

## Original Article

# Effect of Stress on Academic Motivation and Achievement of Students in Nursing Education

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## Abstract

**Background:** The level of stress in individuals working in healthcare industry is higher than those working in other occupational groups. Sources of stress in the clinical and theoretical practice have negative consequences on the health, academic motivation achievement of student nurses in particular, who are about to step into the profession.

**Objective:** This study was conducted to identify the levels of stress and motivation of nursing students during their education (theoretical and practical) and to determine how they affect their school achievement.

**Design:** A descriptive survey design was used in the study.

**Setting:** This study was conducted in Binali Yildirim University in Turkey.

**Participants:** The study was conducted with students (n=321) studying at Erzincan University Faculty of Health Sciences Department of Nursing in the spring semester of the 2017-2018 academic year.

**Methods:** The study data were collected by a "Personal Information Questionnaire", the "Nursing Education Stress Scale" and the "Academic Motivation Scale".

**Results:** Of the students, the clinical stress sub-scale score average was  $31.41 \pm 8.37$ , the academic stress sub-scale score average was  $32.35 \pm 7.70$ , and the mean total score in the stress scale was  $63.76 \pm 14.75$ . When the average scores of academic motivation were examined, it was found that the average amotivation sub-scale score of the students was  $11.00 \pm 6.04$ , average intrinsic motivation sub-scale score was  $40.49 \pm 10.38$ , and average extrinsic motivation sub-scale score was  $55.04 \pm 14.97$ , respectively. A significant difference was found between overall GPA of students and nursing education stress scale and academic motivation scale score averages.

**Conclusion:** As a result of this study, it was found that increased levels of stress and motivation have a positive effect on the level of success of the nursing students.

**Key Words:** nurse; education; student; stress; academic motivation; achievement

## Introduction

The nursing profession is a discipline that requires both theoretical and practical training. The main purpose in the education of this profession is to educate the students to make them be able to provide effective and appropriate care. However, in this educational process some students

experience very intense stress (Agacdiken et al., 2015; Karaca et al., 2014). For that reason, stress is a universal problem among nursing students (Agacdiken et al., 2015; Erbil et al., 2006). The source of the stress in question is the problems encountered in the school and in hospital in addition to being a university student. The stress

experienced affects the physical and mental health of the nursing students in the process of professionalization (Agacdiken et al., 2015; Karaca et al., 2014; Dil and Girgin, 2006).

Clinical practice areas play an important role in the development of the students' practice and preparation for the profession. In these areas, the students have the opportunity to apply the theoretical knowledge into practice. However, this environment can lead to a stress in students since it is an environment where making mistakes is out of question.

### Background

Nursing students face many different problems in addition to failure to communicate adequately and effectively with patients, doctors, nurses and other health professionals in this environment (Tel et al., 2004). When the stress caused by these problems is mild and moderate, they play a role in increasing the academic success by motivating the student. However, a high level of stress experienced can cause the decrease in the attention and concentration of the students. This can lead to an increase in the rate of making mistakes, a decrease in academic achievement, and raise in the problems in interpersonal relationships, which affect learning negatively (Arabaci et al., 2015). In addition, students with stress who have difficulty in applying the theoretical knowledge during clinical practice may not be able to evaluate the patient and provide adequate care for their patients. This makes it difficult for the student to gain the trust of the patient and his/her relatives and causes the existing stress to increase further. The stress experienced by the students affects their success negatively by adversely affecting their clinical skills development and professionalization (Karagozoglu et al., 2013). For all these reasons, the clinical practice part of nursing education is one of the most stressful factors for student nurses (Arabaci et al., 2015). In order to be able to benefit from the education process at the desired level and to develop a positive professional identity, coping with stress is very important for students.

In parallel to this situation, one of the fundamental elements in the realization of teaching activities is motivation. Academic motivation is defined as the factors that affect the individuals to attend to school or to obtain a degree (Karatat and Erden,

2012). Academic motivation is an important determinant of academic achievement (Yaman Aktas and Karabulut, 2016). In order to be interested in learning, there must be a significant reason to lead the individual to learn (Sarikoc and Oksuz, 2017; Karatas and Erden, 2012). Students with higher academic motivation are more likely to engage in learning activities to be successful (Sarikoc and Oksuz, 2017). The increased motivation of the students allows them to develop their academic skills and achieve their learning goals. Motivation of students academically, and their views and interest on education affect their desire to study positively. Thus, they increase their academic performances and approach their educational goals more. Individuals with higher academic motivation perform better, and these individuals are more open to acquire new knowledge and skills (Ozdemir Ozkan et al., 2015).

