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Stress and Anxiety Levels of International Nursing Students: Case of Northern Cyprus¹

Uluslararası Hemşirelik Öğrencilerinin Stres ve Kaygı Düzeyleri: Kuzey Kıbrıs Örneği

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ABSTRACT

Introduction: Stress is a multifaceted concept that focuses on changes in the interaction between people and their environment. Stress, which is increasing in developing and rich countries, is one of the biggest problems affecting the health sector, especially universities, and especially nursing practices.

Aim: This study aimed to determine the stress and anxiety levels of undergraduate nursing students.

Method: This descriptive study was conducted on 223 international nursing students studying at Near East University to determine the stress and anxiety levels of nursing students. Data were collected through online Google Forms using the Generalized Anxiety Disorder - 7 Scale, Perceived Stress Scale and Sociodemographic questionnaire in December 2022 and January 2023.

Results: Of the students participating in this study, 182 (81.6%) were female and 41 (18.4%) were male. Students' average Perceived Stress Scale score was 22.00 ± 8.52 ; Generalized Anxiety Disorder -7 Scale mean score were found to be 7.43 ± 6.43 . Perceived Stress Scale average scores vary depending on students' grade point averages and alcohol/substance use while under stress. Generalized Anxiety Disorder - 7 Scale mean scores vary depending on alcohol/substance use while under stress ($p < 0.05$).

Conclusion: Educational programs should be organized to enable students to cope more effectively with the stressors they encounter. On the other hand, it is recommended to create learning environments that will help alleviate the stress and anxiety that students encounter during the education process.

Keywords: Anxiety; nursing; stress; student.

Öz

Giriş: Stres, insanlar ve çevreleri arasındaki etkileşimdeki değişiklikler üzerinde duran çok yönlü bir kavramdır. Gelişmekte olan ve zengin ülkelerde artış gösteren stres, başta üniversiteler olmak üzere sağlık sektörünü ve özellikle hemşirelik uygulamalarını etkileyen en büyük sorunlardan biridir.

Amaç: Bu çalışmada hemşirelik lisans öğrencilerinin stres ve kaygı düzeylerinin belirlenmesi amaçlanmıştır.

Yöntem: Tanımlayıcı tipteki bu çalışma, Yakın Doğu Üniversitesi'nde öğrenim gören 223 uluslararası hemşirelik öğrencisine, hemşirelik öğrencilerinin stres ve kaygı düzeylerini belirlemek amacıyla yapılmıştır. Veriler, Aralık 2022 ve Ocak 2023 tarihinde Yaygın Anksiyete Bozukluğu - 7 Ölçeği, Algılanan Stres Ölçeği ve Sosyodemografik soru formu kullanılarak çevrimiçi Google Formları aracılığı ile toplanmıştır.

Bulgular: Bu çalışmaya katılan öğrencilerin 182'si (%81,6) kadın ve 41'i (%18,4) erkektir. Öğrencilerin Algılanan Stres Ölçeği puan ortalamaları $22,00 \pm 8,52$; Yaygın Anksiyete Bozukluğu - 7 Ölçeği puan ortalamaları $7,43 \pm 6,43$ olarak bulunmuştur. Öğrencilerin not ortalamalarına ve stres altında iken alkol / madde kullanım durumuna göre Algılanan Stres Ölçeği puan ortalamaları değişmektedir. Stres altında iken alkol/madde kullanım durumuna göre Yaygın Anksiyete Bozukluğu - 7 Ölçeği puan ortalamaları değişmektedir ($p < 0,05$).

Sonuç: Öğrencilerin karşılaştıkları stresörler ile daha etkili başetmelerini sağlayacak eğitim programları düzenlenmelidir. Diğer yandan öğrencilerin eğitim sürecinde karşılaştıkları stres ve kaygının hafifletilmesine yardımcı olacak öğrenme ortamlarının oluşturulması önerilmektedir.

Anahtar Kelimeler: Anksiyete; hemşirelik; öğrenci; stres.



