The Relationship Between Stress Experienced in Nursing Education and Academic Self-Efficacy[1]

Hemşirelik Eğitiminde Yaşanılan Stres ile Akademik Öz Yeterlilikler Arasındaki İlişki[1]

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[1]The abstract of this study was presented at the 8th International 19th National Nursing Congress held between 25-28 September 2024.

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ABSTRACT

Introduction: Nursing education impacts students' academic and professional development and can induce stress. Research on stress's effects on academic self-efficacy will contribute to developing stress-resilient educational approaches.

Aim: This study aims to examine the relationship between stress experienced by nursing students during their education and their academic self-efficacy.

Method: The study is descriptive, cross-sectional, and correlational. Data were collected between October and November 2022 using the Academic Self-Efficacy Scale for Nursing Students, the Nursing Education Stress Scale, and a Personal Information Form. The sample consisted of 170 students from a university's nursing program who participated in the study.

Results: A low negative significant correlation was found between the Academic Self-Efficacy Scale for Nursing Students and the Nursing Education Stress Scale (r = -0.271, p < 0.001). Factors affecting scores on both scales include department choice, program satisfaction, and stress during the education process. Higher stress levels were observed in students who did not voluntarily choose the department (p < 0.05). Additionally, significant relationships were found between Academic Self-Efficacy and satisfaction with department choice (p < 0.05), Nursing Education Stress Scale and program satisfaction (p < 0.05), and stress during the education process (p = 0.001).

Conclusion: Academic self-efficacy in nursing students encompasses academic success, clinical practice, and professional responsibility. Considering the negative effects of stress, nursing education programs should focus on strategies that develop coping skills and support success. In this context, integrating stress management techniques into the curriculum, providing emotional support, and implementing programs to enhance student performance are crucial.

Keywords: Nursing education; self efficacy; student.

ÖZ

Giriş: Hemşirelik eğitimi, öğrencilerin akademik ve mesleki gelişimlerini etkiler ve strese neden olabilir. Stresin akademik öz yeterlilik üzerindeki etkilerini inceleyen araştırmalar, strese dayanıklı eğitim yaklaşımlarının geliştirilmesine katkı sağlayacaktır.

Amaç: Bu araştırma, hemşirelik öğrencilerinin eğitimleri sırasında yaşadıkları stres ile akademik öz yeterlilikleri arasındaki ilişkiyi incelemeyi amaçlamaktadır.

Yöntem: Araştırma tanımlayıcı, kesitsel ve ilişki arayıcı tasarımdadır. Veriler, Ekim-Kasım 2022 tarihleri arasında Hemşirelik Öğrencileri için Akademik Öz Yeterlilik Ölçeği, Hemşirelik Eğitimi Stres Ölçeği ve Kişisel Bilgi Formu kullanılarak toplanmıştır. Örneklem, bir üniversitenin hemşirelik programında öğrenim gören ve araştırmaya katılan 170 öğrenciden oluşmaktadır.

Bulgular: Hemşirelik Öğrencileri için Akademik Öz Yeterlilik Ölçeği ile Hemşirelik Eğitimi Stres Ölçeği arasında düşük derecede negatif yönde anlamlı bir korelasyon bulunmuştur.   (r = -0.271, p < 0.001). Her iki ölçek üzerindeki puanları etkileyen faktörler arasında bölüm seçimi, program memnuniyeti ve eğitim sürecinde yaşanan stres bulunmaktadır. Bölümü gönüllü olarak seçmeyen öğrencilerde daha yüksek stres seviyeleri gözlemlenmiştir (p < 0.05). Ayrıca, Akademik Öz Yeterlilik ile bölüm seçme memnuniyeti (p < 0.05), Hemşirelik Eğitimi Stres Ölçeği ile program memnuniyeti (p < 0.05) ve eğitim süreci stresi (p = 0.001) arasında anlamlı ilişkiler bulunmuştur.