Motivation has three subgroups. These are intrinsic motivation, extrinsic motivation and lack of motivation. Intrinsic motivation is the motivation without any drive, and individuals with this type of motivation do not perform an activity for control or reward. They do it because they enjoy it or because they have an innate desire to do. In the extrinsic motivation, individuals perform an activity for the benefits they will obtain.

Intrinsic motivation is more effective than extrinsic motivation in learning. Education becomes more effective if extrinsic motivation is developed together with intrinsic motivation (Sarikoc and Oksuz, 2017; Ozdemir Ozkan et al., 2015). In a study conducted by Ozdemir Ozkan et al. (2015), it has been found that the mean value of intrinsic motivation sub-scale score of nursing students had been higher than the mean value of extrinsic motivation sub-scale score, and this result has been considered significant and positive for nursing profession and nursing students to be successful in their education and professional life (Ozdemir Ozkan et al., 2015).

Doing their jobs willingly, fondly and successfully after graduation depends on the effective education of the nursing students. And, this is related to the level of motivation and stress of the students experience during their education. In the literature, it has been determined that students with higher

motivation demonstrate more positive attitudes towards the school, and that these students have lower levels of stress (Korkmaz and Ipekci, 2015; Akbaba, 2006).

As a part of nursing education, students should be motivated and their levels of stress should be reduced in order to increase their academic achievements. Based on this, the present study was conducted to identify the levels of stress and motivation of nursing students in their theoretical and practical education and to determine how they affect their school achievement.

## Methods

### Design

The descriptive study was conducted between April and May 2018 with students studying at a university's Faculty of Health Sciences Department of Nursing. The data were collected using a "Personal Information Questionnaire" on the socio-demographic characteristics of the participants, the "Nursing Education Stress Scale" and the "Academic Motivation Scale".

No sample selection was performed in the study, and all the students (N:465) were planned to be included in the study. Students who did not attend on the day of the survey, who discontinued their education, and who did not volunteer to participate in the research were not included in the study. The study was completed with a total of 321 students. Thus, 69% of the study population was reached .

### Instruments

**Questionnaire:** This form includes the age, gender, year of the students, whether they enrolled to the nursing department willingly, whether they have nurses in the family, factors affecting their choice regarding the nursing department, their plans after graduation and their overall grade point average (GPA).

**Nursing Education Stress Scale (NESS):** Nurse Education Stress Scale (NESS) the questionnaire has two subdimensions and 32 items, answered on a 4-point Likert-type scale. It was developed by Rhead as a modified form of the Nursing Stress Scale, which was developed by Gray-Toft and Anderson (Rhead, 1995; Gray-Toft and Anderson, 1981).

The subdimensions are as follows:

Practical stress: Items 4, 5, 7, 9, 11, 13, 15, 16, 18, 19, 21, 24, 25, 27, 29, 32

Academic stress: Items 1, 2, 3, 6, 8, 10, 12, 14, 17, 20, 22, 23, 26, 28, 30, 31

The score range for this questionnaire is 0–96, and higher scores indicate greater stress. The factors together explain 37.1% of the total variance for the original study. The validity and reliability of the X version of the scale were confirmed by the Karaca et al in 2014. Cronbach's alpha reliability coefficients ranged from 0.81 to 0.93, interclass correlation coefficients between total and subdimensions of the questionnaire were 0.76 and above, and total item score correlation coefficients were over 0.30 (Karaca et al., 2014).

**Academic Motivation Scale (AMS):** The Academic Motivation Scale was developed by Vallerand et al. (1992) and its validity and reliability in a Turkish setting were tested by Karatas and Erden (2012).

Cronbach's alpha value of the scale is 0.97. This scale consists of 28 items and three main subdimensions: amotivation, extrinsic motivation and intrinsic motivation. Amotivation sub-dimensions consist of questions 5, 12, 19, 26; extrinsic motivation 1, 8, 15, 22, 7, 14, 21, 28, 3, 10, 17, 24 and intrinsic motivation 2, 9, 16, 23, 6, 13, 20, 27, 4, 11, 18, 25. The scale is a 7-point Likert-type (1 = strongly inappropriate to 7 = strongly appropriate). The final score can vary between 7 (the lowest) and 28 (the highest) (Vallerand et al., 1992).

