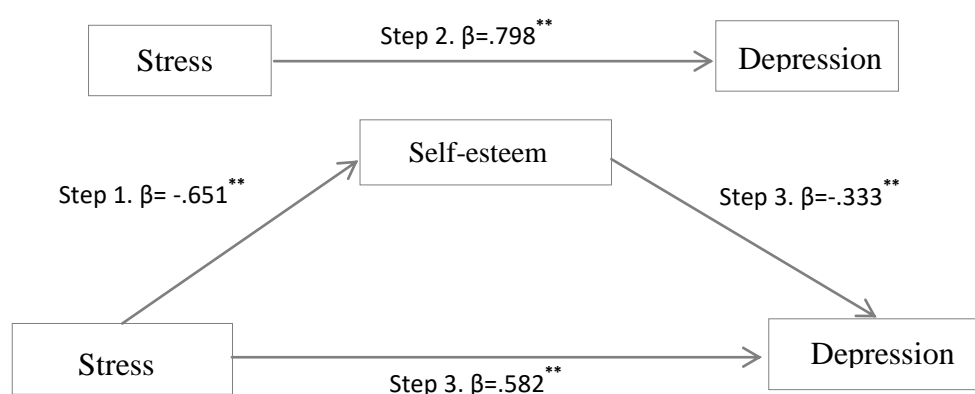
Among the three-step verification procedure (Baron, R. M., et al., 1986) of the mediating effect, stress and the independent variable had a significant effect on the self-esteem, the parameter in the first step regression analysis ( $\beta = -.651$ ,  $p = .000$ ), and the explanation power was 42.1% ( $F=130.182$ ,  $p=.000$ ). In the second-stage regression analysis, stress and the independent variable had a significant effect on depression, the dependent variable ( $\beta=.798$ ,  $p=.000$ ), and the explanation power was 63.5% ( $311.164$ ,  $p=.000$ ). In the 3-stage regression analysis, the parameter of self-esteem had a significant effect on the dependent variable, depression ( $\beta=-.333$ ,  $p=.000$ ). In other words, in step 3, stress and the independent variable had a  $\beta$  value of  $.582$  ( $p=.000$ ), which is the influence of the dependent variable, depression, which is reduced from the  $\beta$  value of  $.798$  ( $p=.000$ ) in step 2, and self-esteem had a partial mediating effect. In addition, effects of stress and self-esteem on depression were also statistically significant, as shown in table1, and Fig. 1.

**Table 1: Mediating effect of self-esteem on stress-induced depression**

(N=179)

Step	Independent variable	Dependent variable	B	SE	$\beta$	T	Adj.R <sup>2</sup>	F(p)
1	Stress	Self-esteem	-.191	.017	-.651	-11.410**	.421	130.182**
2	Stress	Depression	.330	.019	.798	17.640**	.635	311.164**
3	Stress	Depression	.240	.022	.582	10.717**	.698	206.622**
	Self-esteem		-.469	.076	-.333	-6.136**		

\*\* : p=.000



\*\* p=.000, Sobel test z=5.409, p=.000

**Figure 1: Mediating effect of self-esteem on stress-induced depression**

The normalized beta values in step 3 ( $\beta = .582$ ,  $p = .000$ ) were smaller than in step 2 ( $\beta = .798$ ,  $p = .000$ ). According to the Sobel test, the parameters significantly conveyed to have the influence

of the independent variable on the dependent variable. The indirect effect of the independent variable on the dependent variable through the parameter was also statistically significant ( $z = 5.409, p = .000$ ).

This effect was relatively decreased in consideration of the parameter of self-esteem ( $\beta = .582, p = .000$ ). This shows that the effect of stress in nursing college students on depression was reduced by the mediating effect of self-esteem. In other words, self-esteem had a statistically significant mediating effect on stress-induced depression of nursing students. The effect of stress on depression alone was  $\beta = .798$  ( $p = .000$ ). When both self-esteem and stress are independent variables and affect depression, the effect of self-esteem on depression is  $\beta = -.333$  ( $p = .000$ ), which is also statistically significant, and the effect was reduced to  $\beta = .582$  ( $p = .000$ ). Through these results, it was confirmed that self-esteem can generate a buffer effect by acting as a positive mediating effect in a relationship that causes depression due to stress in nursing college students.

In summarizing the contents of the above research results, it needs to provide an environment where students can have a stable and bright college life through the development and operation of an intervention program that reinforces self-esteem that may prevent the development of a lot of stress experienced by nursing college students into depression. Recently, a variety of creative educational programs are being used in Korean university education, and students are actively participating, and it was found that university students actually responded more actively than passively to learn and enjoy specialized knowledge (Jeong, Y. S., et al., 2017). Based on the results of this study, it is expected that universities will be able to control their stress and prevent depression by paying attention to the development and operation of nursing students' self-esteem promotion programs as well as educational programs to foster professional knowledge.

## CONCLUSION

The purpose of this study is to identify the level of stress, self-esteem, and depression of nursing college students, and identify the mediating effect of self-esteem on stress-induced depression to present basic data for nursing development. An intervention program was attempted to manage stress and depression of nursing college students. In order to verify the mediating effect of self-esteem on stress-induced depression of nursing students, a three-step mediated effect verification procedure using Baron & Kenny's multiple regression analysis method and a statistical significance test for mediating effects were used, and the Sobel test was performed.