Sonuç: Hemşirelik öğrencilerinde akademik öz yeterlilik; akademik başarı, klinik uygulama ve mesleki sorumluluğu kapsar. Stresin olumsuz etkileri göz önünde bulundurulduğunda, hemşirelik eğitim programları, başa çıkma becerilerini geliştirecek ve başarıyı destekleyecek stratejilere odaklanmalıdır. Bu bağlamda, stres yönetimi tekniklerinin müfredata dahil edilmesi, duygusal destek sağlanması ve öğrenci performansını artırmaya yönelik programların uygulanması önemlidir.

Anahtar Kelimeler: Hemşirelik eğitimi; öğrenci; öz yeterlilik.

Introduction

Nursing education is a dynamic journey that includes theoretical and clinical education and requires observation and interpretation. In addition to the university environment, nursing students frequently contact patients and their relatives in the hospital environment during clinical practice. Throughtout this process, students are required to communicate effectively and address as well as resolve problem patients' health problems using their knowledge and skills. However, during this process, nursing students face various stress factors related to clinical practice, theoretical education, and social and personal life (Mazalova, Gurkova & Sturekova, 2022). The main stress factors are intensive workload and care of terminal patients, internship practice, homework, low grades, course loads, lack of free time, and interpersonal relationships with other professional members (Chaabane et al., 2021). When the literature is reviewed, research indicates that nursing students tend to experience greater stress during their education compared to students in other disciplines (Barbayannis et al., 2022; Bhurtun et al., 2021). However, stress is a common problem among nursing students. Moderate stress is a psychosocial factor affecting academic performance and student well-being during education. High levels of stress in the educational life, on the other hand, can lead to various health problems, including alcohol and drug addiction, nutritional problems, sleep disorders, psychological symptoms, and even psychiatric disorders, as well as affecting the achievement of academic learning goals and making effective learning difficult. Moreover, excessive stress affects academic achievement and, thus, self-efficacy (Barbayannis et al., 2022).

Academic self-efficacy is described as "An individual's confidence in their capability to effectively accomplish academic tasks", whereas "self-efficacy refers to a person's confidence in their capability to plan and carry out the actions required to achieve specific goals"(Bulfone et al., 2022). A research indicates that elevated academic self-efficacy is associated with greater academic achievement, and academic achievement fosters the development of high academic self-efficacy. Furthermore, research has shown that students who have a greater level of academic self-efficacy also tend to engage in less dangerous activities (Bulfone et al., 2022).

According to Bandura's (1978) mutual determinism, students' degrees of academic self-efficacy and stress are social cognitive elements that can influence one another. For instance, high academic self-efficacy may indicate that students will be able to lessen the effects of stressors or handle stress more readily. Students who are secure in their academic abilities may view stressors as challenges rather than threats, experience less stress, and discover that they are better suited for university life. But poor self-efficacy students can think that tasks are harder than they actually are, which could lead to stress and hinder their ability solve problems (Hitches, Woodcock & Ehrich, 2022). A survey of existing literature shows that there is limited research on the connection between academic self-efficacy and nursing students and the stress they endure during their education.

Aim

This study aimed to determine how nursing students' academic self-efficacy and stress levels related to each other during their education.

Research Questions

1. What is the level of academic self-efficacy of nursing students?

2. What are the nursing education stress levels of students studying in the nursing department?

3. Is there a relationship between the stress experienced by students during their education and their academic self-efficacy?

Method

Study Design

This study was conducted as a descriptive, cross-sectional, and correlational research design.

Study Setting

The study was conducted between October and November 2022 with students from the second, third, and fourth years of the Nursing Department at a university's Faculty of Health Sciences to determine the relationship between academic self-efficacy and the stress experienced during nursing education.

Study Population and Sample

The study population included 405 students from the second, third, and fourth years of a university's Nursing Department within the Faculty of Health Sciences. Using the sampling method with a 90% confidence interval and p (probability of the examined event occurring) = 0.5 and q (probability of the examined event not occurring) = 0.5, the sample number for the study was determined to be at least 163 students for a sampling error of ± 5%. The sample consisted of nursing department students who consented to participate in the study and answered all questions completely. 170 students participated in the study after it was finished.

The criteria for inclusion involved agreeing to take part in the study, being a nursing department student, and answering all questions thoroughly.