**Ethical Consideration:** Before starting to study, ethics committee approval was obtained with the number of decision 01/01 from Erzincan Binali Yildirim Scientific Research and Publication Board and 11327278-900.99 with number of clinical study permit from The Health Sciences Faculty Turkey

Before starting the research, permissions were obtained from the Ethics Committee of the Human Researches of the university and the Faculty of Health Sciences to apply the questionnaires, and the students were informed that the research will be carried out on a voluntary basis and their information will be confidential, and their verbal consents were obtained prior to applying the

questionnaires. It took students 15-20 minutes to complete the questionnaires.

**Statistical Analysis:** The data were analysed using SPSS version 22 (SPSS Inc.). Percentage, arithmetic mean, independent t test, ANOVA, post hoc test and correlation analysis tests were used in the analysis of the study data.

**Limitations of the Study:** Since the study was carried out only with nursing students studying at a University's Faculty of Health Sciences, the results can only be generalized to the sample of this research.

## Results

A total of 321 (41.1%) nursing students, 189 female (58.9%) and 132 male, participated in this study voluntarily. The average age of the students was  $21.21 \pm 1.99$ , and their overall GPA average was  $2.63 \pm 0.56$ . Of the students, 27.1% was junior, 25.5% was freshman, 25.2% was senior, and 21.1% was sophomore students. The majority of the students (64.5%) have an overall GPA of 2.00-3.00. Of the students, 53.3% enrolled in the nursing department willingly, and 61.1% had nurses in their family or in the close circle. Of the students, 28% selected this department because of his/her score in the university entrance exam, 25.2% selected due to his/her willingness to help people, and 21.5% said they preferred the nursing profession because of their family's desire. After graduation, 39.3% of the students wants to work as a nurse, while 27.7% hasn't decided what to do after graduation. In addition, 21.5% of the students wants to become academician after graduation (Table 1).

In this study, the clinical practice stress sub-scale score average of the students was  $31.41 \pm 8.37$ , the academic stress sub-scale score average was  $32.35 \pm 7.70$ , and the mean total score in the NESS scale was found to be  $63.76 \pm 14.75$ . When the average scores of academic motivation were examined, it was found that the average amotivation sub-scale score of the students was  $11.00 \pm 6.04$ , average intrinsic motivation sub-scale score was  $40.49 \pm 10.38$ , and average extrinsic motivation sub-scale score was  $55.04 \pm 14.97$ , respectively (Table 2).

Table 3 compares the descriptive characteristics of the nursing students with the NESS sub-scale

averages. According to the analysis, there was a significant difference between the years of the students and the mean academic stress sub-scale scores. Accordingly, the average of academic stress sub-scale score of the sophomore students was found to be statistically higher than the average academic stress sub-scale scores of the freshman and senior students ( $p=.019$ ).

A significant difference was found between students' overall GPA and practice stress sub-scale, academic stress sub-scale and the mean NESS total score. According to the analysis, the students with the overall GPA of 3.01-4.00 had the highest clinical practice stress sub-scale score average, and the students with the overall GPA of 0-1.99 had the lowest clinical practice stress sub-scale score ( $p=.000$ ). However, academic stress sub-scale score average and NESS total score average of the students with the overall GPA of 2.00-3.00 and 3.01-4.00 were found to be significantly higher than that of the students with the overall GPA of 0-1.99 ( $p=.013$ ,  $p=.000$ ) (Table 3)..

There were no significant differences between the other descriptive characteristics and the NESS sub-scales and the total score average.

Table 4 compares the descriptive characteristics of the nursing students with the AMS sub-scale averages. The mean extrinsic motivation sub-scale score of the female students was significantly higher than the extrinsic motivation sub-scale score of the male students ( $p=.028$ ).

There was no significant difference between the students' years in university and the mean AMS sub-scale scores ( $P > 0.05$ ).

It was observed that the mean AMS sub-scale scores of the students were varying significantly according to their overall GPA. Accordingly, lack of motivation sub-scale score average of the students with the overall GPA of 2.00-3.00 and 3.01-4.00 were found to be significantly lower than that of the students with the overall GPA of 0-1.99 ( $p=.006$ ). However, both intrinsic and extrinsic motivation sub-scale score averages of the students with the overall GPA of 3.01-4.00 were found to be significantly higher than that of the students with the overall GPA of 0-1.99 and 2.00-3.00 ( $p=.008$ ,  $p=0.21$ ) (Table 4)..

