

Stress Experienced by Turkish Nursing Students and Related Factors

Hemşirelik Öğrencilerinin Yaşadıkları Stres ve İlişkili Faktörler

Nuriye Yıldırım¹, Aysel Karaca¹, Handan Ankaralı², Ferhan Açıkgöz¹, Dilek Akkuş¹

¹Düzce Üniversitesi Sağlık Yüksekokulu, Hemşirelik Bölümü, Düzce, Türkiye

²Düzce Üniversitesi Tıp Fakültesi, Biyoistatistik ve Tıbbi Bilişim Anabilim Dalı, Düzce, Türkiye

Abstract

Objective: This study was determined Turkish nursing undergraduates may affect stress levels and stress they experience during their studies to determine the socio-demographic variables.

Methods: This study, which descriptive cross-sectional in design study was completed with 821 students. The data was collected using the, information, forms and Stress in Nurse Education Questionnaire-SINE are collected.

Results: Although average total scores of academic stress and practical stress, which are subdimensions of SINE, were close to each other, the score of academic stress was found to be a bit higher. Monitoring a suffering patient with regard to clinical stress was determined as the most stress-inducing situation. Being criticized by an instructor in clinic practice and fear of making a mistake while providing care were among other clinic stressors mostly reported by students. The difference between average subdimension and total scores for SINE according to universities in which students studied, gender, and perceived academic achievement was found to be significant ($p<0.001$).

Conclusion: Preparing for exams, sitting for exams, and anxiety for being evaluated were the major academic stressors of nursing students. Monitoring a suffering patient, being criticized by an instructor, and fear of making a mistake while providing care were determined as clinic stressors.

Keywords: Stress, nursing education, nursing students, nursing education stress scale

Öz

Amaç: Bu çalışma Türk hemşirelik lisans öğrencilerinin eğitimleri sırasında yaşadıkları stres düzeylerini ve stresi etkileyebilecek bazı sosyodemografik değişkenleri belirlemek amacıyla yapılmıştır.

Yöntemler: Araştırma tanımlayıcı kesitsel olarak 821 öğrenci ile yapılmıştır. Veriler, bilgi formu ve Hemşirelik Eğitimi Stres Ölçeği (Stress in Nurse Education Questionnaire-SINE) ile toplanmıştır.

Bulgular: SINE'nin alt boyutları olan akademik stres ve uygulama stresi toplam puan ortalamaları birbirine yakın olmasına karşın akademik stres biraz daha yüksek çıkmıştır. Klinik stresle ilgili de acı çeken bir hastayı izlemek en çok stres yaratan durum olarak belirlenmiştir. Klinik uygulamada öğretim elemanı tarafından eleştirilmek ve bakım verirken hata yapma korkusu öğrencilerin en çok raporladığı diğer klinik stres faktörleri arasındadır. Öğrencilerin okudukları okullara, cinsiyete göre ve algılanan akademik başarıya göre SINE toplam ve alt boyutları puan ortalamaları arasındaki farkın anlamlı olduğu bulunmuştur ($p<0,001$).

Sonuç: Hemşirelik öğrencilerinin akademik stresleri arasında en çok sınavlara hazırlanmak, sınavlara girmek ve değerlendirilme endişesi gelmektedir. Klinik stresleri olarak acı çeken bir hastayı izlemek, öğretim elemanı tarafından eleştirilmek ve bakım verirken hata yapma korkusu belirlenmiştir.

Anahtar kelimeler: Stres, hemşirelik eğitimi, hemşirelik öğrencileri, hemşirelik eğitimi stres ölçeği

INTRODUCTION

Nursing students face stressors that affect academic performance and quality of life from the time they begin nursing education. Stress is a universal problem among nursing students, and undergraduate nursing students have a higher risk of developing mental health problems relative to the general population and students of other health disciplines (1-5). Rhead (6) emphasized that stress is an important psychological factor that can affect the academic performance and health of students during nursing school and the first stages of entering the clinic.

Studies on stress in the practical application of nursing education and student training have identified the following common stress sources: taking responsibility for caring for a sick person, encountering death or a dying patient, lack of support in clinical practice, and lack of self-confidence during clinical practice (7-20). It is possible to examine the stressors experienced by nursing students according to three main groups (16):

1. Academic stressors (e.g., being tested, fear of failing in the application of training, and problems related to the field of study)
2. Clinical stressors (e.g., studying, fear of making a mistake, fear of receiving a negative response from a dying or suffering patient, and relationships with other people in an institution)

Correspondence Author/Sorumlu Yazar: Ferhan Açıkgöz E-mail/E-posta: ferhan14@hotmail.com

Received/Geliş Tarihi: 28.12.2015 Accepted/Kabul Tarihi: 31.03.2016 DOI: 10.5152/clinexphealthsci.2016.061

©Copyright by 2016 Journal of Marmara University Institute of Health Sciences - Available online at www.clinexphealthsci.com

©Telif Hakkı 2016 Marmara Üniversitesi Sağlık Bilimleri Enstitüsü - Makale metnine www.clinexphealthsci.com web sayfasından ulaşılabilir

3. Individual/social stressors (e.g., financial problems and imbalance between home and school work).

In addition to these stressors, psychosocial stressors affect students negatively. These stressors include long working hours, assignments, insufficient time for leisure activities, failure to meet students' needs adequately, lack of timely feedback, and lack of social support (21, 22).