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Introduction

Stress is a multifaceted concept that dwells on changes in interaction between people and their surroundings. Even while a certain amount of stress is important to inspire and push people to reach their goals, if stress persists for long can impair concentration, problem-solving, decision-making, and other skills that are crucial for students' learning (Rathnayake & Ekanayaka, 2016). The process of learning and teaching requires that pupils adjust to ongoing societal changes, like the development of technology and knowledge of human (Kurebayashi, Prado & Silva, 2012). This has to be done in a way that does not increase stress and anxiety that is already present in students. A good illustration of a job with high stress levels is nursing, which requires nurses to often communicate with other experts in order to do their duties (Decker & Shellenbarger, 2012). Tests are the most frequent source of stress for students in academic settings (Gibbons, Dempster & Moutray, 2008; Shaban, Khater & Akhu-Zaheya, 2012; Lamichhane, 2019; Wu, Rong & Huang, 2021). High levels of stress are common in first-year nursing students and they can result in feelings of failure, low self-esteem, irritation, and melancholy, some studies also noted that the levels of stress and anxiety decreases as they progress in years of study (Watson et al., 2009). However, Oner Altioek and Ustun (2013), Abas (2017), Pulido-Criollo, Cueto-Escobedo and Guillén-Ruiz (2018) argue that stress levels of nursing students differ according to discernment, culture, class of the pupils.

Nursing students work together with nursing staff to care for patients and their families. The reaction to stress takes place whether the stressor is bodily, mental, or a combination of the two. Personal responses to stress are the result of past experiences rather than unique occurrences. As student nurses are faced with a variety of difficult situations during their academic career, the stress response is comprehensively influenced by the continuous interaction of defence mechanisms, character, and support networks (Jimenez, Navia-Osorio & Diaz, 2010).

Despite extensive research concerning stress and anxiety, it remains a major concern among nursing students globally, it has increased in developing and wealthy nations and is one of the biggest problems in the world affecting the health sector particularly stress in nursing practice, mainly in universities (Pulido-Criollo et al., 2018; Sanad, 2019).

Stress can also impair nursing students' capacity to understand clinical requirements, engage with patients, and fulfilling learning objectives (Sanad, 2019). Studies conducted show that stress and anxiety in nursing students is due to academic, clinical and personal pressures (Onieva-Zafra et al., 2020; Sonmez, Akdemir, Meydanlioglu & Aktekin, 2023).

Stress is a well-documented problem in nursing education. In particular, the clinical practice which is required for the acquisition of nurse competences has been identified as being highly stressful (Leodoro, Denise, Ioanna & Olaide, 2017). The general purpose of this research is to determine the Stress and Anxiety Levels of International Nursing Students and to contribute to the literature on nursing education.

Aim

This study aims to evaluate the stress and anxiety levels experienced by nursing students at Near East University while they are enrolled in classes.

Research Questions:

1. What is the stress level of nursing students?
2. What is the anxiety level of nursing students?
3. Do the stress and anxiety levels of nursing students differ according to demographic characteristics?

Methods

Study Design

This research is a descriptive study.

Study Setting

The study population of this research are current undergraduate nursing students at Near East University who are able to communicate in English.

Study Population and Sample

The entire department was included in the study and the sample size determined using Raosoft sample size calculator with 95% confidence level and 5% standard error; with a minimum of 175 participants out of 320 Near East University English undergraduate nursing students (Raosoft, 2004). The study intotal had 223 participants. Inclusion Criterias are being faculty of nursing student and can able to read and understand English. Exclusion criteria were students who refuse to join and those who wanted to leave at any stage of the study.

Data Collection Tools

The data collection form consisted of three parts: "Sociodemographic Questionary", "Generalized Anxiety Disorder (GAD) - 7 Scale" and "Perceived Stress Scale (PSS)".

Sociodemographic Questionary: This section was composed by the researcher using the literature (Wedgeworth, 2016; Zeng, Wang, Xie, Hu & Reinhardt, 2019; Wu et al., 2021) and of 12 socio-demographic questions of the students including a few like gender, class, country, age and other questions relating to the students' experience with stress and anxiety.