According to results, the willingness or

unwillingness to enroll in the nursing department affects the mean AMS sub-scale scores. Although the average amotivation sub-scale score of the students who enrolled in the department of nursing willingly was significantly lower ( $p=.000$ ), their mean intrinsic and extrinsic motivation sub-scale scores were found to be significantly higher ( $p = .000$ ) (Table 4)..

It was also found that the mean AMS sub-scale scores were significantly different according to the factors that were effective in the department preference. In the analysis, the mean amotivation sub-scale score of the nursing students who preferred the department of nursing to help people were found to be significantly higher than those who enrolled in the department due to the request of the family and limited score in the college entrance exam score ( $p=.000$ ). And, the mean intrinsic and extrinsic motivation scores were found to be significantly higher in the students who preferred the department of nursing to help people compared to students who preferred the department due to other reasons ( $p=.000$ ,  $p=.001$ ).

There was a significant difference between the postgraduate plans of the students and the mean AMS sub-scale scores. According to the statistical analysis, the amotivation score average of the students who did not want to work in the nursing profession after the graduation was significantly higher than the students who want to work as a nurse, want to be an academician and who want to work both as an academician and a nurse in the clinic ( $p=.003$ ). In addition, the amotivation score average of the students who want to work as a

nurse in the clinic was significantly lower than the average score of the students who were hesitant about what to do after graduation or who want to enroll in another department ( $p=.003$ ).

Intrinsic motivation score average of the students who want to become an academician after graduation was significantly higher than the average scores of the students who want to work as a clinical nurse and who are hesitant about what to do or want to enroll in another department ( $p=.000$ ). However, the mean intrinsic motivation score of the students who want to work as a nurse in the clinic was significantly higher than the mean score of the students who were unsure about what to do ( $p=.000$ ).

In addition, the mean extrinsic motivation scores of the students who want to be an academician and work as a nurse in the clinic were significantly higher than the mean score of the students who were undecided about what to do ( $p=.000$ ).

There were no significant differences between the other descriptive characteristics and the AMS sub-scale score averages.

In the correlation analysis, there was a significant positive correlation between the average clinical practice stress sub-scale score and total score of the NESS and the mean intrinsic and extrinsic motivation sub-scale scores of the AMS. However, a significant positive correlation was found between the average academic stress sub-scale score of NESS and the intrinsic motivation score average (Table 5).

**Table 1. Sociodemographic characteristics of nursing students (n=321)**

Age (Mean±SD)	21.21±1.99	
GPA (Mean±SD)	2.63±0.56	
	N	%
<b>Gender</b>		
Male	132	41.1
Female	189	58.9
<b>Class</b>		

First	82	25.5
Second	71	21.1
Third	87	27.1
Fourth	81	25.2
<b>GPA</b>		
0.00-2.00	32	10
2.01-3.00	207	64.5
3.01-4.00	82	25.5
<b>Willingness to choosing the nursing profession</b>		
Yes	171	53.3
No	150	46.7
<b>Family in nursing</b>		
Yes	196	61.1
No	125	38.9
<b>Reason of choosing the nursing profession</b>		
Because of the entrance score to the university	90	28.0
To be beneficial to the sickness people	81	25.2
Family wish	69	21.5
To avoid taking the exam again	54	16.8
Job opportunity	27	8.4
Plan after graduation		
Working as a clinical nurse	126	39.3
Undecided	89	27.7
Being an academician	69	21.5
Read another profession	15	4.7
Not to work	14	4.4
Working as a clinical nurse, and then being an academician	8	2.5

**Table 2. Score of Nursing Education Stress Scale and Academic Motivation Scale**

	N	Mean±SD	Min	Max
<b>Nursing Education Stress Scale</b>				
Clinical practice stress	321	31.41±8.37	0	48
Academic stress	321	32.35±7.70	0	48
Total score	321	63.76±14.75	0	96
<b>Academic Motivation Scale</b>				
Amotivation	321	11.00±6.04	4	28
Intrinsic motivation	321	40.49±10.38	13	84
Extrinsic motivation	321	55.04±14.97	18	84

**Table 3. Comprasion of the Sociodemographic characteristics of nursing students and Nursing Education Stress Scale Scores**