Stress has negative effects on health, including physical, psychosocial, and behavioral disorders, and can interfere with the formation of a professional identity by lowering performance received by students from their training (2, 3, 20, 23-25). Instructors who provide sufficient support to students from both clinical and academic perspectives and focus on developing students' levels of self-awareness will ensure that students are less exposed to the negative impacts of stress throughout their education (26). Consequently, organizing interventions to increase students' ability to cope with stress during occupational education is crucial and will offer them protection in terms of developing increased biopsychosocial health. The objective of this study was to determine the sociodemographic variables that could affect stress and the stress levels experienced by undergraduate nursing students during their education in four Turkish universities.

METHODS

Design

This cross-sectional study aimed to determine the degree of stress experienced by undergraduate nursing students during their education in four Turkish universities.

Research Question

Do stress levels experienced by undergraduate nursing students during their education differ significantly according to certain sociodemographic attributes?

Setting and Sample

Data were collected between April and June 2012 from 1.050 undergraduate nursing students who were studying in the nursing departments of four universities located in the Marmara and Black Sea regions of Turkey during the 2011 and 2012 academic semesters. Schools have been selected to represent the region and school choice taken into account transportation and financial means.

Information forms and Stress in Nurse Education Questionnaires (SINE) were administered to 967 students; students who were absent during days on which recruitment was conducted or refused to participate in the research were excluded. Of these, 821 were completed the forms, which were then analyzed; the valid response rate was 78.1%.

Measurements/Instruments

The information form and SINE were used as data collection instruments. Questions that were prepared by researchers and pertained to students' sociodemographic attributes were presented in the information form.

SINE the questionnaire has two subdimensions and 32 items, answered on a 4-point Likert-type scale. It was developed by Rhead (6)

as a modified form of the Nursing Stress Scale, which was developed by Gray-Toft and Anderson (27). 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 (6). The validity and reliability of the Turkish version of the scale were confirmed by the Karaca et al. in (28). The Kaiser–Meyer–Olkin value of the Turkish version of the scale was found to be 0.93. The chi-square value, obtained using Bartlett's globalization test, was significant [$\chi^2(774)=7050.137$; $p=0.00$]. The two factors had eigenvalues over 1 and explained 32.7% of the total variance. All items had factor loadings of 0.33 and above. Confirmatory factor analysis showed that the error variances for the variables were 0.88 and below. 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 (28).

Ethical Consideration

Ethical approval was granted by the Ethical Committee for Non-Invasive Clinical Research at Düzce University, and official permission to conduct the study was obtained from the four universities at which the study was conducted. In addition, participants were informed of the nature of the research and data collection instruments, and all provided written consent to participate. Some part of data from Adaptation to Turkish of Nursing Education Stress Scale were used in this study (28).

Data Analysis

PASW (Version 18.0. Chicago: SPSS Inc.; IL, USA) was used to analyze the data. Descriptive statistics are provided in tables in the form of standard deviations, raw numbers, and percentage frequencies. Analysis of variance was used to compare various groups with regard to scale scores. $p<0.05$ was considered statistically significant.

Research Limitations

The research sample was limited to undergraduate nursing students studying in four undergraduate nursing programs located in the Marmara and Black Sea regions. Research outcomes can be generalized to this sample.

RESULTS

Average subdimension and total scores for SINE significantly differed according to the university at which each student studied ($p<0.001$). Average scores for nursing students were higher than those for other universities. Average subdimension and total scores for SINE did not differ significantly according to year of study but significantly differed according to gender ($p<0.001$). Female students had higher stress levels than male students. Average subdimension and total scores for SINE differed significantly according to perceived academic achievement. Stress levels were higher in students with low self-perceived academic achievement than in other students. Subdimensions of practical stress and average total SINE scores significantly differed with respect to smoking status. Stress levels of smoking students were lower than those of nonsmoking students. Significant

Table 1. Distribution of score averages of stress in nurse education questionnaire (SINE) and its subdimensions according to some defining characteristics

