

A Comparison of the Stress, Health Promotion Behavior and Eating Tendency Between Type D Personality and Non-type D Personality in Nursing Students

Mi-Hye Lim

Department of Nursing, Joongbu University, Geumsan-Gun, 32713 Chungnam, Korea

Abstract: The purpose of this study was to identify the relationship among type D personality, stress, health promotion behaviors and eating tendency in nursing students. The study was conducted on 209 nursing students in J Province and from between December 1st and 15th 2015. The data was analyzed using a t-test, χ^2 , Pearson's correlation using SPSS 21. About 23.4% of participants were classified as type D personality group. The subjects with type D personality had lower subjective health status than subjects who did not. Those with type D personality had higher stress level and lower health promotion behavior level than those who did not. There were positive correlations between type D personality and the level of stress ($r = 2.97$, $p < 0.001$) and negative correlations between type D personality and health promotion behavior ($r = -0.269$, $p < 0.001$). Based on these findings, programs that develop of stress management and health promotion behaviors are necessary for college nursing students and research is needed on factors affecting type D personality.

Key words: Eating tendency, health promotion behaviors, nursing students, stress, type D personality, subjective health status

INTRODUCTION

Nurses play an important role in medical institutions as medical professionals who provide nursing directly to patients. Recently, the lack of nurses has been an international health issue and many nations are making efforts to expand nursing staff (Kim and Kim, 2011). The Korean government is also making efforts to increase nursing staff by expanding the number of admission capacity of nursing college students in order to solve the shortage of nurses. However, new nurses who are placed in the clinical field after graduation from the nursing college have difficulties in experiencing stress and adapting to the clinical scene due to the different environment from the nursing college (Kim and Kim, 2011) and the turnover rate of new nurses is 33.9% within 1 year after graduation (Anonymous, 2016), it is necessary to prepare for adaptation in clinical field from the beginning of college.

As college students are in their early adulthood, college students must grow up to be autonomous and independent individuals and many college students experience stress on college adjustment. Especially, nursing college students should play an important role in the health management of various people as future nurses, so, they are more stressful than other college students (Kwag, 2013) and their health care is also important. The personality factor is a factor that affects both stress and health. Type D personality tends to have a negative self-image. It is passive in relation with others

is sensitive to stress and is easily exposed to chronic stress, experiences anxiety and has a negative effect on health status (Mols and Denollet, 2010; Noh *et al.*, 2013).

In addition, the type D personality tends to passively cope with stress, weak self-management and it tends to conceal its own emotions, so that, the rate of fulfillment of health promoting behaviors such as dietary habits and exercise tends to be low (Lim *et al.*, 2016; Denollet, 2005).

In addition, eating tendency is characterized by the various properties of an individual's ability to ingest food under certain conditions. The eating tendency are divided into three categories, restrained eating tendency that tend to intentionally limit intake to prevent or increase weight gain, emotional eating tendency to overeat in negative emotions such as anger, fear, anxiety and external eating tendency to be ingested by external stimulate (Boo, 2013) students with high levels of stress tend to eat emotionally depending on their mood and may affect their health. Nursing college students should be a practical model of good health promotion behaviors such as nursing intervention and health counseling for the health care of the people as future professional nurse.

The eating tendency reflects the correct self-image and the degree of health behavior and is related to interpersonal relationships with the nursing subjects and the ability to perform roles as a model of health behavior. Considering the fact that university students induce eating behavior and eating disorders in a situation with a lot of stress, it is meaningful to examine the stress, health

promoting behaviors and eating tendency of nursing college students who are sensitive to stress type D personality.

Until now, studies on type D personality have been conducted mostly on the subjects with coronary artery disease and middle-aged workers (Lim *et al.*, 2016; Cha *et al.*, 2013; Kim *et al.*, 2014) and there have been few studies on nursing college students. Therefore, this study was conducted to investigate the type D personality distribution of nursing college students and to investigate the stress, health promoting behavior and eating tendency and it was tried to be used as basic data of type D personality, stress management and health improvement intervention program development.

MATERIALS AND METHODS

Research design: This study was descriptive study to investigate the relationship among type D personality, stress, health promotion behaviors and eating tendency in nursing students.

Research subject and data collection: The study was conducted on 209 nursing students from one university in J Province. Data were collected using a self-report questionnaires from December 1st and 15th 2015. For the collection of research data, the researchers explained the purpose of the study to the subjects, collected data on the students who understood and agreed the purpose of the study.