Data Collection Tools

The data was collected using the Nursing Education Stress Scale, Academic Self-Efficacy Scale for Nursing Students, and Personal Information Form. Google Forms was used to generate the scales and forms. Students were sent a link to the online questionnaire via their email addresses and instructed to complete it. Before answering the research questions and giving their consent, study participants were requested to review the informed consent document. The questionnaire was made available to participants who granted their consent.

Personal Information Form: Following a review of the literature, the researchers created an information form with 13 questions in total. These questions cover age, gender, high school graduation, grade

level, employment status, financial status, housing circumstances, rank of preference for the nursing department, willingness to choose the department, satisfaction with the choice, grade point average, experiencing stress during education, and factors causing stress (Akaya, Babacan Gümüş & Akkuş, 2018; Büyükbayram & Ayık, 2020).

Academic Self-Efficacy Scale for Nursing Students: The Academic Self-Efficacy Scale (ASES) was developed in 2019 to assess undergraduate nursing students' academic self-efficacy (Bulfone, Vellone, Maurici, Macale & Alvaro, 2019). This 14-item scale, translated into Turkish by Çiçek Korkmaz and Aktay in 2021, has four sub-dimensions: sociability, automatically controlled behavior, external emotion management, and internal emotion management. On a 5-point Likert-type scale, responses range from 1-5 points (1: I am not at all confident, 5: I am very confident). The scale has a lowest possible score of 14 and a highest possible score of 70. An rise in academic self-efficacy is shown by a higher overall score. The Internal Emotion Management sub-dimension of the scale had a Cronbach's Alpha value of 0.680, the Automatic Controlled Behavior sub-dimension of 0.600, the External Emotion Management sub-dimension of 0.759, and the Sociability sub-dimension of 0.755. These values were determined for the internal consistency of the sub-dimensions of the scale. The scale's Cronbach's Alpha is 0.82. Cronbach's Alpha for this study was 0.941, with sub-dimensions for Internal Emotion Management (0.827), Automatic Controlled Behavior (0.872), External Emotion Management (0.808), and Sociability (0.917) forming the remaining percentages.

Nursing Education Stress Scale: Rhead (1995) modified Gray-Toft and Anderson's (1981) Nurse Stress Scale to create the new scale. This 4-point Likert-type scale, with a score range of 0-3 (0: Not at all stressful, 3: Quite stressful), was adapted into Turkish in 2014 (Karaca, Yıldırım, Ankaralı, Açıkgöz, & Akkuş, 2014). It consists of 32 questions divided into 2 sub-dimensions (practice and academic stress). The scale's lowest possible score is zero, and its maximum possible value is 96. A rise in the overall score indicates an increase in stress. The scale's Cronbach's Alpha reliability coefficient is 0.90. Cronbach's Alpha for this study was found to be 0.96.

Ethical Considerations

The study was conducted with permission from the Biruni University's Non-Interventional Clinical Research Ethics Committee (Date: 27.09.2022 No: 74-17), the Dean's Office of the Faculty of Health Sciences at the university, and the researchers who adapted the scales into Turkish and verified their validity. The participants' names were kept private and no personal information was collected in accordance with the confidentiality principle.

Data Collection

The research was conducted with 170 nursing students who met the inclusion criteria and volunteered between October and November 2022. The survey was prepared through Google Forms and sent to the participants' email addresses, and it was completed after the consent form was approved. During the data collection process, the purpose of the research was explained to the participants, and the principles of confidentiality and voluntariness were adhered to. The completion of the survey took an average of 15-20 minutes for each participant.

Data Analysis

The statistical analysis performed the research findings were analyzed using the SPSS 22.0 statistical software. The study data were examined using descriptive statistical methods (Frequency, Percentage, Mean, Standard deviation). The data's normal

Table 1: Sociodemographic Profile of the Students (n = 170)

Variable		Mean ± SD (Min-Max)	
Age		20.94 ± 1.746 (18-33)	
Grade point average		2.91 ± 0.387 (2-4)	
		n	**%**
Gender	Female	154	90.6
	Male	16	9.4
Grade	2	60	35.3
	3	66	38.8
	4	44	25.9
Nursing preference rankings	1-3	153	90
	4-6	8	4.7
	7 and above	9	5.3
The status of choosing the nursing department willingly	Yes	146	85.9
	No	24	14.1
Satisfaction with the choice of nursing major	Yes	114	67.1
	No	9	5.3
	Undecided	47	27.6
Experiencing stress during nursing education	Yes	104	61.2
	No	9	5.3
	Sometimes	57	33.5