	Clinical practice stress	Academic stress	Total score
<b>Age</b>			
18-21 years	31.59±8.22	32.47±7.75	64.07±14.53
22-26 years	31.15±8.60	32.29±7.61	63.44±15.09
27 years and older	30.85±9.38	30.28±8.78	61.14±16.67
<b>Test, p value</b>	F= .119 p=.887	F= .279 p=.757	F= .180 p=.836
<b>Cinsiyet</b>			
Male	30.51±8.59	31.76±8.00	62.28±15.36
Female	32.03±8.17	32.77±7.47	64.80±14.26
<b>Test, p value</b>	t= 1.606 p=.109	t= 1.153 p=.250	t=1.514 p=.131
<b>Class</b>			
First	30.41±9.30	30.71±8.91	61.13±17.06
Second	32.38±7.68	34.60±6.09	66.98±12.03
Third	32.05±8.20	32.26±7.34	64.32±13.97
Fourth	30.87±8.12	32.14±7.69	63.02±14.89
<b>Test, p value</b>	F= .987 p=.399	F= 3.347 p=.019*	F= 2.128 p=.097
<b>GPA</b>			
0.00-2.00	24.59±8.57	28.71±9.03	53.31±16.02
2.01-3.00	31.56±8.33	33.00±7.55	64.56±14.63

3.01-4.00	33.69±6.94	32.15±7.20	65.85±12.96
<b>Test, p value</b>	F= 14.881 p=.000*	F= 4.409 p=.013*	F= 9.645 p=.000**
<b>Willingness to choosing the nursing profession</b>			
Yes	31.28±8.07	31.78±7.58	63.07±14.50
No	31.56±8.72	33.00±7.80	64.56±15.04
<b>Test, p value</b>	t=-.298 p=.766	t=-1.415 p=.158	t=-.906 p=.365
<b>Family in nursing</b>			
Yes	31.99±8.14	32.44±7.79	64.43±14.72
No	30.49±8.67	32.22±7.59	62.72±14.79
<b>Test, p value</b>	t=1.568 p=.118	t=.249 p=.804	t=1.018 p=.310
<b>Reason of choosing the nursing profession</b>			
To avoid taking the exam again	30.85±8.29	32.40±7.66	63.25±14.40
Because of the entrance score to the university	31.35±9.15	32.41±8.43	63.76±16.40
To be beneficial to the sickness people	31.67±7.60	30.54±6.90	62.22±13.23
Job opportunity	30.77±7.88	34.00±6.13	64.77±12.63
Family wish	31.85±8.60	33.73±7.94	65.59±15.38
<b>Test, p value</b>	F=.167 p=.955	F=2.012 p=.093	F=.531 p=.713
<b>Plan after graduation</b>			
Working as a clinical nurse	31.74±7.37	31.92±7.19	63.67±13.46
Undecided	30.37±9.84	32.73±8.39	63.10±16.84
Being an academician	31.56±8.06	32.07±7.65	63.63±14.16
Read another profession	33.40±7.45	34.93±7.43	68.33±13.64
Not to work	31.64±9.51	33.92±8.48	65.57±16.59
Working as a clinical nurse, and then being an academician	32.25±8.86	29.87±7.56	62.12±16.00
<b>Test, p value</b>	F=.503 p=.774	F=.754 p=.584	F=.384 p=.860



**Table 4. Comparison of the sociodemographic characteristics of nursing students and Academic Motivation Scale Scores**

	<b>Amotivation</b>	<b>Intrinsic motivation</b>	<b>Extrinsic motivation</b>
<b>Age</b>			
18-21 years	11.37±6.17	40.34±10.44	55.05±14.99
22-26 years	10.33±5.84	40.37±10.07	54.92±15.11
27 years and older	12.57±5.88	46.57±13.78	56.85±13.54
<b>Test, p value</b>	F=1.358 p=.259	F= 1.228 p=.294	F= .055 p=.947
<b>Cinsiyet</b>			
Male	11.59±5.69	39.40±10.35	52.84±14.51
Female	10.59±6.26	41.24±10.36	56.57±15.13
<b>Test, p value</b>	t=-1.458 p=.146	t=1.565 p=.119	t=2.208 p=.028*
<b>Class</b>			
First	11.86±5.52	40.57±10.69	54.87±15.54
Second	10.54±6.98	39.57±10.53	55.54±15.12
Third	10.71±5.96	39.95±10.61	53.00±14.95
Fourth	10.83±5.76	41.79±9.72	56.96±14.25
<b>Test, p value</b>	F= .775 p=.509	F= 683 p=.563	F= 1.014 p=.387
<b>GPA</b>			
0.00-2.00	13.71±5.49	36.93±9.25	50.18±14.78
2.01-3.00	11.09±6.02	40.00±9.97	54.47±14.21
3.01-4.00	9.70±5.99	43.12±11.29	58.36±16.33
<b>Test, p value</b>	F= 5.271 p=.006*	F= 4.849 p=.008*	F= 3.919 p=.021*
<b>Willingness to choosing the nursing profession</b>			
Yes	9.26±5.58	42.75±9.86	58.02±14.03
No	12.98±5.96	37.91±10.39	51.64±15.32
<b>Test, p value</b>	t=-.5.754 p=.000**	t=4.278 p=.000**	t=3.898 p=.000**
<b>Family in nursing</b>			
Yes	11.08±6.22	41.25±10.54	55.87±14.33
No	10.87±5.78	39.29±10.05	53.74±15.88
<b>Test, p value</b>	t=.310 p=.757	t=1.652 p=.099	t=1.243 p=.215
<b>Reason of choosing the nursing profession</b>			
To avoid taking the exam again	11.96±5.98	39.59±10.42	51.14±14.61
Because of the entrance	12.48±5.82	37.86±9.15	51.66±13.27