Generalized Anxiety Disorder (GAD) - 7 Scale: This tool determines likely cases of generalized anxiety disorder and evaluates the severity of symptoms. It is a self-administered questionnaire developed by Spitzer, Kroenke, Williams & Löwe in 2006 which consists of a 4 point GAD scale with 7 items. The respondent is prompted to rate the intensity of each of their problems during the last two weeks in each question. The possible answers include Not at all (0), A few days (1), More than half the days (2) and Nearly every day (3), then adding the value of the 7 items. 0-4: minimal anxiety; 5-9: mild anxiety 10-14; moderate anxiety and 15-21: severe anxiety (Spitzer, Kroenke, Williams & Löwe, 2006). The GAD-7 overall score ranges from 0 to 21. The GAD-7 questionnaire's reliability was determined and Cronbach alpha for this study was 0.86.

Perceived Stress Scale (PSS); The Scale is developed by Cohen, Kamarck and Mermelstein in 1983 and the participants' perceptions of the degree of stress they encounter in particular circumstances are measured using this scale. The questions are meant to measure the participant's stress-related feelings during the past month. The replies are never (0), almost never (1), sometimes (2), fairly

often (3), very often (4). Response to the four positive stated items (items 4, 5, 7 and 8) must first be reverse din order to determine the total PSS score (i.e., 0 => 4; 1 => 3; 2 => 2; 3 => 1; 4 => 0). The PSS score is then calculated by adding up all of the components. Higher scores represent higher perceived stress levels. This specific questionnaire consists of 10 items, and the possible total scores are between 0 and 40. Scores ranging from 0-13 would be considered low stress. Scores ranging from 14-26 would be considered moderate stress. Scores ranging from 27-40 would be considered high stres (Cohen, Kamarck & Mermelstein, 1983). The Perceived stress scale questionnaire's reliability was determined and Cronbach alpha for this study is 0.57.

Ethical Considerations

In order to carry out the research, the necessary ethical permissions were obtained from the Near East University Ethics Committee (Date: 30.11.2022 ve No: 2022/108). In addition, in order to carry out the research, an informed consent text was sent to all participants and their consent was obtained by informing them that their information would remain confidential.

Data Collection

Data were collected wia on-line Google Forms using the GAD-7 Scale, Percieved Stress Scale and Sociodemographic Questionary, during the period of December 2022 and January 2023. The questionnaire was distributed by the researchers to group administrators of nursing students in each year levels via Whatsapp. Completion of the online questionnaire took about 10 minutes.

Data Analysis

The data was analysed using Statistical Package for Social Sciences Version 25.0 (SPSS, Inc., Chicago, Illinois, USA). Descriptive statistic measures such as frequency, mean, standard deviation, mean rank was calculated. Kolmogorov-Smirnov was used to check normality. The data was not normally distributed therefore Kruskal Wallis and Mann-Whitney U tests were used.

Results

Based on the response from those who actively participated in the evaluation through the provided questionnaire, the findings were determined. 18.4% of the participants were male and 81.6% were female. 75.3% of the students were between the ages of 18 - 25 and 94.2% were single. When ethnicity evaluated, 29.1% of the students were from Zimbabwe, 52% from Nigeria, 4.5% from Kenya, 2.7% from Cameroon, and 1.3% from South Africa. 30% of the students were in the 4th grade, 22.9% were in the 3rd grade, 24.6% were in the 2nd grade, and 22.4% were in the 1st grade. The GPA of 56.1% of the students was between 2.1 - 3.0, and the GPA of 31.8% was between 3.1 - 4.0. When daily lesson hours were examined, it was seen that 37.7% of the students took 12 - 14 hours of lessons a day. The rate of students who took the exam within 7 days after the survey was administered was 82.1%. The rate of students who had an exam within 7 days before the survey was administered was 92.4%. 76.2% of students did not use drugs or alcohol in stressful situations. According to the students' statements, 15.2% were diagnosed with generalized anxiety disorder and 3.6% had a chronic disease (Table 1).