Variables	n	%	SINE 1.	SINE 2.	SINE	
			Practical stress	Academic stress	Total	
			$\bar{x} \pm SD^{**}$	$\bar{x} \pm SD$	$\bar{x} \pm SD$	
Schools (n=821)	School 1	176	22	31.20 ± 8.72 #*	31.50 ± 8.24#	62.71 ± 15.99 #*
	School 2	144	17	32.47 ± 7.80 *	34.77 ± 8.01*	67.25 ± 14.94 *
	School 3	225	27	29.56 ± 8.47 #	30.61 ± 8.35#	60.18 ± 15.96 #
	School 4	276	34	30.12 ± 8.64 #	31.79 ± 8.29#	61.92 ± 15.95 #
	Statistical analysis			F=4.06 p<0.001	F=7.79 p<0.001	F=6.09 p<0.001
Grade (n=820)	First grade	273	33	30.60 ± 8.67	31.48 ± 8.80	62.08 ± 16.62
	Second grade	208	26	31.11 ± 8.75	32.89 ± 7.79	64.00 ± 15.56
	Third grade	188	23	29.47 ± 8.03	31.11 ± 8.23	60.59 ± 15.36
	Fourth grade	151	18	31.42 ± 8.45	32.37 ± 8.30	63.80 ± 15.80
	Statistical analysis			F=1.80 p=0.14	F=1.92 p=0.12	F=1.92 p=0.12
Sex (n=820)	Female	652	80	31.54 ± 8.02	32.64 ± 7.99	64.19 ± 15.04
	Male	168	20	27.02 ± 9.42	29.08 ± 9.06	56.11 ± 17.66
	Statistical analysis			F=39.21 p<0.001	F=25.10 p<0.001	F=35.74 p<0.001
Perceived academic achievement (n=816)	Low	127	16	31.51 ± 9.21*	33.95 ± 8.55*	65.47 ± 16.93*
	Middle	586	72	30.71 ± 8.26*∞	31.90 ± 7.95#	62.62 ± 15.26*
	High	103	12	28.82 ± 8.88∞	29.50 ± 9.62∞	58.33 ± 17.59∞
	Statistical analysis			F=3.04 p=0.04	F=8.21 p=0.00	F=5.82 p=0.00
Smoking (n=820)	Smoker	118	15	28.59 ± 9.86	31.09 ± 8.90	59.68 ± 17.81
	Non-smoker	702	85	30.97 ± 8.22	32.08 ± 8.25	63.05 ± 15.56
	Statistical analysis			F=7.93 p<0.001	F=1.42 p=0.23	F=4.53 p=0.03
Alcohol use (n=818)	None	642	79	31.16 ± 8.40#	32.26 ± 8.42	63.43 ± 15.94#
	Some	80	9	28.96 ± 8.12#*	30.41 ± 8.50	59.37 ± 15.84#*
	Constantly	96	12	28.23 ± 9.13*	30.96 ± 7.61	59.20 ± 15.41*
	Statistical analysis			F=6.66 p<0.001	F=2.47 p=0.08	F=4.71 p<0.001

* \bar{x} : mean; ** SD: standard deviations; #*∞: different symbols in columns show categories that are different at significant level

differences were also observed between subdimensions of practical stress and average total SINE scores according to students' alcohol consumption. Stress levels were lower in students who drank alcohol than in those who did not (Table 1).

Having examined the average scores for SINE items for Universities 1, 2, 3, and 4, the average scores observed for having to study after working all day (\bar{x} =2.24, 2.48, 2.28 and 2.30 respectively), feel-

ing constant pressure to finish assignments on time for assessment (\bar{x} =2.26, 2.46, 2.28 and 2.11, respectively), receiving negative feedback from instructors on work that you do (\bar{x} =2.30, 2.54, 2.16 and 2.15 respectively), preparing for and sitting for exams (\bar{x} =2.48, 2.58, 2.11 and 2.22 respectively), and having to pass exams/assessments before moving on to the next stage (\bar{x} =2.18, 2.40, 2.03 and 2.08, respectively) were higher than the average scores observed for other items in all universities and the common scores for subdimensions

Table 2. Average and standard deviation values of stress in nurse education questionnaire

