Relationship between academic stress, sleep quality and depression in nursing college students

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Abstract This study identifies the relationship between academic stress, sleep quality and depression of nursing college students. The data was collected from 155 nursing students by the online survey. Data were analyzed using SPSS 18.0. As a result of analyzing the differences in academic stress, sleep quality, and depression according to general characteristics. It was confirmed that academic stress had a significant difference from physical health (F=6.326, p<.001) and mental health (F=11.630, p<.001). Sleep quality was different from physical health (F=8.834, p<.001), and depression was found to be different from physical health (F=9.619, p<.001) and mental health (F=28.625, p<.001). The results of analyzing the correlation between academic stress, sleep quality, and depression were found to have a positive correlation between academic stress and depression (r=.242, p<.01). Therefore, identifying the relationship between academic stress, sleep quality and depression among nursing college students is necessary to devise a plan to maintain and improve their physical and mental health

Key Words : Academic, Stress, Sleep, Depression, Health

요 약 본 연구는 간호대학생의 학업스트레스, 수면의 질, 우울과의 관계를 규명하기 위하여 시도되었다. 자료는 160명의 B대학교의 간호대학생으로부터 온라인 설문 조사를 통해 수집되었다. 수집된 자료는 SPSS 18.0을 사용하여 분석하였다. 일반적인 특성에 따른 학업 스트레스, 수면의 질, 우울의 차이를 분석한 결과. 학업 스트레스는 신체적 건강(F=6.326, p<.001) 및 정신 건강(F=11.630, p<.001)과 유의한 차이가 있는 것으로 나타났다. 수면의 질은 신체적 건강(F=8.834, p<.001)과, 우울은 신체적 건강(F=9.619, p<.001) 및 정신건강(F=28.625, p<.001)과 차이가 있는 것으로 나타났다. 학업 스트레스, 수면의 질, 우울의 상관관계를 분석한 결과, 학업스트레스와 우울은 양의 상관관계가 있는 것으로 나타났다 (r=.242, p<.01). 따라서 간호대학생의 신체적, 정신적 건강을 유지하고 향상시킬 수 있는 중재 교육프로그램를 개발할 필요가 있다.

주제어 : 학업, 스트레스, 수면, 우울, 건강

1. Introduction

Nursing students are exposed to higher levels of stress compared to other majors due to a curriculum that combines heavy learning and clinical practice[1], Excessive stress can lead to academic abandonment and depression, and is also a risk factor for suicide and depression in college students[2]. Among the mental disorders of nursing students, depression was the highest,

and the depression experienced in college is highly likely to persist into adulthood[3].

Therefore, good evaluation and appropriate management of stress or depression in the early stage reduces problems that appear later, and is an important resource for promoting school life.

Today's college students are experiencing stress due to various causes such as academic problems, career and employment problems, and 82.5% of college students actually suffer from such stress[4]. In particular, nursing college students are experiencing higher academic stress than general college students due to the strict curriculum, excessive learning volume, and psychological pressure on the national nurse exam compared to college students in other majors[6,7]. Students with high levels of stress are at high risk of falling into depression[8], and even feel skeptical about their major, and experience severe withdrawal and frustration.

Therefore, it is thought that reducing the stress and depression of nursing students will contribute not only to the improvement of the mental health of nursing students but also to the achievement of the learning outcomes pursued in nursing education. In addition, nursing students are unable to get adequate sleep due to the enormous amount of classes they take. So there are many cases of drowsiness[9], but such lack of sleep and drowsiness harms personal health and further causes learning disabilities and interpersonal problems[10], which ultimately affects grades.

The college period is a very meaningful period for forming lifelong sleep habits and health behaviors as early adulthood. In addition, as they experience physical, physiological, psychological, and cognitive changes, they complete their sense of identity. The task itself in this developmental stage becomes a stress, and in the process of accomplishing the task, university students are exposed to a competitive and stressful environment[7]. When there is a lot of stress, the quality of sleep deteriorates[8]. Moreover, nursing students have a higher learning volume than students of other majors and can fully guess sleep problems through clinical practice in shift, so it is necessary to investigate the relationship between sleep and depression.

The college course to acquire one's identity as a future nurse and professional qualifications is a very important period for nursing students. Recent changes in the department of nursing such as the implementation of department accreditation evaluation, introduction of various educational methods, and strengthening of clinical practice are adding a lot of physical and psychological burden to nursing students. To determine the relationship between academic stress, sleep quality, and depression in nursing college students, it is necessary to find ways to maintain and improve their physical and mental health. Therefore, this study was conducted to provide basic data necessary to develop an intervention program to maintain and promote the health of nursing students.

2. Method

2.1 Research Design

This study is a descriptive study to analyze the relationship between academic stress, sleep quality and depression of nursing students.

2.2 Data Collection

An online survey was conducted from July to September 2020 among nursing students at B University who agreed to the purpose of the study. Although 160 questionnaires were collected, 155 questionnaires were used as data except for 5 inaccurate data.