score to the university			
To be beneficial to the sickness people	8.18±5.52	45.79±9.97	61.39±13.88
Job opportunity	10.55±6.02	37.59±9.12	54.55±17.26
Family wish	11.79±6.00	39.53±10.81	55.04±14.97
<b>Test, p value</b>	F=6.904 p=.000**	F=8.150 p=.000**	F=6.073 p=.001*
<b>Plan after graduation</b>			
Working as a clinical nurse	9.80±5.31	41.29±8.65	57.42±13.57
Undecided	12.15±6.18	36.50±10.29	48.11±14.68
Being an academician	10.79±6.81	44.55±11.69	59.91±15.05
Read another profession	12.86±5.31	38.53±11.39	53.60±15.66
Not to work	15.00±6.17	39.71±10.23	54.71±14.53
Working as a clinical nurse, and then being an academician	8.25±4.23	42.25±9.40	56.00±14.56
<b>Test, p value</b>	F=3.629 p=.003*	F=5.395 p=.000**	F=6.450 p=.000**

**Table 5. The Relationship Between Nursing Education Stress Scale and Academic Motivation Scale Scores**

	<b>Amotivation</b>	<b>Intrinsic motivation</b>	<b>Extrinsic motivation</b>
<b>Total Score</b>	r= -0.012	r= 0.339**	r= 0.144*
<b>Clinical practice stress</b>	r= 0.107	r= 0.199**	r= 0.075
<b>Academic stress</b>	r= 0.049	r= 0.296**	r= 0.121*

### Discussion

Although stress levels of nursing students, factors affecting the stress and methods of coping with stress have been investigated in numerous studies, the effect of level of stress on academic motivation and achievement have not been studied in X. As a result of this study, it was determined that the NESS score averages of the nursing students were above the average (Table 2). In the study conducted by Al Zamil (2017), it has been stated that the majority of the nursing students have been experiencing moderate stress, whereas the study of

Mahfouz and Sahli (2016) have showed that the nursing students had a high level of stress. When the stress scale sub-scale averages were examined, the academic stress sub-scale score were found to be slightly higher, despite being closer to the the clinical practice stress sub-scale score. Similarly, in some study results, the academic stress score average of the student nurses has been slightly higher than the practice stress score averages. In a multi-center study conducted by Burnard et al. (2016) in five different countries, the mean academic stress scores of student nurses have been found to be higher than the mean practice stress

scores in two countries (Brunei and Malta), whereas academic stress and practice stress scores of the students have been found to be similar in the remaining countries. Excessive homework and workload, exams, fear of low grades or failure can lead to increased levels of academic stress in students (Jimenez et al., 2010). However, a number of studies investigating the stress level of students in clinical practice have been conducted and the stress levels of students have been found to be high in these studies (Suarez-Garciaa et al., 2018; Al-Gamal et al., 2018; Khater et al., 2014).

When the NESS score averages of nursing students were examined in terms of gender, it was found that the average NESS total and sub-scale scores of female students were higher (Table 3). However, the difference between them was not significant. In the study by Susan Bublitz et al. (2016), no significant difference has been found between the stress score averages of female and male nursing students. In the literature, it has been stated that female nursing students experience more stress during their education (Ocak and Guler, 2013; Savcı and Aysan, 2014; Feitosa Cestari et al., 2017; Ergin et al., 2018).