Table 1: Socio-demographic Characteristics of Participants (n=223)

Characteristics	n	%	
Gender	Male	41	18.4
	Female	182	81.6
Age	18 - 25	168	75.3
	26 - 30	38	17
	31 - 35	9	4
	36 - 40	8	3.6
Marital Status	Single	210	94.2
	Married	13	5.8
Ethnic groups	Nigeria	116	52
	Zimbabwe	65	29.1
	Kenya	10	4.5
	Cameroon	6	2.7
	South Africa	3	1.3
Level of Education	Others	23	10.3
	First year	50	22.4
	Second year	55	24.6
	Third year	51	22.9
Grade Point Average	Final year	67	30
	0.0 - 1.0	2	0.9
	1.1 - 2.0	25	11.2
	2.1 - 3.0	125	56.1
Classroom hours	3.1 - 4.0	71	31.8
	Less than 12 hours	78	35
	12 - 14	84	37.7
	15 - 16	45	20.2
	17 - 18	12	5.4
Exam in next 7 days	More than 18 hours	4	1.8
	Yes	183	82.1
Exam in last 7 days	No	40	17.9
	Yes	206	92.4
Substance taken when stressed	No	17	7.6
	Nothing	170	76.2
	Alcohol	36	16.1
Anxiety disorder diagnosis	Drugs	17	7.6
	Yes	34	15.2
Chronic Disorder	No	189	84.8
	Yes	8	3.6
	No	215	96.4

Table 2: Student Scores for Generalized Anxiety Disorder -7 Scale and Perceived Stress Scale

	Min	Max	Min	Max	Mean	SD
Generalized Anxiety Disorder -7 Scale	0	21	0	21	7.43	6.43
Perceived Stress Scale	0	40	7	35	22.00	8.52

Min: minimum; Max: maximum; SD: Standard deviation

Students' average Perceived Stress Scale score was 22.00 ± 8.52 ; GAD-7 Scale mean score were found to be 7.43 ± 6.43 (Table 2).

When the average scores of the GAD-7 scale were examined according to the sociodemographic data of the participants; It was determined that the GAD-7 scale mean scores of the students who self-reported generalized anxiety were higher than those who did not report it. In addition, it was determined that the GAD-7 scale average score of the students who used substances was higher than that of those who used alcohol and did not use either alcohol or substances ($p < 0.05$). The GAD-7 scale average score of students who neither used alcohol nor substances in stressful situations was found to be higher than those who used substances and alcohol in stressful situations ($p < 0.05$). In the study, GAD-7 scale average scores difference according to students' gender, age, level of education, nationality, classroom timetable, exam before and within the next 7 days, marital status and chronic disease ($p \geq 0.05$) (Table 3).

When the average scores of the Perceived Stress Scale were examined according to the sociodemographic data of the participants; according to the students' alcohol or drug use in stressive situations the Perceived Stress Scale mean scores showed a statistically significant difference ($p < 0.05$). Pairwise analyzes were conducted to determine which group caused this difference; it was determined that Perceived Stress Scale average score of the students who used substances was higher than that of those who used alcohol and did not use either alcohol or substances ($p < 0.05$). Perceived stress scale average scores showed a statistically significant difference according to students' grade point averages. In the double analysis conducted to determine which group caused this difference, it was found that the perceived stress scale average scores of students with GPA between 0.0 - 1.0 were higher than those of those with GPA of 1.1 - 2.0 and 3.1 - 4.0 ($p < 0.05$). In addition, the perceived stress scale average scores of students with a GPA of 2.1-3.0 were found to be higher than those of those with a GPA of 3.1 - 4.0 ($p < 0.05$). Perceived Stress Scale average scores did not show a statistically significant difference according to students' gender, age, level of education, nationality, classroom timetable, exam before and within the next 7 days, marital status, anxiety disorder diagnosis and chronic disease ($p > 0.05$) (Table 4).

Discussion

Stress and anxiety are a concept important for human beings and their daily functioning. However, the levels of these need to be neither too low nor too high (Gibbons, 2010). Throughout their education and training, nursing students both in developing and developed nations are regularly exposed to many stresses, which can either directly or indirectly impair their learning, clinical performance and well being (Watson et al., 2009; Pulido-Martos, Augusto-Landa & Lopez-Zafra, 2011). Unchecked or untreated stress may cause physical and mental breakdowns in biological systems like the human body due to demands that exceeds ones capabilities, resulting in detrimental

health effects (Pulido-Criollo et al., 2018; Zheng, Jiao & Hao, 2022).