Stress in nurse education questionnaire (SINE)	School1 1(n=176)		School1 2(n=144)		School13 (n=225)		School14 (n=276)		Total (n=821)	
	\bar{x} *	SD**	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
Academic stress										
Feeling that nothing is done when students constructively criticize aspects of the course	1.66	1.03	2.17	0.94	1.88	0.94	1.82	0.95	1.86	0.97
Difficulty in finding literature in the library relevant to a subject	1.46	0.98	1.58	1.04	1.60	1.00	1.79	1.01	1.63	1.01
Having to study after a day's work	2.24	0.92	2.48	0.92	2.28	0.89	2.30	0.93	2.31	0.92
Continuous pressure to meet deadlines for assessments	2.26	0.79	2.46	0.80	2.28	0.84	2.11	0.91	2.25	0.85
Feedback from tutors that emphasizes negative aspects of your work	2.30	0.91	2.54	0.75	2.16	0.93	2.15	0.86	2.25	0.88
Unsure of the structure of the course	1.80	0.97	1.97	0.96	1.66	0.94	1.99	0.94	1.86	0.96
Classroom environment is not conducive to learning	1.78	0.96	2.06	0.93	2.09	0.89	2.04	0.90	2.00	0.92
Revising for and sitting of examinations	2.48	0.79	2.58	0.77	2.11	0.91	2.22	0.88	2.31	0.87
Not knowing how deep to study a subject	1.89	0.94	2.19	0.94	1.92	0.94	1.95	0.93	1.97	0.94
Difficulty in relating theory to the care of patients	1.87	0.93	1.95	0.89	1.78	0.93	1.78	0.84	1.83	0.90
Amount of academic work involved in your training	1.80	1.02	2.08	1.02	1.56	1.02	1.88	1.00	1.81	1.03
Home environment makes studying difficult	1.74	1.09	1.79	1.12	1.65	1.06	1.66	1.11	1.70	1.09
Having to pass assessments before proceeding to the next stage of the course	2.18	0.93	2.40	0.83	2.03	0.90	2.08	0.94	2.15	0.92
Inadequate support from tutors	1.86	1.00	2.15	0.95	1.92	0.91	1.97	0.88	1.96	0.93
Little direction as to what is expected of you	1.95	0.91	2.02	0.97	1.82	0.93	1.97	0.90	1.94	0.93
Feeling there is a label attached to your course	2.22	0.88	2.35	0.88	1.88	0.99	2.09	0.92	2.11	0.94
Practical stress										
Conflict with a supervisor on a clinical placement	1.97	1.02	2.26	0.87	1.86	0.95	1.92	0.98	1.97	0.97
The death of a patient	2.08	1.01	2.06	0.95	1.97	1.01	1.89	1.05	1.98	1.02
Not enough time to complete all your nursing tasks	2.15	0.85	2.33	0.80	2.14	0.87	2.05	0.90	2.14	0.87
Not enough time to provide emotional support to a patient	1.80	0.83	1.62	0.89	1.68	0.86	1.72	0.88	1.71	0.87
Lack of an opportunity to talk openly with staff about problems on a clinical placement	1.69	0.97	1.92	0.99	1.73	0.91	1.79	0.90	1.78	0.94
Watching a patient suffer	2.45	0.79	2.38	0.81	2.12	0.92	2.34	0.91	2.31	0.88
Lack of an opportunity to share experiences and feelings with staff on a clinical placement	1.59	0.94	1.58	0.96	1.64	0.94	1.63	0.90	1.62	0.93
Feeling inadequately prepared to help with the emotional needs of a patient	2.06	0.85	1.97	0.81	1.80	0.87	1.92	0.85	1.92	0.85
Fear of making a mistake in caring for a patient	2.19	0.96	2.40	0.83	2.13	0.88	2.08	0.91	2.17	0.90
Criticism by a supervisor on a clinical placement	2.33	0.83	2.43	0.86	2.08	0.95	2.01	0.93	2.17	0.92
Not knowing what a patient or patient's family ought to be told about the patient's medical condition and treatment	1.91	0.98	1.99	0.91	1.84	0.92	1.96	0.89	1.92	0.92
Uncertainty regarding the operation and functioning of specialized equipment	1.66	0.95	1.69	0.96	1.60	0.89	1.68	0.86	1.65	0.91
Feeling inadequately prepared to help with the emotional needs of a patient's family	1.77	0.90	1.77	0.92	1.70	0.87	1.79	0.86	1.76	0.88
Listening or talking to a patient about his/her approaching death	2.20	0.95	2.16	0.98	1.96	0.94	1.84	1.03	2.01	0.99
Difficulty in working with a particular nurse or nurses on a clinical placement	1.68	1.03	1.98	1.01	1.68	0.98	1.87	0.98	1.80	1.00
Disagreement concerning the treatment of a patient	1.69	0.95	1.94	0.89	1.65	0.98	1.63	0.89	1.70	0.93

* \bar{x} : mean; ** SD: standard deviation

Table 3. Relationship between stress in nurse education questionnaire (SINE) and its subdimensions (n=821)

SINE		SINE Academic	SINE Practical	SINE Total
Academic stress	r			
	p	1		
Practical Stress	r	0.785**	1	
	p	0.00		
Total	r	0.944**	0.946**	1
	p	0.00	0.00	

**p<0.01

Table 4. Score distribution of stress in nurse education questionnaire (SINE) and its subdimensions (n=821)

SINE	Item	$\bar{x} \pm SD^{**}$	Min.-Max.
SINE Total	32	62.55±15.94	0-96
Academic stress	16	31.93±8.35	0-48
Practical stress	16	30.61±8.52	0-48

* \bar{x} : mean; ** SD: standard deviations

of academic stress. Again, average scores for classroom environment is not supportive of learning (\bar{x} =2.06, 2.09, 2.04, and 2.00 for Universities 2, 3, and 4, respectively) and feeling that you are being negatively labeled concerning your direction (\bar{x} =2.22, 2.35, 2.09, and 2.11 for Universities 1, 2, and 4, respectively) were high. Items for which average scores were high at University 2 were identified as being unable to determine the degree of detail one has to study for a topic (\bar{x} =2.19), amount/frequency of academic studies such as seminars or case studies in a course (\bar{x} =2.08), receiving inadequate support from instructors (\bar{x} =2.15), and inadequate guidance on what is expected of you (\bar{x} =2.02).