When the stress levels in terms of years in university were examined, the mean academic stress sub-scale score was found to be highest in the sophomore students (Table 3). This significance may be due to the fact that the courses taken in the second year are excessive both in terms of content and intensity. Feitosa Cestari et al. (2017) have found that 26% of the freshman nursing students and 43.3% of the fifth year nursing students experienced stress. In a study conducted in X, however, there has been no significant difference between nursing students' total and sub-scale score averages in the nursing education scale, only the academic stress sub-scale score of the senior nursing students have been found slightly higher than the others (Ergin et al., 2018).

When the average NESS scores and achievements of the students were examined, it was found that the NESS clinical practice stress sub-scale score and total score increases with increasing overall GPA, with a statistically significant difference (Table 3). In line with these results, the level of stress is observed to increase with increasing level

of success. As in all areas of our life, stress is also seen in the education. Although it is very difficult to eliminate the stress completely, it is stated that reasonable amount of stress increase the motivation, attention and sensitivity levels and accordingly increase the level of success (Arabaci et al., 2015; Durna, 2006). Since the level of stress of nursing students is slightly higher than average in this study, we can say that it has a positive effect on the students' level of achievement.

The mean academic stress sub-scale and total scores of the students who enrolled the department of nursing willingly, were slightly higher than the students who enrolled unwillingly, and the difference was not statistically significant (Table 3). Similar results have also been found in the study by Ergin et al. (2018), and it has been determined that the students who willingly enrolled in the nursing profession had slightly higher nursing education stress scale total and sub-scale score averages than the unwilling students, albeit the difference has not been significant. We can argue that the non-significant difference between the students who enrolled willingly and unwillingly may be caused by the fact that students who enrolled unwillingly love and embrace the nursing profession in time. However, it is important that the nursing profession, which is important in the protection and improvement of human health, should be chosen willingly to have a professional awareness (Karadag, et al., 2015). Nurses' love in their profession and willingness to do their job professionally contributes to the development and professionalization of the nursing (Altunkurek et al., 2017).

In this study, the average amotivation score of the students was low and the average intrinsic and extrinsic motivation scores were found to be above the average (Table 2). Intrinsic motivation is the act of making and sustaining an activity because of self-enjoyment (Yurt and Bozer, 2015). It is stated that intrinsic motivation sources provide more powerful motivation for learning (Xiang et al., 2005; Celik et al., 2014). For this reason, problems in the nursing education in X conditions, insufficient joy and satisfaction felt by students regarding the nursing education, and inadequate sources of intrinsic motivation may be the reasons behind the slightly higher intrinsic score average, which is expected to be quite high in nursing

students. In the extrinsic motivation, individuals perform an activity for the benefits they will obtain ((Sarikoc and Oksuz, 2017; Ozdemir Ozkan et al., 2015). We can say that the students' extrinsic motivation scores are above average because of the reasons such as having a profession after graduation, obtaining economic freedom, and beginning to work. In the literature, the academic motivation score averages of the nursing students have been found to be in the range of moderate to high (Korkmaz and Ipekci, 2015; Celik et al., 2014). Celik et al. (2014) has found in their study that nursing students have higher intrinsic and extrinsic motivation score averages, and lower negative motivation. Similarly, in the study by Korkmaz and Ipekci (2015), the intrinsic and extrinsic motivations of nursing students have been found to be high, and that they have been experiencing factors that cause motivational problems less.

In terms of gender-based academic motivation scores, it was found that the average amotivation score was lower, and intrinsic and extrinsic motivation score averages of female students were found to be higher, with a statistically significant difference in terms of extrinsic motivation between genders (Table 4). In this study, female students' desire to achieve economic freedom and their high probability of finding a job after completing the nursing department may have affected the average extrinsic motivation score of female students positively.

When we examined the average scores of academic motivation in terms of years in university, it was found that the intrinsic and extrinsic score averages of the senior students were high, but the difference was not significant (Table 4). In the study by Karaman Ozlu et al. (2014), the intrinsic and extrinsic motivation score averages of senior students have been found to be significantly higher than those of freshman students. In another study, intrinsic motivation score averages of senior students have been significantly higher (Korkmaz and Ipekci, 2015). Increased theoretical and practical knowledge and experience of the senior students, their helpfulness towards their patients and excitements about starting to work in sere after graduation may have had a positive impact on their intrinsic and extrinsic motivation levels over the years.