In this study, it was determined that the students experienced mild anxiety with their mean scores according to the GAD-7 scale. Similarly, Abas (2017), Mohamed Mohamed Bayoumi et al. (2012) and Sanad (2019) determined in their studies that nursing students had mild anxiety. However, when the literature other than these studies is examined determined that nursing students experience low and moderate level anxiety (Hamaideh, Al-Omari & Al-Modallal, 2016; Onieva-Zafra et al., 2020; Zheng et al., 2022). The result found in this study may be due to the fact that the students came from different cultures and the study was conducted at different times.

In this study, when the mean scores of the students from the Perceived Stress Scale were examined, it was determined that they experienced moderate stress. When the literature examined, Turan et al. (2019) and Bublitz et al. (2016) determined the stress levels of the students at a medium level in their study with nursing students. The results of this study are parallel with the literature.

In this study, alcohol and drug use were found to be related to stress and anxiety. In addition, when further analyses were performed in this study, it was determined that the use of drugs had a greater effect on stress and anxiety than others. In previous studies it was discovered that students who had been diagnosed with anxiety or mental disorders were likely to be affected or have high levels of stress and anxiety than other students, which can lead them to taking substances and drinking alcohol as reported in this study. This was also noted by Savitsky, Findling, Erel and Hendel (2020) who found that moderate and severe anxiety were shown to be highly correlated with the element of mental disorder with students who admitted to using alcohol, sedative medicines, or binge eating had increased probabilities of experiencing moderate and severe anxiety. This was similar to a research by Soares and Oliveira (2013), who reported that alcohol, tobacco, and marijuana were the three substances that nursing students used the most frequently when stressed. They also noted that 3.4% of nursing students developed tobacco dependency as a result of stress. Thus making it important for students to get guidance. The results of this study are parallel with the literature.

In this study, students' GPA levels were found to be effective on stress levels. When further analyses were performed, observing that being stressed about their GPA especially those that had low GPA scores, had high levels of stress which is similar to a research by Shaban et al. (2012). Also students reported feeling stressed about their academic performance and in particular about getting bad grades. This situation can be interpreted as that students' stress levels affect their courses or their courses have an effect on their stress levels.

Study Limitations

In this study, the limitations of the study include the fact that the number of participants was limited to 223 and that it was conducted only at a university in Northern Cyprus over a certain period of time.

Table 3: Generalized Anxiety Disorder 7 Scale Score Averages According to Students' Sociodemographic Data

Variable		n	Mean	SD	U	p*			
Marital Status	Single	209	7.43	6.44	-0.58	0.60			
	Married	14	7.36	6.26					
Gender	Female	182	7.34	6.31	-0.46	0.71			
	Male	41	7.81	6.95					
Exam in next 7 days	Yes	183	7.35	6.47	-1.17	0.31			
	No	40	7.77	6.12					
Exam in last 7 days	Yes	206	7.28	6.43	-1.94	0.18			
	No	17	9.28	5.81					
Anxiety disorder diagnosis	Yes	34	11.50	6.41	-3.93	0.01*			
	No	189	6.70	6.13					
Chronic disorder diagnosis	Yes	8	13.13	6.62	-2.41	0.06			
	No	215	7.22	6.31					
Variable		n	Mean	SD	KW	p*			
Age	18-25	168	7.22	6.37	26.78	0.33			
	26-30	38	8.18	6.67					
	31-35	9	6.11	5.85					
	36-40	8	9.75	6.40					
Ethnicity	Nigeria	116	7.33	6.58	39.11	0.48			
	Zimbabwe	65	7.58	6.43					
	Kenya	10	9.30	5.84					
	Cameroon	6	9.33	5.77					
	South Africa	3	7.33	6.31					
	Others	23	6.17	5.90					
	Level of Education	First year	50	7.25			6.22	34.47	0.23
		Second year	55	6.85			6.45		
Third year		51	8.41	6.45					
Final year		67	7.28	6.44					
Grade Point Average	0-1.0	2	15.00	8.49	46.08	0.26			
	1.1-2.0	25	8.76	5.84					
	2.1-3.0	125	7.18	6.14					
	3.1-4.0	71	7.18	6.84					
Classroom timetable	Less than 12 hours	78	7.32	6.82	56.22	0.26			
	12-14 hours	84	6.77	6.11					
	15-16 hours	45	8.22	5.99					
	17-18 hours	12	9.83	6.81					
	More than 18 hours	4	7.20	4.95					
Substance taken when stressed	Nothing (a)	170	6.56	6.20	148.48	0.01*			
	Alcohol (b)	36	8.92	5.80					
	Drugs (c)	17	13.00	5.76					