2.3 Instruments

2.3.1 Academic stress

Academic stress was measured using a tool modified by Park & Park[11]. It consists of 45 questions, on a 5-point scale, and it ranges from 1 point for 'clearly not' to 5 points for 'clearly yes'. Higher scores indicate higher academic stress. Cronbach's α was 0.912.

2.3.2 Sleep quality

To evaluate the subjective sleep quality of the past month, 19 items of the Pittsburgh sleep quality index PSQI developed by Buysse et al. (1989) were used. It consists of a 4-point scale, with 0 points for none for 1 month, 1 point for less than once a week, 2 points for 1-2 times a week, and 3 points for more than 3 times a week. A higher score indicated lower levels of sleep quality. The Cronbach's α was 0.897.

2.3.3 Depression

The Korean version of the Depression Scale for Epidemiological Studies (CES-D) developed by Jeon Gyeom-Gu, Choi Sang-Jin, and Yang Byeong-Chang[12] was used. This is composed of a Likert 4-point scale, and it well expresses their thoughts on depression-related items for 1 week, with 0 points for less than 1 day, 1 point for 1-2 days, 2 points for 3-4 days, 3 A higher score indicates a higher degree of depression. Cronbach's α was 0.902.

2.4 Data Analysis

The collected data were analyzed with the SPSS 18.0 program:
• The frequencies and percentages of the general characteristics of the subjects were calculated.
• t-test and ANOVA were used to analyze the difference between the academic stress, sleep quality, and depression according to general characteristics of the subjects. A Scheffe test was done as a post hoc test.
• The correlation between the academic stress, sleep quality, and depression of the subjects was analyzed with the Pearson's correlation coefficient

2.5 Ethical considerations

The purpose of the study was explained to the subject, and the collected data was used only for the purpose of the study, and the subject's anonymity was guaranteed.

3. Results

3.1 General characteristics

Table 1 shows the general characteristics of the subjects. 86.5% of the subjects was female, and 30.3% of the subjects was in 2nd grade. Religion of the subjects was non-religious 51.6%, Christianity 43.2%, Catholics 4.5%, and the type of physical health was moderate 47.1% and good 36.1%. And the type of mental health was good 47.7% and moderate 38.1%.

Table 1. General characteristics (n=155)

Characteristic		n	%
Gender	Male	21	13.5
	Female	134	86.5
Grade	First	31	20.0
	Second	47	30.3
	Third	53	34.2
	Fourth	24	15.5
Religion	Christians	67	43.2
	Catholics	7	4.5
	Buddhists	1	0.6
	No religion	80	51.6
Physical health	Very bad	–	–
	Bad	14	9.0
	Moderate	73	47.1
	Good	56	36.1
	Very good	12	7.7
Mental health	Bad	22	14.2
	Moderate	59	38.1
	Good	74	47.7

3.2 The level of academic stress, sleep quality, and depression

Table 2 shows the level of academic stress, sleep quality, and depression. Academic stress averaged 2.66 points out of 5. Sleep quality and depression were averaged 0.82 points and 0.79 points out of 3 points, respectively.

Table 2. The level of academic stress, sleep quality, and depression.

Variables	Range	M±SD
Academic stress	1 – 5	2.66±1.19
Sleep quality	0 – 3	0.82±.69
Depression	0 – 3	0.79±.85

3.3 Difference of academic stress, sleep quality and depression by general characteristics

Table 3 shows the results of analyzing differences in academic stress, sleep quality, and depression according to general characteristics. Academic stress was analyzed to be significantly different in physical health (F=6.326, p<.001) and mental health (F=11.630, p<.001). The academic stress was higher in the case of bad physical health than the case of very good, and mental health was higher in bad than good. Sleep quality was different from physical health (F=8.834, p<.001), and depression was found to be different from physical health (F=9.619, p<.001) and mental health (F=28.625, p<.001). The degree of depression in both the physical and mental health was higher in bad than the good cases.

3.4 Correlation of the academic stress, clinical practice stress and major satisfaction

Table 4 shows the results of analyzing the correlation between academic stress, sleep quality and depression. Academic stress and depress had a positive correlation (r=.242, p<.01).

Table 3. Difference of the academic stress, sleep quality and depression by general characteristics