Having examined SINE items for Universities 1, 2, 3, and 4 according to subdimensions of practical stress, average scores for not having enough time to fulfill all nursing functions (\bar{x} =2.15, 2.33, 2.14 and 2.05 respectively), monitoring a suffering patient (\bar{x} =2.45, 2.38, 2.12 and 2.34, respectively), fear of making a mistake while providing care for a patient (\bar{x} =2.19, 2.40, 2.13 and 2.08, respectively), and being criticized by an instructor in clinical practice (\bar{x} =2.33, 2.43, 2.08 and 2.01 respectively) were higher than average scores for other items for all universities and common scores. Again, average scores for dissenting to an instructor in a clinical environment (\bar{x} =2.26 for University 2), death of a patient (\bar{x} =2.08 and 2.06 for Universities 1 and 2, respectively), feeling unable to meet the emotional needs of a patient (\bar{x} =2.06 for University 1), and talking to a dying patient or listening to a patient (\bar{x} =2.20, 2.16, and 2.01 for common scores and Universities 1, and 2 respectively) were high (Table 2).

Relationships between scale and subdimensions are provided with correlation coefficients (r) in Table 3. A highly significant positive rela-

tionship was observed between total scores and two subdimensions of SINE (Table 3). Average scores for academic and practical stress, which are subdimensions of SINE, were similar (Table 4).

DISCUSSION

Although average total scores for academic and practical stress, which are subdimensions of SINE, were similar, academic stress was observed to be slightly higher. Similarly, Burnard et al. (29) found academic stress scores for nursing students from Brunei and Malta to be higher than their clinic stress scores in a multicenter study involving five countries. In contrast, no difference was observed between academic and clinical stress in the remaining three countries. They argued that this difference, in the field of academic and clinical stress, occurred as a result of cultural and curriculum differences. The finding that academic stress scores were high in all four universities available in our study can be explained by the fact that the selected universities were geographically proximate and followed similar curricula. Although differences between subdimensions and total SINE score averages according to year of study were not significant, clinic and academic stress scores of sophomore students were higher than those of students in other years of study. Average scores of senior students followed those of sophomore students. This finding is consistent with those of other studies, demonstrating that students in their second year are more susceptible to clinical application-oriented stress (14, 30). In addition, other studies conducted in Turkey have revealed that sources of students' stress intensify during the second year of study (20, 31). The second year of the nursing education curriculum in Turkey is a critical year for students in terms of both the number and intensity of theoretical courses. In a study conducted by Dinc et al. (32), sophomore students complained about course frequency most often. Therefore, the second year of nursing education is the year during which students first apply skills that they have acquired in the first year of study and are expected to integrate concepts. Higher academic and clinical stress in senior students than in freshmen and junior students is also an important finding. Some studies, which have examined stressors and stress levels experienced by nursing students throughout their education, have emphasized that freshmen students experienced particularly high levels of stress while gaining clinical experience (21, 24, 28, 33-35). However, stress scores of students in the first year of study were lower than those of senior students. Although Rhead (6) argued that students gain experience in coping with stress in their final year of nursing education and this reduces their stress, students are exposed to different stressors, which they find difficult to cope with during the final year. According to Lindop (36), senior students are exposed to greater professional sources of stress. Because they are considered to be more informed and skilled by team members, they assume greater responsibility. As students may also expect more from themselves, this could increase their stress levels. In their study, Burnard et al. (29) explained the presence of higher stress levels in the final year of study for students in Brunei in a similar manner.

Higher stress levels in women than in men in our study can be explained by the higher number of women in our sample; however, an alternative explanation is that men express their emotions and concerns less openly than women and women are more vulnerable in terms of psychological morbidity (37).

Students with low self-perceived academic achievement had higher stress levels than other students. From this finding, the question arises as to whether students' perception of themselves as unsuccessful increases their academic stress levels or their high stress levels cause their perception of low academic achievement. Some studies have shown that stress levels disrupt students' thinking and decision-making abilities and therefore reduce academic success (28, 34, 35, 38, 39). Studies performed in Jordan, Taiwan, and China suggest that students are success-oriented because of the cultural norms of their countries (24, 34, 40). This finding in our study indicates that stress levels may have risen according to students' discontent with their academic expectations, owing to the fact that their academic achievement was low.

The academic stressors most frequently experienced by the present participants were preparing for and sitting for exams and having to study after working all day. The finding that stressors related to exams and assessments were among the first five academic stressors was similar to the finding of previous studies (21, 29, 35, 41). A study involving nursing students in Turkey observed that students experience a high degree of exam anxiety, and in another study, students reported that their greatest source of stress was that of bedside evaluation by a clinical instructor (42, 20). These findings demonstrate that students generally experience stress in every type of assessment, and this does not differ between cultures. The finding that students in three of the universities in our study scored highly on feeling that you are being negatively labeled concerning your direction is of interest. This item can also be considered to indicate concern regarding the results of an evaluation. Students may feel that a negative judgment will also affect assessments related to other courses negatively as a result of generalization by instructors. In a study performed by Altıok and Ustun (20), students reported that they believed that instructors were discriminating between students. It has been suggested that this attitude could increase students' stress during clinical practical of skills and reduce their motivation. This situation indicates that the instructors' attitudes in evaluations and relationships between instructors and students should be reviewed. Results of studies in which instructors' communication skills and attitudes during clinical practice were assessed by Turkish students demonstrated that instructors should develop their consultancy, guidance, and communication skills (43, 44).