The questionnaire was written with an anonymity in order to guarantee anonymity and was used only for research purposes and explained that the autonomy can withdraw participation at any time. If you agree to participate in the study, you fill out the consent form and fill out the questionnaire. The questionnaire did not include information that could identify the subject.

Research tool: The type D personality was used the Korean version (Lim *et al.*, 2011) of the type D personality Scale 14 (DS14) developed by Denollet (2005). DS14 Scale consists of 14 items describing Negative Affectivity (NA) and Social Inhibition (SI), each item is rated according to a 5 point Likert scale from 0 (false) to 4 (true). Patients who score high on both NA and SI as determined by using the cut-off of 10 on both scales are classified as type D. The Cronbach's α for this tool was 0.88 for negative affectivity and 0.86 for social inhibition during its development and it was 0.91 and 0.92 in this study. Health

promotion behaviors were measured using the instrument by Park (1995). Park's scale consists of 60 items with 4 point Likert scale (1-4) with higher scores indicating higher level of health promotion behaviors. The reliability of the instrument was Cronbach's $\alpha = 0.88$ at the time of development and was Cronbach's $\alpha = 0.92$ in this study.

Eating tendency was measured using the eating Tendency scale translated by Kim *et al.* (1996) and developed by Van Strien *et al.* (1986). Eating tendency scale consists of 32 items describing restrained eating and emotional eating, external eating. Each item is rated according to a 5 point Likert scale with higher scores indicating higher level of eating tendency.

The stress level was measured on a 5 point scale: 'I do not feel at all' from 0-'I feel very much' 5 points. The higher the score, the higher the stress level of the subject. The general demographic characteristics that were measured were gender, grade, weight control, body type recognition, these data were collected by using a structured questionnaire. The height and weight were recorded by the subjects and the BMI was calculated by the researcher. Perceived of health status level was measured on a 5 point scale: from very unhealthy 0 point to very healthy 5 points. The higher scores indicating higher level of perceived of health status.

RESULTS AND DISCUSSION

Differences in type D personality according to general characteristics: General characteristics of research subjects are showed in Table 1. In gender, female student were (n = 79, 85.6%) were a little more than male student (n = 30, 14.4%). In grade, 3rd grade students (n = 72, 35.4%) were the most and 4th grade students (n = 30, 14.4%) were the least. Of the subjects, 25.4% (n = 52) were of the type D personality and 74.6% (n = 158) were non type D personality. In the body mass index, 64.1% (n = 134) of the subjects were in normal range and 25.4% (n = 53) were overweight. The 32.1% (n = 17) of type D personality students and 23.1% (n = 36) of non-type D personality students were overweight. At present, 38.8% (n = 80) of the subjects were controlling their weight, type D personality students were 37.7% (n = 20) and non-type D personality students were 38.5% (n = 60). The subjects recognized that 63.2% of their body shape was normal and 34.9% were overweight. Among the subjects who were recognized as being overweight, type D personality was 18 (34.0%) and non-type D personality was 55 (35.3%). But the difference in general characteristics according to the type D personality of the subjects was not statistically significant.

Table 1: Differences in type D personality according to general characteristics (N = 209)

Characteristics/Categories	n(%)	Type D	Non-Type D	χ^2	p-values
		n(%)	n(%)		
Gender					
Male	30(14.4)	7(13.2)	23(14.7)	0.076	0.783
Female	179(85.6)	46(86.8)	133(85.3)		
Academic grade					
1st	49(23.4)	8(15.1)	41(26.3)	3.834	0.280
2nd	58(27.8)	15(28.3)	43(27.6)		
3rd	72(35.4)	23(43.4)	49(31.4)		
4th	30(14.4)	7(13.2)	23(14.7)		
Body mass index (kg/m²)†					
<18.5	22(10.5)	5(9.4)	17(10.9)	1.694	0.429
18.5-22.9	134(64.1)	31(58.5)	103(66.0)		
≥23	53(25.4)	17(32.1)	36(23.1)		
Weight control					
Yes	80(38.3)	20(37.7)	60(38.5)	0.009	0.925
No	129(61.7)	33(62.3)	96(61.5)		
Body type recognition					
Low	4(1.9)	9(1.9)	3(1.9)	0.030	0.985
Moderate	132(63.2)	34(64.2)	98(62.8)		
Over weight	72(34.9)	18(34.0)	55(35.3)		
Total		52(25.4)	158(74.6)		