SD: Standard Deviation; Min: Minimum; Max: Maximum

distribution was evaluated using the Kolmogorov-Smirnov test. For nonparametric data, the Mann-Whitney U Test, and the Kruskal-Wallis Test were used. A 95% confidence interval and a $p < 0.05$ significance level were used to assess the results. In order to determine which group the difference originated from, post-hoc analysis was performed using the Bonferroni correction.

Results

The following are the results of a study that looked at the relationship between academic self-efficacy and stress experienced throughout nursing school. Ninety point six percent of the participants were female, with a mean age of 20.94 ± 1.74 (18-33) years. Table 1 shows the demographic information of the students.

Table 2: Distribution of the Mean Scores of the ASES, NESS, and Sub-Dimensions (n = 170)

Scale	Min	Max	Median ± SD	Number of Scale Items
ASES for Nursing Students	14	70	52.52 ± 10.81	14
Internal Emotion Management	3	15	10.72 ± 2.57	3
Automatically Controlled Behavior	4	20	15.64 ± 3.42	4
External Emotion Management	4	20	13.91 ± 3.91	4
Sociability	3	15	12.23 ± 2.64	3
NESS	0	96	55.67 ± 20.53	32
Practice Stress	0	48	28.26 ± 10.59	16
Academic Stress	0	48	27.40 ± 10.65	16

ASES: Academic Self-Efficacy Scale; NESS: Nursing Education Stress Scale; SD: Standard Deviation; Min: Minimum; Max: Maximum

Table 2 shows the distribution of total and subscale score distributions and Table 3 shows the correlation between ASES and NESS scores. Accordingly, the students received a total score of 52.52 ± 10.81 on the ASES and 55.67 ± 20.53 on the NESS (Table 2). There was a low negative correlation between the scales, and there was a statistically significant relationship between them ($r = -0.271$, $p < 0.001$) (Table 3).

Table 3: The Relationship Between the ASES and NESS Total Score Averages (n = 170)

Scale	n	$r^†$	p
ASES			
	170	-0.271	**0.000**
NESS			

ASES: Academic Self-Efficacy Scale; NESS: Nursing Education Stress Scale; **p < 0.001**; †r: Spearman's Correlation test

Table 4 shows the results of the data related to the comparison of the scale scores with the demographic characteristics of the students. Accordingly, there was a statistically significant difference between the ASES score and satisfaction with choosing the nursing department ($p = 0.007$). A statistically significant difference was found between the NESS score and the responses of willingly choosing the nursing program ($p = 0.047$), satisfaction with the choice of nursing program ($p = 0.016$) and stress experienced during nursing education ($p = 0.001$).

Discussion

Students in nursing education, which combines theoretical and practical education, deal with a variety of stressors. Moreover, academic achievement and, consequently, academic self-efficacy are impacted by high levels of stress (Shariff & Azlan). As a result, figuring out how stressed out nursing students are while studying can help them develop coping mechanisms and become more accustomed to their career. The study found that the students' stress levels were above average, with a mean score of 55.67 ± 20.53 on the Nursing Education Stress Scale, 28.26 ± 10.59 on the Practice Stress subscale, and 27.40 ± 10.65 on the Academic Stress subscale. Consistent with the findings of our study, previous research has demonstrated that stress levels among nursing students are higher than normal (Shaban, Khater & Akhu-Zaheya, 2012). However, there are also studies showing that nursing students experience moderate stress in nursing education (Oner Altiok & Ustun, 2013).