The clinic stressor most frequently experienced and reported by students of the four universities in this study was that of monitoring a suffering patient. This finding is consistent with that of a study conducted by Burnard et al. (29) involving five countries, in which students in Albania-Tirana and Korçë reported that the most stressful incident that they had encountered during their nursing education was the death of a patient. The death of a patient and talking or listening to a dying patient were also reported by students to be the most stressing situations in terms of clinic stressors in other studies (6, 41, 45). Moreover, fear of making a mistake while providing care for a patient and being criticized by an instructor during clinical practice were reported to be more stressful than talking or listening to a dying patient in our study, unlike findings of other studies. Fear of making a mistake during clinical practice can stem from students' concerns regarding experiencing a sense of failure in front of a patient and instructor during clinical practical when they do not feel sure of themselves (20). The finding that being criticized by instructors was ranked higher among stressors in our study is similar to

Altıok and Ustun (20) findings. In their qualitative study examining stressors experienced by nursing students in Turkey, Altıok and Ustun (20) voiced their discomfort concerning the judgmental attitudes of instructors during students' clinical practice. In the same study, students reported that they lost motivation to complete courses and to even continue in the profession because of such attitudes in instructors/educators. Mahat (46) emphasized the importance of relationships between instructors and students as clinical stressors and the need for students to be understood and supported by instructors. From this perspective, our study findings indicate that instructors' confidence-solidifying and supportive attitudes during clinical practice should be reviewed.

In this study, stress levels of students who smoked and/or drank alcohol were found to be lower than those of students who did not. In a study in which relationships between students' perceived stressors and mental health were examined, it was argued that many students drank alcohol for social or entertainment purposes, but only a small group eased their stress by drinking alcohol. Students may also have used alcohol to relax in our study. Further, it is widely understood that alcohol and smoking are ineffective coping methods and students who use them display negative lifestyle factors (5). However, our findings do not explain the relationship between students' alcohol use and coping methods or the cause thereof adequately. Studies aimed at explaining this relationship, and particularly its causes, should be conducted.

CONCLUSION

The results of this study demonstrated that nursing students' academic stress was greater than their clinical stress. Preparing for and sitting for exams, followed by other stressors involving assessment concerns, were the most prominent academic stressors. Monitoring a suffering patient was determined to be the most stressful situation with respect to clinical stress. Being criticized by an instructor in clinical practice and fear of making a mistake while providing care were among the other clinical stressors frequently reported and experienced by students. Stress levels of female students were higher than those of male students, stress levels of students who smoked and drank alcohol were lower than those of students who did not, and stress levels of students who perceived their academic achievements as low were higher than those of students who perceived their achievements as high or moderate.

These results are important in terms of identifying the stressors faced by students during nursing education in the four universities. These results may provide preliminary information for nursing education in Turkey. Identification of these stressors should increase the performance during education lives of students and elucidate interventions that will ensure that they are protected from the negative influence of stress. Studies investigating personality traits that may affect stress in Turkish nursing students, coping strategies, and cultural attributes in more depth are required.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Düzce University School of Medicine Ethics Committee of Noninvasive Clinical Research (09.2014.0247) (2012/263).

Informed Consent: Written informed consent was obtained from students who participated in this study.

Peer-review: Externally peer-reviewed.

Author contributions: Concept - N.Y., A.K.; Design - N.Y., A.K., F.A., D.A.; Supervision - H.A.; Resource - N.Y., A.K., F.A., D.A.; Materials - N.Y., A.K., F.A., D.A.; Data Collection&/or Processing - N.Y., A.K., H.A., F.A., D.A.; Analysis&/or Interpretation - N.Y., H.A.; Literature Search - N.Y., A.K., F.A., D.A.; Writing - N.Y., A.K., F.A.; Critical Reviews - N.Y., A.K., H.A., F.A., D.A.

Acknowledgements: The authors appreciate the support of Bedriye Ak, Eda Aktaş, Şule Ergöl, Nadire Ercan Toptaner, Makbule Tokur Kesgin, Ayşe Kuzu, and Derya Emre Yavuz in this study.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

Etik Komite Onayı: Bu çalışma için etik komite onayı Düzce Üniversitesi Tıp Fakültesi İnvaziv Olmayan Klinik Araştırmalar Etik Komitesi'nden alınmıştır (09.2014.0247) (2012/263).

Hasta Onamı: Yazılı hasta onamı bu çalışmaya katılan öğrencilerden alınmıştır.

Hakem Değerlendirmesi: Dış Bağımsız.