†Body mass index classified according to World Health Organization Western pacific region, international association for the study of obesity and international Obesity Task Force (2000)

Table 2: Stress, health promotion behavior and eating tendency according to type D personality (N = 209)

Characteristics	Type D (n = 53)	Non-type D (n = 156)	t-values	p-values
	Mean±(SD)	Mean±(SD)		
Stress	3.81±0.76)	3.19(±0.92)	4.804	<0.000
Health promotion behavior	2.58(±0.28)	2.79(±0.36)	4.844	<0.000
Subjective health status	3.22(±1.29)	3.92(±0.82)	3.711	<0.000
Eating tendency	2.94(±0.50)	2.95(±0.54)	0.118	0.907
Restrained eating	2.81(±0.70)	2.99(±0.77)	1.458	0.132
Emotional eating	3.07(±0.89)	3.13(±1.02)	0.345	0.730
External eating	2.92(±0.78)	2.73(±0.78)	-1.57	0.120

Table 3: Correlations of stress, health promotion behavior, eating tendency and type D personality (N = 209)

Variables	Stress r(p)	Health promotion behavior r(p)	Subjective health status r(p)	Eating tendency	Type D personality
Stress	1				
Health promotion behavior	-1.37(0.048)	1			
Subjective health status	-0.353 (<0.001)	-2.45 (<0.001)	1		
Eating tendency	-0.084 (0.226)	0.013 (0.849)	-0.69 (0.323)	1	
Type D personality	2.97 (<0.001)	-0.269 (<0.001)	-0.306 (<0.001)	-0.008 (0.907)	1

Stress, health promotion behavior and eating tendency according to type D personality: Stress, health promotion behavior and eating tendency according to type D personality degree of research subjects are showed in Table 2. The mean score of stress level (t = 4.80, p<0.001) health promotion behavior (t = 4.84, p<0.001) and subjective health status (t = 3.711, p<0.001) were significantly different between type D personality and non-type D personality but The mean score of eating tendency (t = 0.118, p = 0.907) was no significantly different between type D personality and non-type D personality. In the eating tendency, the type D personality subjects had a lower level of restrained eating and emotional eating than the non-type D personality subjects while the level of the external eating was higher. But there was no statistically significant difference.

Correlations of stress, health promotion behavior, eating tendency and type D personality: Relationships between type D personality and stress, health promotion behavior, subjective health status, eating tendency are showed in Table 3. A positive correlation was observed between type D personality and stress (r = 2.97, p<0.001). A negative correlation was observed between type D personality and health promotion behavior (r = -0.137, p<0.001), subjective health status (r = -0.306, p<0.001).

The purpose of this study was to find out the difference of stress, health promoting behaviors and eating tendency according to the type D personality and it was attempted to be used as basic data for developing health promotion program of nursing college students. In this study, the proportion of students with type D personality accounted for 25.4% of the total nursing

students. Compared with the previous research results, 34.8% in the study of nursing students (Noh *et al.*, 2013) and 40.3% in the study of general college students (Jeon and Kim, 2017) were lower. Type D personality rate was higher as the grade level increased (Noh *et al.*, 2013), and in the previous studies on nurses, type D personality nurses accounted for 79.9 and 50.5% (Kim *et al.*, 2014; Choi, 2016) and in the study of the general population, the type D personality was 24.3% which is considered to be a result of the relatively low nursing students in this study.

The result of this study, there was no difference between type D personality and non-type D personality in eating tendency, body mass, weight control and body shape awareness. In a previous study targeting young adults and 22-year-old adults, type D personality subjects were able to induce eating disorders in situations with high stress (Boo, 2013; Keski-Rahkonen *et al.*, 2007) type D personality subjects were able to induce eating disorders in situations with high stress (Boo, 2013). Since, weight and height were recorded by nursing students themselves, it is necessary to repeat the study to estimate the BMI through actual measurement.

In this study, non-type D personality The proportion of students who felt that their subjective health status was healthier than type D personality students was 23.5% which is the same result as the previous study of nursing students (Boo, 2013). It is because people with type D personality tend to be affected by negative emotions (Choi, 2016) and tend to have chronic tension and anger, negatively thinking about themselves (Skodova and Banoveinova, 2018) and negative perception about their own health.