Characteristic		Academic stress			Sleep quality			Depression		
		M±SD	t or F	p	M±SD	t or F	p	M±SD	t or F	p
Gender	Male	2.43±0.91	−1.284	0.212	2.66±1.45	−0.234	0.815	0.81±0.82	−1.610	0.108
	Female	2.69±0.66			2.73±1.22			0.60±0.85		
Grade	Freshman	2.75±1.07	2.169	0.094	2.69±1.30	1.014	0.388	0.87±0.81	1.512	0.214
	Sophomore	2.82±1.18			2.81±1.51			0.70±0.82		
	Junior	2.55±1.23			2.71±1.30			0.85±0.90		
	Senior	2.45±1.16			2.63±1.45			0.72±0.81		
Religion	Christianity	2.59±1.16	0.949	0.418	2.68±1.40	1.960	0.899	0.81±0.86	0.547	0.651
	Catholics	2.95±1.17			3.16±1.58			0.68±0.75		
	Buddhism	2.00			2.42±0			0.35		
	No religion	2.69±1.21			2.73±1.41			0.79±0.85		
Physical health	Very bad a	–	6.326	0.000*** (b>e)	a	8.834	0.000*** (b>e)	–	9.619	0.000*** (b>e)
	Bad b	2.83±1.32			2.77±1.40 b			1.31±0.94		
	Moderate c	2.76±1.18			2.71±1.38 c			0.77±0.83		
	Good d	2.64±1.12			2.60±1.46 d			0.76±0.78		
	Very good e	1.88±1.01			2.25±1.40 e			0.50±0.59		
Mental health	Bad a	2.94±0.62	11.630	0.000*** (a>c)	0.51±0.26	1.942	0.147	1.32±0.50	28.625	0.000*** (a>b,c)
	Moderate b	2.76±0.65			0.56±0.23			0.82±0.43		
	Good c	2.39±0.67			0.63±0.31			0.62±0.29		

*** p<0.001

Table 4. Correlation of sleep quality and depression

Characteristic	Academic stress	Sleep quality	Depression
Academic stress	1		
Sleep quality	.034	1	
Depression	.242[**]	.137	1

** p<0.01

4. Discussion

The perceived stress level of nursing students is higher than that of students in other majors, and it is reported that the biggest factor of stress is academic stress. Nursing students experience a high level of stress due to the burden of carrying out heavy tasks such as clinical practice and passing national exams while experiencing a study that deals with human life.

As a result of analyzing the academic stress, sleep quality, and degree of depression of nursing students, academic stress was the highest with 2.66 points. It was lower than the 3.12 point of Kim[9], who studied nursing students. This is thought to be due to the difference in the learning environment such as online classes and clinical practice due to COVID-19. Therefore, in order to compare the academic stress levels of nursing students, further research is needed in a similar environment such as face-to-face classes and clinical practice.

As a result of analyzing the differences between nursing students' academic stress, sleep quality, and depression according to general characteristics, it was found that academic stress had a statistically significant difference in the physical and mental health of the subjects. In other words, it was found that the degree of academic stress was higher in the case of poor physical and mental health than in the good case. In a study conducted on nursing students, there was a significant difference between academic stress and subjective health status, and it was found that the case of poor health had higher academic stress than normal[13,14]. It indicates that the case of poor subjective health received more academic stress than the case of good.

There was a significant difference in sleep quality with physical health, and poor physical health showed lower sleep quality than very good ones. Sleep, which accounts for one-third of human life, is essential for maintaining physiological and mental homeostasis. Sufficient sleep restores physical and mental fatigue, and recharges energy so that it can perform optimally. However, insufficient sleep affects daily life by causing fatigue, drowsiness, decreased memory and concentration, nervousness, and tension[15].

When there is a lot of stress, the quality of sleep decreases[10]. The average sleep time of Korean university students was low and the sleep arousal disorder group including insomnia and daytime sleepiness was high at 56.4%[16]. Moreover, nursing students have a lot more learning than students in other majors and can fully guess sleep problems through alternating clinical practice, so it is necessary to understand the relationship between sleep and health.

Nursing college students experience higher academic stress than general college students [16,17], and high-stress students have a high risk of falling into depression[18]. In addition, they feel skeptical about their major and experience severe atrophy and frustration. Therefore it is thought that reducing the stress and depression of nursing students will contribute to the improvement of mental health of nursing students as well as the achievement of learning outcomes pursued in nursing education.

Depression was found to have a statistically significant difference in the physical and mental health of the subjects. In other words, it was found that the degree of depression was higher in the case of poor physical and mental health than in the good case. In particular, since the depression experienced by college students is highly likely to persist into adulthood [18], it is necessary to seek a continuous, systematic and comprehensive health management method for the healthy life of nursing students[1].

The result of the correlation between academic stress and sleep quality and depression was when higher the academic stress is, the degree of depression is higher. This is the same result as a study showing a positive correlation between academic stress and depression[19,20]. In other words, it can be seen that academic stress caused by school life, mismatch of major, and grades in nursing students is a depressive factor. Therefore, it is judged that it is desirable to select nursing department in consideration of one's aptitude.

Considering the above results, it is thought that an educational method and educational environment that can reduce academic stress and depression should be provided in order to maintain and promote the physical and mental health of nursing students.

5. Conclusion

Reducing the stress and depression of nursing students is thought to contribute to the improvement of the mental health of nursing students as well as the achievement of learning outcomes pursued in nursing education. Therefore, it is necessary to develop a program to maintain and promote physical and mental health based on the results of confirming the relationship between academic stress, sleep quality, and depression in nursing students.

Since this study collected data from nursing students at one university, it is difficult to generalize the results. So it is necessary to conduct comparative and repeated studies in different regions. In addition, we propose an exploratory study on the other factors that affect academic stress and depression in nursing students, as well as a study to develop a program to reduce academic stress and depression.

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