c>a, c>b, b>a

* = p value, U: Mann Witney U test analysis, KW: Kruskal Wallis test analysis FGR

Conclusion

Nowadays, the stress and anxiety rate is increasing among nursing students and is more common than in the general population. Although the overall scores of the participants in this study were lower than those described in other literature, they still exhibited mild anxiety and moderate stress. The current unpredictability

of today's events exacerbates stress, which in turn can lead to anxiety. Stress and anxiety studies with students of nursing help to increase the standard of health care services by contributing to the development of education and training programmes. As a conclusion of this study, it is recommended to carry out similar studies in other cultures with more population to support the literature and to create up-to-date information in this field.

Table 4: Perceived Stress Scale Score Averages According to Students' Sociodemographic Data

Variable	n	Mean	SD	U	p*	
Marital Status	Single	209	22.08	8.57	-0.96	0.43
	Married	14	20.79	7.46		
Gender	Female	182	22.35	8.60	-1.15	0.31
	Male	41	20.50	8.01		
Exam in next 7 days	Yes	183	22.34	8.61	-1.92	0.21
	No	40	20.45	7.59		
Exam in last 7 days	Yes	206	22.30	8.39	-1.99	0.23
	No	17	18.29	8.59		
Anxiety disorder diagnosis	Yes	34	22.65	7.85	-1.58	0.28
	No	189	21.88	8.59		
Chronic disorder diagnosis	Yes	8	22.50	9.27	-0.82	0.51
	No	215	21.98	8.49		
Variable	n	Mean	SD	KW	p*	
Age	18-25	168	22.66	8.05	88.06	0.19
	26-30	38	19.92	9.82		
	31-35	9	21.00	9.89		
	36-40	8	19.13	5.71		
Nationality	Nigeria	116	22.50	8.82	38.59	0.58
	Zimbabwe	65	21.88	8.17		
	Kenya	10	20.80	7.25		
	Cameroon	6	20.67	6.94		
	South Africa	3	22.67	10.95		
	Others	23	20.61	8.26		
Level of Education	First year	50	23.00	7.26	84.58	0.14
	Second year	55	20.98	8.59		
	Third year	51	21.88	9.14		
	Final year	67	22.16	8.45		
Grade Points Average	0-1.0 (a)	2	23.50	3.54	186.10	0.001*
	1.1-2.0 (b)	25	21.52	9.77		
	2.1-3.0 (c)	125	22.48	7.98		
	3.1-4.0 (d)	71	21.28	8.16		
		a>b, a>d, c>d				
Classroom timetable	Less than 12 hours	78	21.69	8.69	81.04	0.26
	12-14 hours	84	22.31	8.38		
	15-16 hours	45	22.29	7.77		
	17-18 hours	12	21.75	9.44		
	More than 18 hours	4	19.60	5.78		
Substance taken when stressed	Nothing (a)	170	21.68	8.55	131.37	0.01*
	Alcohol (b)	36	22.89	7.10		
	Drugs (c)	17	23.29	8.16		
		c>b, c>a, b>a				

* = p value, SD: Standard deviation, U: Mann Witney U test analysis, KW: Kruskal Wallis test analysis

Ethical Considerations: Approval (Date: 30.11.2022 ve No: 2022/108) was obtained from the Ethics Committee Near East University in order to carry out the research.

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