The result of this study, a positive correlation was observed between type D personality and stress ($r = 2.97$, $p < 0.001$) and A negative correlation was observed between type D personality and health promotion Behavior ($r = -0.137$, $p < 0.001$), type D personality the subjects had higher levels of stress and lower levels of health promotion behaviors than non-type D personality subjects.

These results are consistent with previous studies reporting that the student's university life stress was higher than non-type D personality students. This is because type D personality students tend to experience negative emotional states regardless of time and place, often experiencing fear, anxiety and excitement and tend to shrink in problem solving (Denollet, 2005) type D personality students are more susceptible to stress in interpersonal relationships and problem solving (Jeon and Kim, 2017; Kim *et al.*, 2017). In addition, type D personality students showed lower health promotion

behaviors than non-type D personality students. This is probably due to the fact that type D personality students have few external activities which are health related behaviors and low performance of health behaviors such as nutrition and dietary habits (Jeon and Kim, 2017). As health promotion behaviors are positively perceived by their health status, the degree of implementation of the health promotion behavior becomes higher (Baek *et al.*, 2001; Kim *et al.*, 2017). Therefore, it is possible to minimize the negative perception when providing health promotion programs to subjects with type D personality it is important. In this study, the type D personality was not related to eating tendency. But in the result of previous studies on obese adults (Jang *et al.*, 2013), personality tended to be dietary habit, irregular life, it is necessary to confirm it through the repeated study that expanded the number of subjects later.

In this study, it was confirmed that type D personality students are related to stress and health promoting behaviors. Health promotion activities mean activities such as drinking, smoking, nutrition and stress management. Type D personality is the most influential factor in university life stress (Noh, 2013) while nursing college students with type D personality and it may lead to undesirable health conditions (Williams *et al.*, 2008). In the health promotion program of nursing college students, current status of type D personality students should be preceded and stress reduction and health program strategy based on them should be done.

In particular, the type of personality of nurses is a major cause of stress while type D personality nurse has higher fatigue, burnout and job stress level than non-type D personality nurse (Kim *et al.*, 2014). It is necessary to intervene because it causes difficulty in adaptation in clinical field. The type D personality ratio of the nurses was higher than that of the general population. It is necessary to confirm the distribution of type D personality of nursing college students who are future nurses and to promote stress reduction and health promoting behavior from the college age. In a study by Mols and Dellot (2010) analyzing articles related to type D personality, type D personality nurses showed higher levels of fatigue, burnout and job stress than non-type D personality nurses (Kim *et al.*, 2014; Geuens *et al.*, 2015), it is necessary to consider the type D personality tendency of nurses for clinical adjustment of nurses.

Therefore, it is necessary to confirm the distribution of type D personality in the college of nursing college students who are future nurses and to improve the stress reduction and health promoting behavior from the college age, reflecting the type D personality ratio of nurses higher than the general population.

CONCLUSION

This study was to identify the relationship among type D personality, stress, health promotion behaviors and eating tendency in nursing students. This study found that type D personality nursing student was 25.4% of the subjects, type D personality nursing college students had lower subjective health status, health promotion behavior level, higher stress level and no difference in eating propensity compared to non-type D personality subjects. This study also found that there were positive correlation between type D personality and stress but negative correlation and health promotion behavior. Type D personality nursing students tend to think negatively about themselves and the health promoting behaviors are positively perceived more positively about their health status, the type D personality it is necessary to consider characteristics. This study was conducted with students from one university and the inability to generalize the results to all nursing students, so, suggests further research that expanded the number of nursing students. This study also found that the type D personality of nursing college students was related to stress management and health promoting behaviors. Therefore, the development of intervention programs for stress management and health promoting behaviors in consideration of type D personality and the factors affecting type D personality.