Yazar Katkıları: Fikir - N.Y., A.K.; Tasarım - N.Y., A.K., F.A., D.A.; Denetleme - H.A.; Kaynaklar N.Y., A.K., F.A., D.A.; Malzemeler - N.Y., A.K., F.A., D.A.; Veri Toplanması ve/veya işleme N.Y., A.K., H.A., F.A., D.A.; Analiz ve/veya Yorum - N.Y., H.A.; Literatür taraması N.Y., A.K., F.A., D.A.; Yazıyı Yazan - N.Y., A.K., F.A. Eleştirel inceleme - N.Y., A.K., H.A., F.A., D.A.

Teşekkür: Yazarlar çalışmaya desteklerinden dolayı Bedriye Ak, Eda Aktaş, Şule Ergöl, Nadire Ercan Toptaner, Makbule Tokur Kesgin, Ayşe Kuzu ve Derya Emre Yavuz'a teşekkür ederler.

Çıkar Çatışması: Yazarlar çıkar çatışması bildirmemişlerdir.

Finansal Destek: Yazarlar bu çalışma için finansal destek almadıklarını beyan etmişlerdir.

REFERENCES

- Jones MC, Johnston D. Distress, stress and coping in first-year student nurses. *J Adv Nurs* 1997; 26: 475-82. [CrossRef]
- Seyedfatemi N, Tafreshi M, Hagani H. Experienced stressors and coping strategies among Iranian nursing students. *BMC Nurs* 2007; 13: 11. [CrossRef]
- Luo Y, Wang H. Correlation research on psychological health impact on nursing students against stress, coping way and social support. *Nurs Educ Today* 2009; 29: 5-9. [CrossRef]
- Edwards D, Burnard P, Bennett K, Hebden U. A longitudinal study of stress and self-esteem in student nurses. *Nurs Educ Today* 2010; 30: 78-84. [CrossRef]
- Timmins F, Corroon AM, Byrne G, Mooney B. The challenge of contemporary nurse education programmes. Perceived stressors of nursing students: Mental health and related lifestyle issues. *J Psychiatr Ment Health Nurs* 2011; 18: 758-66. [CrossRef]
- Rhead M. Stress among student nurses: is it practical or academic? *J Clin Nurs* 1995; 4: 369-76. [CrossRef]
- Parkes KR. Occupational stress among student nurses. A comparison of medical and surgical wards. *Nursing Times* 1980; 76: 113-6.
- Parkes KR. Locus of control, cognitive appraisal, and coping in stressful episodes. *J Pers Soc Psychol* 1984; 46: 655-68. [CrossRef]
- Kleehammer K, Hart AL, Keck JF. Nursing students' perceptions of anxiety producing situations in the clinical setting. *J Nurs Educ* 1990; 29: 183-7.
- Lees S, Ellis N. The design of a stress-management programme for nursing personnel. *J Adv Nurs* 1990; 15: 946-61. [CrossRef]
- Jack B. Ward changes and stress in student nurses. *Nurs Times* 1992; 88: 51.
- Oermann MH, Standfest KM. Differences in stress and challenge in clinical practice among ADN and BSN students in varying clinical courses. *J Nurs Educ* 1997; 36: 228-32.
- Saxena S. Organisational role stress amongst nursing students. *Nurs J India* 2001; 92: 269-70.
- Lo R. A longitudinal study of perceived level of stress, coping and self-esteem of undergraduate nursing students: An Australian case study. *J Adv Nurs* 2002; 39: 119-26. [CrossRef]
- Shipton S. The process of seeking stress-care: Coping as experienced by senior baccalaureate nursing students in response to appraised clinical stress. *J Nurs Educ* 2002; 41: 243-56.
- Prymachuk S, Richards DA. Predicting stress in preregistration nursing students. *Br J Health Psychol* 2007; 12: 125-44. [CrossRef]
- Levett-Jones T, Lathlean J, Higgins I, McMillan M. Staff-student relationships and their impact on nursing students' belongingness and learning. *J Adv Nurs* 2009; 65: 316-24. [CrossRef]
- Guler O, Cinar S. Hemşirelik öğrencilerinin algıladıkları stresörler ve kullandıkları baş etme yöntemlerinin belirlenmesi. *Maltepe Üniversitesi Hemşirelik Bilim ve Sanatı Dergisi Sempozyum Special* 2010; 253-60.
- Pulido-Martos M, Augusto-Landa JM, Lopez-Zafra E. Sources of stress in nursing students: A systematic review of quantitative studies. *International Nursing Review* 2011; 59: 15-25. [CrossRef]
- Altioğlu HO, Ustun B. Hemşirelik öğrencilerinin stres kaynakları. *Kuram ve Uygulamada Eğitim Bilimleri* 2013; 13: 747-66.
- Beck DL, Srivastava R. Perceived levels and sources of stress in baccalaureate nursing students. *J Nurs Educ* 1991; 30: 127-33.
- Maville J, Huerta CG. Stress and social support among Hispanic student nurses: Implications for retention. *J Cult Divers* 1997; 4: 18-25.
- Lazarus R. & Folkman S. *Stress, Appraisal and Coping*. New York: Springer; 1984.
- Sheu SL, Lin HS, Hwang SL. Perceived stress and physio-psycho-social status of nursing students during their initial period of clinical practice: The effect of coping behaviors. *Int J Nurs Stud* 2002; 39: 165-75. [CrossRef]
- Shirom A. The effects of work stress on health. In: Schabracq MJ, Winnubst JAM, Cooper CL (Eds.), *The Handbook of Work and Health Psychology*. 2nd ed. New York: Wiley; 2003: 63-82.
- Evans W, Kelly B. Pre-registration diploma student nurse stress and coping measures. *Nurse Educ Today* 2004; 24: 473-82. [CrossRef]
- Gray-Toft P, Anderson J. The nursing stress scale: development of an instrument. *Journal of Behavioural Assessment*. 1981; 3(1): 11-23 In: Rhead M, 1995. Stress among student nurses: is it practical or academic? *J Clin Nurs* 1995; 4: 369-76.
- Karaca A, Yıldırım N, Ankaralı H, Acıkgöz F, Akkuş D. Hemşirelik Eğitimi Stres Ölçeği'nin Türkçeye Uyarlanması. *Hemşirelikte Araştırma Geliştirme Dergisi* 2014; 16: 29-40.
- Burnard P, Edwards D, Bennett K, Thiabah H, Tothova V, Baldacchino D, et al. A comparative, longitudinal study of stress in student nurses in five countries: Albania, Brunei, the Czech Republic, Malta and Wales. *Nurs Educ Today* 2008; 28: 134-45. [CrossRef]
- Jimenez C, Navia-Osorio PM & Diaz CV. Stress and health in novice and experienced nursing students. *J Adv Nurs* 2010; 66: 442-55. [CrossRef]
- Alparslan N, Yaşar S, Dereli E, Turan NF. Sağlık yüksekokulu ve teknik eğitim fakültesi öğrencilerinde görülen depresif belirtiler ve bunu etkileyen faktörlerin incelenmesi. *Hemşirelikte Araştırma Geliştirme Dergisi* 2008; 10: 48-57.
- Dinc S, Kaya O, Simsek Z. Harran üniversitesi sağlık yüksekokulu öğrencilerinin hemşirelik mesleği hakkındaki bilgi, düşünce ve beklentileri. *Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi* 2007; 10: 1-9.
- Pagana KD. Stresses and threats reported by baccalaureate students in relation to an initial clinical experience. *J Nurs Educ* 1988; 27: 418-24.
- Chan CKL, So WKW, Fong DYT. Hong Kong baccalaureate nursing students' stress and their coping strategies in clinical practice. *J Prof Nurs* 2009; 25: 307-13. [CrossRef]
- Ni C, Liu X, Hua Q, Lv A, Wang B, Yan Y. Relationship between coping, self-esteem, individual factors and mental health among Chinese nursing students: A matched case-control study. *Nurse Educ Today* 2010; 30: 338-43. [CrossRef]
- Lindop E. A comparative study of stress between pre and post-Project 2000 students. *J Adv Nurs* 1999; 29: 967-73. [CrossRef]
- Acharya S. Factors affecting stress among Indian dental students. *J Dent*