In the study, it was found that 61.2% of nursing students experienced stress during the education process, and all of those who experienced stress experienced stress during clinical practice. A study conducted with second-year nursing students in Jordan found that clinical practice was one of the most reported sources of stress (Ab Latif & Mat Nor, 2019). In a qualitative study conducted to determine the stress sources of nursing students, it was determined that clinical practice was one of the most important stressors (Liu, Gu, Wong & Watson, 2015). In a study conducted to determine the stress sources of nursing students, it was determined that clinical practice was one of the most important stressors (Karaca, Yıldırım, Ankaralı, Açıkgöz & Akkuş, 2017). It was determined that the NESS perception of those with stress experience was statistically higher than the NESS perception of those without stress experience. In addition, it was determined that the NESS perception of those who sometimes experience stress is statistically higher than the NESS perception of those who do not experience stress. It can be said that students' stress continues at every stage of the education process because there are applied courses related to a different field every year during the education.

When nursing students' stress levels during their education were analyzed by gender, it was determined that female students' total scores were greater than those of male students. There was, yet, little distinction between the two. Some studies in the literature (Aslan & Akturk, 2018) find no significant relationship between gender and educational stress, while other studies (Karaca et al., 2014) show that female students experience greater levels of stress during their education compared to their male classmates.

When nursing students' stress levels during their education were compared by grade level, no significant differences were detected. Students studying in the second grade had higher overall scores

Table 4: Comparison of the Mean Total Scores of the ASES and NESS According to the Descriptive Characteristics of the Students (n = 170)

Variables Mean ± SD		ASES		NESS	
		Mean ± SD	Test p	Mean ± SD	Test p
Gender	Female	52.55 ± 10.63	1180.0[‡] 0.781	56.50 ± 20.26	926.50[‡] 0.103
	Male	52.25 ± 12.84		47.68 ± 22.02	
Graduated high school	Anatolia	51.99 ± 10.59	4.741[§] 0.315	56.44 ± 19.95	8.129[§] 0.087
	Vocational	53.58 ± 12.30		52.96 ± 21.45	
	Imam Hatip	58.18 ± 7.66		45.36 ± 22.24	
	Science	51.00 ± 11.20		71.66 ± 20.13	
	Other	48.66 ± 10.70		57.50 ± 18.06	
Grade status	2	52.83 ± 8.53	1.401[§] 0.496	53.83 ± 17.84	2.071[§] 0.355
	3	51.33 ± 12.89		57.74 ± 24.40	
	4	53.90 ± 10.21		55.68 ± 17.48	
Grade Point Average	2-2.99	52,89 ± 10,98	-0.320[‡] 0.739	53,61 ± 21,15	-1,467[‡] 0,142
	3-4	52,07 ± 10,66		58,34 ± 19,52	
Nursing selection ranking	1-3	52.83 ± 10.87	4.713[§] 0.095	54.89 ± 20.84	1.877[§] 0.391
	4-6	55.37 ± 5.99		64.00 ± 18.74	
	7 and above	44.88 ± 10.84		61.44 ± 14.85	
The status of choosing the nursing department willingly	Yes	52.52 ± 11.21	1638.0[‡] 0.609	54.59 ± 20.46	1308.50[‡] **0.047**
	No	52.58 ± 8.20		62.20 ± 20.15	
Satisfaction with the choice of nursing department	Yes	54.06 ± 10.67	9.972[§] **0.007**	53.58 ± 21.11	8.307[§] **0.016**
	No.	43.66 ± 13.83		72.88 ± 10.03	
	Undecided	50.51 ± 9.56		57.42 ± 18.97	
Comparisons	Bonferroni Correction	Yes>No	**0.003**	Yes>No	**0.015**
Experiencing stress during nursing education	Yes	52.37 ± 11.60	0.05[§] 0.975	59.50 ± 20.24	13.172[§] **0.001**
	No.	52.00 ± 13.61		36.33 ± 20.71	
	Sometimes	52.89 ± 8.87		51.73 ± 18.80	
Comparisons	Bonferroni Correction	-	-	Yes>No, Yes>Sometimes	**0.008** **0.037**

ASES: Academic Self-Efficacy Scale; NESS: Nursing Education Stress Scale; SD: Standard Deviation; ‡: Mann-Whitney U test; §: Kruskal-Wallis test; **p < 0.05**

and averages of the practice sub-dimension of the NESS than students in other grades, according to Özdemir et al.'s (2020) study. Second-year students had considerably greater stress levels in the study carried out Karaca et al. (2017) with nursing students. This situation is thought to be because the first year includes a more theoretical and practical training orientation phase. Still, in the second year, with the increase in practical training in the course content, it is thought to be due to more contact with the hospital environment, especially with individuals with chronic diseases.