The results of mediating effect of self-esteem on stress-induced depression were as follows; In the first step regression analysis, the effect of stress, an independent variable, on the parameter, namely self-esteem, was verified. The standardized regression coefficient was statistically significant. The statistical  $\beta$  value of the independent variable, i.e. the effect of stress on the dependent variable, depression was statistically significant. Finally, when the independent variable was controlled, the influence of self-esteem, a parameter on the dependent variable was statistically significant. Here, the stress was smaller than the  $\beta$  value in stage 2 and was statistically significant, so it can be described as a partially mediated effect of self-esteem. As a result of conducting the Sobel test to evaluate whether the mediating effect of self-esteem was statistically significant, it was found that the mediating effect of self-esteem between stress and depression.

As a result of the study, there was a significant correlation between stress, depression and self-esteem of Korean nursing students. Korean college students' stress had a strong positive correlation with depression. The factor that had the largest positive effect on depression was self-esteem. Among nursing students, self-esteem can be a mediator in the association between stress and depression. According to the results of this study, self-esteem is interpreted as a buffer effect due to the mediating effects of stress on depression positively. Self-esteem showed a statistically significant partial mediating effect between stress and depression of nursing college students. That is, when stress influences depression as an independent variable, it was analyzed that self-esteem has a mediating effect and reduces depression. These results confirmed that self-esteem is a factor that causes a positive buffering effect in the relationship that stress induced depression of nursing college students.

Therefore, in order to reduce or prevent depression caused by stress of nursing college students, the concept of self-esteem is important, and it is necessary to develop and operate an intervention program to strengthen self-esteem. As a follow-up study, the researchers proposes a study to develop a program that promotes self-esteem and stress control to prevent depression in the lives of college students. In addition, further studies are needed to verify the effect of low self-esteem on depression of nursing college students in various regions.

## REFERENCES

1. Baron, R. M., and Kenny, D. A., 1986. The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-82
2. Chon, KK., Kim, KH., and Yi, JS., 2000. Development of the Revised Life Stress Scale for



- College Students. *Korean journal of health psychology*, 5(2), 316-35.
3. Chung, YC., Rhee, MK., Lee, YH., Park, SH., Sohn, CH., Hong, SK., Lee, BK., Chang, PL., and Yoon, AR., 1995. A standardization study of Beck Depression Inventory 1-Korean version (K-BDI): reliability and factor analysis. *The Korean Journal of Psychopathology*, 4(1), 77-95.
  4. Jeong, Y. S., and Bhoi, A. K., 2017. Analysis of Educational Status and Policy of SW Central University. *International Journal of Emerging Multidisciplinary Research*, 1(1), 85-9. DOI: 10.22662/IJEMR.2017.1.1.085
  5. Kim, M. J., and Moon, WH., 2016. Relationship between Depression from Self-esteem, Stress, and Verbal Anger Behavior in Korean University Students. *Indian Journal of Science and Technology*, 9(44), 1-40. DOI: 10.17485/ijst/2016/v9i44/105107
  6. Kim, S. K., 2003. Life Stress in Freshman and Adjustment to College. *Korean Journal of Youth Studies*, 10(2), 215-37.
  7. Kim, SB., 2018. The mediating effects of social support in the correlation between school-life stress and depression: Focused on the EBD college students residing in the dormitory. *Journal of Special Education & Rehabilitation Science*, 57(3), 19-36.
  8. Kim, YK., Kwon, SH., and Son, HG., 2018. The influence of perceived stress, depression, and positive psychological capital on quality of life among nursing students. *Journal of the Korean Data Analysis Society*, 20(3), 1579-93.
  9. Lee, HE., 2004. Testing for Moderating Effects of Coping Style with Structural Equations = Life Stress and Depressive Symptoms among College Students. *Korean Journal of Health Psychology*, 9(1), 25-48.
  10. Lee, PS., and Han, KS., 1996. The Comparative Study on Perceived Stress, ways of Coping, Stress Symptoms of Peptic Ulcer Patients and Healthy Person. *The Korean Journal of Psychiatric and Mental Health Nursing*, 5(6), 39-50.
  11. Lee, PS., and Han, KS., 1996. The Comparative Study on Perceived Stress, ways of Coping, Stress Symptoms of Peptic Ulcer Patients and Healthy Person. *The Korean Journal of Psychiatric and Mental Health Nursing*, 5(6), 39-50.
  12. Lee, SJ., and Yu, JH., 2008. The Mediation Effect of Self-Efficacy between Academic and Career Stress and Adjustment to College. *The Korean Journal of Educational Psychology*, 22(3), 589-607.

13. Park, K. H., 2008. Development of a Structural Equation Model to estimate University Students' Depression. *Journal of Korean academy of nursing*, 38(6), 779-88.
14. Rhee, MK., Lee, YH., Jung, HY., Choi, JH., Kim, SH., Kim, YK., and Lee, SK., 1995. A Standardization Study of Beck Depression Inventory 2-Korean version (K-BDI): Validity, *The Korean Journal of Psychopathology*. 4(1), 96–104.
15. Sim, HS., and Moon, WH., 2015. Relationships between Self-Efficacy, Stress, Depression and Adjustment of College Students. *Indian Journal of Science Technology*, 8(35), 1-8. DOI: 10.17485/ijst/2015/v8i35/86802
16. Sobel Test for the Significance of Mediation Calculator, [Online] Available: <https://www.danielsoper.com/statcalc/calculator.aspx?id=31> [Accessed: 1 June 2020]
17. Son, YJ., Choi, EY., and Song, YA., 2010. The Relationship between stress and depression in nursing college students. *The Journal of Stress*, 18(4), 345-51.
18. Won, HT., and Lee, HJ. Exploratory Study of the Relationship between Paranoid Tendency, Self-concept, and Self-consciousness. *Proceedings of KPA Conference*, Seoul, Korea, 1995, pp. 277–90.