When the effect of students' levels of achievement on the academic motivation were examined, it was found that the students with the highest level of achievement had the lowest average amotivation scores and the highest intrinsic and extrinsic motivation scores, with a significant difference (Table 4). One of the most important factors affecting academic achievement is the motivation to learn (Yurt and Bozer, 2015; Alderman, 2004). A student motivated to learn arranges all his/her behaviors to learn the subject and focuses on learning more at the university and being more successful at exams (Yurt and Bozer, 2015; Slavin, 2006). Studies show that students who have a high academic motivation in learning have better academic achievement and lower school dropout rates (Solmaz and Cekim, 2017; Afzal et al., 2010; Kusurkar et al., 2011). The higher intrinsic and extrinsic score averages of the students with high level of success in this study have also affected the success levels of the students similarly. Indeed, we can say that the achievement triggers both intrinsic and extrinsic motivation. This is because the average amotivation scores of the students with high level of achievement were found to be lower, with a statistically significant difference. In this context, the students with higher intrinsic and extrinsic motivation score averages have increased level of success.

Another interesting finding in this study is that the intrinsic and extrinsic motivation score averages of those who willingly enrolled in the nursing department were higher than the students who had been enrolled unwillingly in the department, and the difference between them was significant (Table 4). Likewise, the average amotivation score of the students who enrolled in the nursing department unwillingly was higher, with a statistically significant difference (Ozdemir Ozkan et al., 2015). One of the most important determinants of motivation in a profession is the willingness in choosing that profession. Adverse effects such as stress, low levels of motivation, burnout, dissatisfaction, thinking of leaving the job can be seen in the individuals who couldn't make the right decision in choosing a profession (Gokdeniz and Merdan, 2011). As a result, low amotivation score average and high intrinsic and extrinsic motivation score average is and expected consequence in those who chose the nursing profession willingly.

In a study conducted with midwifery students, the motivation levels of the students who preferred the midwifery department willingly have been found to be higher (Bilgin and Ocakci, 2011).

It was also found that the mean academic motivation sub-scale scores were significantly different according to the factors that were effective in the department preference (Table 4). In the analysis, the average amotivation score of the students was the lowest and the average intrinsic and extrinsic motivation scores were the highest in students who preferred the department of nursing to help people. Nursing profession is directly related to care, love, interest and labor provided to people. In this context, we can say that loving the human being has a positive impact on the lowest score in the amotivation sub-scale, the higher scores in the intrinsic and extrinsic motivation scores in parallel with this.

There were significant differences between post graduation plans of students and academic motivation score averages (Table 4). The amotivation score average of the students who did not want to work in the nursing profession after the graduation was the highest. This may be due to their unwillingness about the profession or unintended enrollment in this department. The average intrinsic and extrinsic motivation scores of the students who want to become academicians after graduation were higher than the others.

The educational process to become an academician depends primarily on the development and education of the individual. This requires higher intrinsic and extrinsic motivation levels of the individuals. In line with the results of this study, we can state that our students, who want to be academicians, take the steps towards their goal with determination.

When the relationship between the nursing stress scale and the AMS scores was examined, it was found that there was a significant positive correlation between the practice stress score average and both the intrinsic and extrinsic motivation score averages (Table 5). A significant positive correlation was only found between the average academic stress sub-scale score and the intrinsic motivation score average (Table 5). At the same time, there was a significant positive correlation between NESS total score and the

intrinsic and extrinsic motivation score averages (Table 5). Although the intense stress affects individuals' health, work productivity and quality of life negatively, a mild to moderate stress, which does not disturb the individual, affects the motivation of the individual positively. This is a necessary condition for the development of both individuals and communities (Arpaci, 2005). In line with these results, we can say that the stress felt by the students has a positive effect on both intrinsic and extrinsic motivation.

### Conclusion

Theoretical knowledge and clinical practice in nursing profession are the basic components of nursing education. In this study, it was determined that the average NESS total and sub-scale scores of female students were higher than male students. However, the level of success of students was observed to be increased with increasing levels of stress.

Academic motivation levels of nursing students were found higher in female students. In addition, the mean amotivation sub-scale score was found to decrease and the average intrinsic and extrinsic motivation scores were found to increase as the level of achievement of the students increase. Moreover, the average amotivation sub-scale score of the students who enrolled in the department of nursing willingly was significantly lower, and their mean intrinsic and extrinsic motivation sub-scale scores were found to be significantly higher.

In this study, a significant positive correlation between NESS total score and the intrinsic and extrinsic motivation score averages was found.

Considering that the situations that cause stress in both theoretical and clinical practice adversely affect academic motivation and achievement level in nursing students, these conditions that cause stress should be eliminated. However, it should be noted that a level of stress to a certain extent has a positive effect on the level of achievement and motivation of the students.

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