The NESS variable was found to differ statistically according to satisfaction (p < 0.05). It was analyzed that the participants who were satisfied had the highest perception of NESS. It was also determined that the NESS perception of satisfied participants was statistically higher than the NESS perception of dissatisfied participants. The study conducted by Baysan Arabacı et al. (2015) determined that those who chose the nursing department willingly

experienced less stress. Akkaya et al. (2018), in a study conducted with nursing students, stated that the stress level was higher in students who indicated that they were undecided about being satisfied with choosing the nursing department. The average NESS score of students who indicated they chose their department willingly was found to be higher than that of those who said no in the study by Büyükbayram and Bıçak Ayık (2020), however there was no statistically significant difference identified. However, in another study have found no correlation between the mean scores of the nursing education stress scale and its sub-dimensions, practice stress and academic stress, and the students' desire to attend the nursing department (Karahan Okuroglu, 2021).

The ASES for Nursing Students' mean overall and sub-dimension scores in this study were higher than average. Similar to our study, studies are showing that students' academic self-efficacy is at a moderate level (Uzdil & Gunaydın, 2022; Xu et al., 2023) and

studies reporting that students' academic self-efficacy is at a good level have also been found (Zhang et al, 2018). In our study, the academic self-efficacy levels of students who willingly chose the nursing department were found to be higher. It was determined that the NESS perception of those who did not choose the nursing department willingly was statistically higher than those who chose it willingly. In the study carried out Aktas and Sancar (2021) with nursing students, the academic self-efficacy of students who stated that they were satisfied with their department was found to be higher. It is thought that this situation is due to the increase in students' satisfaction with the department they are studying, feeling that they belong to the profession, reducing their stress levels during education, and increasing their academic self-efficacy.

The grade point average and academic self-efficacy of students did not significantly correlate, according to this study. According to this study, no significant difference was found between students' grade point average and academic self-efficacy. In contrast to our study, other studies have reported that academic achievement affects academic self-efficacy (Al Sebaee et al., 2017; Goger et al., 2019). The fact that the research were carried out in different countries may be the cause of this discrepancy between them.

Students in the fourth grade demonstrated a higher level of academic self-efficacy, according to this study. Similar findings were made by Aktas and Sancar (2021) in their research on nursing students, who discovered that fourth-year students had greater levels of academic self-efficacy. It is possible to argue that this situation may result from students' increased professional knowledge as a result of the academic and practical courses they have taken over the past few years. The academic self-efficacy of nursing students was studied for three years by Bulfone et al. (2011). They discovered that there was no difference in academic self-efficacy between grade levels.

The overall mean scores of the ASES for Nursing Students and the mean scores of the NESS were shown to be negatively correlated and statistically significant. The findings of Goger and Cevirme's (2019) study on nursing students indicated a modest and negative correlation between self-efficacy and stress level related to nursing education. It follows that the degree of perceived self-efficacy among nursing students might effectively lessen the stress associated with nursing education.

Strengths and Limitations

There are also foreign nursing students in the institution where the research was conducted. Accordingly, the study includes many nursing students with different demographic characteristics. This study is one of the limited number of studies examining the relationship between the stress experienced by nursing students during education and their academic self-efficacy. The results obtained from the research are limited to the students studying in the university's nursing department where the research was conducted and cannot be generalized. The results obtained from the study are limited to the scales used in the data collection process and were answered based on the students' self-reports with the online survey method.

Conclusion

The academic self-efficacy of the nursing the students involved in the research were above average, and the stress level during nursing education was slightly above average. A low negative significant relationship was found between nursing students' academic self-efficacy and educational stress levels. This indicates that stress coping mechanisms may affect academic performance and play an important role in students' self-efficacy perceptions. The findings emphasize that nursing education programs should develop strategies to strengthen students' stress-coping skills and support their academic self-efficacy. In this context, it may be recommended to provide mentoring and counseling services to students on coping with stress, to create academic skill development courses and student reinforcement programs, and to conduct the study with larger sample groups.

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