REFERENCES

- Anonymous, 2016. Hospital nurses staffing state survey. Korean Hospital Nurses Association, Seoul, South Korea. <http://www.khna.or.kr/web/information/resource.php>.
- Baek, H.C., S.J. Lee, Y.A. Ko and S.H. Yang, 2001. Factors affecting health promoting lifestyle in nursing students. *J. Korean Publ. Health Nurs.*, 25: 73-83.
- Boo, Y.J., 2013. Effect of eating habit and eating tendency on the adolescents obesity. Master Thesis, Jeju University, Jeju, South Korea.
- Cha, K., S. Im and O.H. Cho, 2013. Mental health and quality of life by type-D personality of the patients with coronary artery disease. *J. Korea Contents Assoc.*, 13: 286-294.
- Choi, E.Y., 2016. Effects of type D personality on job stress and turnover intention in new graduate nurses. Master Thesis, Chonbuk National University, Jeonju, South Korea.
- Denollet, J., 2005. DS14: Standard assessment of negative affectivity, social inhibition and type D personality. *Psychosomatic Med.*, 67: 89-97.
- Geuens, N., M. Braspenning, P. Van Bogaert and E. Franck, 2015. Individual vulnerability to burnout in nurses: The role of Type D personality within different nursing specialty areas. *Burnout Res.*, 2: 80-86.
- Jang, H.M., S.K. Kim, N.Y. Kim, H.J. Yoon and H.Y. Cho *et al.*, 2013. Association between personality and eating style in Korean obese adults. *Korean J. Obesity*, 22: 100-106.
- Jeon, M.K. and Y.J. Kim, 2017. Effect of type D personality on life stress in University students. *Korean J. Stress Res.*, 25: 188-194.
- Keski-Rahkonen, A., H.W. Hoek, E.S. Susser, M.S. Linna and E. Sihvola *et al.*, 2007. Epidemiology and course of anorexia nervosa in the community. *Am. J. Psychiatry*, 164: 1259-1265.
- Kim, H.J., I.S. Lee and J.H. Kim, 1996. A study of the reliability and validity of the Korean version of the eating behavior questionnaire. *Korean J. Clin. Psychol.*, 15: 141-150.
- Kim, J.K. and M.J. Kim, 2011. A review of research on hospital nurses turnover intention. *J. Korean Acad. Nurs. Administration*, 17: 538-550.
- Kim, S.R., H.Y. Kim and J.H. Kang, 2014. Effects of type D personality on compassion fatigue, burnout, compassion satisfaction and job stress in clinical nurses. *J. Korean Acad. Nurs. Administration*, 20: 272-280.
- Kim, Y.H., S.R. Kim, Y.O. Kim, J.Y. Kim and H.K. Kim *et al.*, 2017. Influence of type D personality on job stress and job satisfaction in clinical nurses: The mediating effects of compassion fatigue, burnout and compassion satisfaction. *J. Adv. Nurs.*, 73: 905-916.
- Kwag, Y.K., 2013. Effect of self-esteem, ego-resilience, social support on nursing student's adjustment to college. *J. Korea Academia Ind. Cooperation Soc.*, 14: 2178-2186.
- Lim, E.J., J.H. Noh and Y.S. Jeong, 2016. The relationships among type D personality, self-resilience and health promoting behaviors in nursing students. *Intl. J. Bio. Sci. Bio. Technol.*, 8: 341-352.
- Lim, H.E., M.S. Lee, Y.H. Ko, Y.M. Park and S.H. Joe *et al.*, 2011. Assessment of the type D personality construct in the Korean population: A validation study of the Korean DS14. *J. Korean Med. Sci.*, 26: 116-123.
- Mols, F. and J. Denollet, 2010. Type D personality in the general population: A systematic review of health status, mechanisms of disease and work-related problems. *Health Qual. Life Outcomes*, 8: 1-10.

- Noh, J.H., E.J. Lim and Y.S. Jeong, 2013. Factors influencing type D personality of female undergraduate students majoring in nursing. *J. Korea Academia Ind. Cooperation Soc.*, 14: 6265-6274.
- Park, I.S., 1995. A study of the health promoting lifestyle. Master Thesis, Graduate School of Pusan National University, Busan, South Korea.
- Skodova, Z. and L. Banovcinova, 2018. Type D personality as a predictor of resilience among nursing students. *J. Nurs. Educ.*, 57: 296-299.
- Van Strien, T., J.E. Frijters, G.P. Bergers and P.B. Defares, 1986. The Dutch Eating Behavior Questionnaire (DEBQ) for assessment of restrained, emotional and external eating behavior. *Intl. J. Eating Disord.*, 5: 295-315.
- Williams, L., R.C. O'Connor, S. Howard, B.M. Hughes and D.W. Johnston *et al.*, 2008. Type-D personality mechanisms of effect: The role of health-related behavior and social support. *J. Psychosomatic Res.*, 64: 63-69.