- Educ 2003; 67: 1140-8.
38. Sawatzky JA. Understanding nursing students' stress: A proposed framework. *Nurse Educ Today* 1998; 18: 108-15. [\[CrossRef\]](#)
 39. Maville JA, Kranz PL, Tucker BA. Perceived stress reported by nurse practitioner students. *J Am Acad Nurse Pract* 2004; 16: 257-62. [\[CrossRef\]](#)
 40. Shaban IA, Khater WA, Akhu-Zaheya LM. Undergraduate nursing students' stress sources and coping behaviours during their initial period of clinical training: A Jordanian perspective. *Nurse Educ Pract* 2012; 12: 204-9. [\[CrossRef\]](#)
 41. Timmins F, Kalischer M. Aspects of nurse education programmes that frequently cause stress to nursing students – Fact-finding sample survey. *Nurs Educ Today* 2002; 22: 203-11. [\[CrossRef\]](#)
 42. Büyükyılmaz F, Asti T, Cakmak E. Hemşirelik Yüksekokulu öğrencilerinin sınav kaygısı düzeyleri ve bunu etkileyen etmenler. *İstanbul Üniversitesi Florence Nightingale Hemşirelik Yüksek Okulu Dergisi* 2009; 17: 10-5.
 43. Kececi A, Tasocak G. Communication skills of faculty's: an example of a college of nursing. *Dokuz Eylül Üniversitesi Hemşirelik Yüksekokulu Elektronik Dergisi* 2009; 2: 131-6.
 44. Kececi A, Arslan S. Nurse faculty members' communication skills: From student perspective. *International Journal of Human Sciences*. 2012; 9: 34-45.
 45. Clarke VA, Ruffin CL. Perceived sources of stress among student nurses. *Contemp Nurse*: 1992; 1: 35-40.
 46. Mahat G. Stress and coping: Junior baccalaureate nursing students in clinical settings. *Nursing Forum* 1998; 33: 11-9. [\[CrossRef\]](#)