Araştırma Sunumu | Research Article

Evaluation of Factors Related to Stress Among Nursing Students / *Hemşirelik Öğrencilerinde Stresle İlgili Faktörlerin Değerlendirilmesi*

Dr. Tuğba YARDIMCI GÜREL[1]

1. Sinop University Faculty of Health Sciences, yardimci.tugba@gmail.com

Gönderim Tarihi | Received: 08.04.2022, Kabul Tarihi | Accepted: 10.04.2023, Yayım Tarihi | Date of Issue: 1.08.2023

Atıf | Reference: "YARDIMCI GÜREL, T. (2023). Evaluation of Factors Related to Stress Among Nursing Students. Health Academy Kastamonu (HAK), 8(2), s.263-274. DOI: https://www.doi.org/10.25279/sak.1100805"

Abstract

Introduction: It is commonly accepted that educational stress affects students' academic achievement, self-esteem, and coping efficacy, which can lead to changes in physiological and psychological health. Nursing students experience greater stress related to the intensity and complexity of nursing programs, including academic, clinical, and personal stressors than students in other health-related fields. Aim: To investigate undergraduate nursing students' stress levels and factors affecting these during their education. Materials and methods: This was a descriptive and cross-sectional study involving 319 students. A Sociodemographic Characteristics Form and the Student Nurse Stress Index (SNSI) were used for data collection. The Cronbach alpha coefficient of the scale was 0.86. Results: Of the participants, 26.6% were in the third year of study, 67.4% were female and 55.5% of the students thought of themselves as moderately successful academically. The overall SNSI mean score was 43.85±10.58 (min=15, max=75). According to the analysis, there was a statistically significant difference between some of the students' sociodemographic features and the Student Nurse Stress Index mean scores. The students' academic year was directly associated with stress levels ($p < 0.05$). The academic load was the most common source of stress reported by students. Conclusion and suggestions: It was found that the stress levels of the senior students were higher than those of other students. Nursing students' mental health must be protected to continue to provide adequate care and treatment to patients. Stress management interventions should be provided, especially in the final year of study, when the students experience the most intense stress.

Keywords: Stress, Nursing Students, Nursing Education, Stressors

Öz

Giriş: Eğitim ile ilişkili stresin öğrencilerin akademik başarısını, benlik saygısını ve baş etme yeterliliğini etkilediği, bunun da fizyolojik ve psikolojik sağlıkta değişikliklere yol açabileceği yaygın olarak kabul edilmektedir. Hemşirelik öğrencileri; akademik, klinik ve kişisel stres faktörleri dahil olmak üzere hemşirelik programlarının yoğunluğu ve karmaşıklığı ile ilgili diğer sağlıkla ilgili alanlardaki öğrencilere göre daha fazla stres yaşamaktadırlar. Amaç: Lisans hemşirelik öğrencilerinin stres düzeylerini ve bunları etkileyen faktörleri araştırmaktır. Gereç ve yöntem: Bu araştırma 319 öğrenciyi kapsayan tanımlayıcı ve kesitsel bir çalışmadır. Verilerin toplanmasında Sosyodemografik Özellikler Formu ve Öğrenci Hemşire Stres İndeksi (SNSI) kullanılmıştır. Ölçeğin Cronbach alfa katsayısı 0.86'dır. Bulgular: Katılımcıların %26,6'sı üçüncü sınıf, %67.4'ü kadın ve %55.5'i akademik olarak orta düzeyde başarılı olduğunu düşünmektedir. Genel SNSI ortalama puanı 43.85±10.58'dir. Yapılan analizlerde öğrencilerin bazı sosyodemografik özellikleri ile Öğrenci Hemşire Stres

İndeksi puan ortalamaları arasında istatistiksel olarak anlamlı bir fark bulunmuştur. Öğrencilerin bulundukları sınıfın stres düzeyleri ile doğrudan ilişkili olduğu saptanmıştır ($p < 0.05$). Öğrenciler tarafından bildirilen en yaygın stres kaynağının akademik yük olduğu bulunmuştur. Sonuç ve öneriler: Araştırma sonucunda son sınıf öğrencilerinin stres düzeylerinin diğer öğrencilere göre daha yüksek olduğu saptanmıştır. Hastalara yeterli bakım ve tedavinin sağlanması açısından hemşirelik öğrencilerinin ruh sağlığının korunması önemlidir. Özellikle öğrencilerin yoğun stres yaşadığı son sınıfta stres yönetimi ile ilgili girişimlerin planlanması önerilmektedir.

Anahtar Sözcükler: Stres, Hemşirelik Öğrencileri, Hemşirelik Eğitimi, Stresörler

1. Introduction

Due to the nature of nursing education, the presence of stress among nursing students is well-known in the literature and there is clear evidence for it. Stress is defined as a physical or psychological stimulus that disrupts an individual's ability to adapt and triggers coping responses (Baluwa et al., 2021; Labrague et al., 2018). It is commonly accepted that educational stress has an effect on students' academic achievement, self-esteem, and coping efficacy, which can lead to changes in physiological and psychological health (Aljohani et al., 2021; Ahmed & Mohammed, 2019; Alghamdi et al., 2019; Labrague et al., 2017). It has been reported that college students tend to experience stress as they often try to ignore the difficulties that arise from their work, their familial, emotional and financial responsibilities, and the need to get an education. It has also been reported that social pressures, learning difficulties, new study methods, a change in peer relationships, and, in particular, exams cause stress (Baluwa et al., 2021; Kasthuri, 2017). Nursing students experience greater stress related to the intensity and complexity of nursing programs, including academic, clinical and personal stressors, than students in other health-related fields (Aljohani et al., 2021; Chaabane et al., 2021; Madian et al., 2019; Admi et al., 2018; Labrague et al., 2017; Gomathi et al., 2017; Smith & Yang, 2017; Turner & McCarthy, 2017). It is known that stress during undergraduate education may cause psychological problems that affect the quality of patient care in the later stages of a nurse's career (Gomathi et al., 2017; Turner & McCarthy, 2017). Exams, workload, assignments, grades, fear of failure, lack of free time, the response of lecturers to learners' needs, educational capacity, and lack of timely feedback are all sources of educational stress for nurses (Alatawi, Morsy & Sharif, 2022; Onieva-Zafra et al., 2020; Labrague et al., 2018). Workload and exams have been generally identified as significant sources of stress for students (Labrague et al., 2018; Nebhinani et al., 2020; Kasthuri, 2017). Placements, anxiety about making mistakes, initial clinical experience, issues related to death, difficulties in interpersonal relationships with fellow workers and negative behaviors by managers, are all frequently reported sources of clinical stress (Baluwa et al., 2021; Kupcewicz et al., 2020; Kumar, 2018). In addition, nursing students experience a variety of personal stressors, such as depression, anxiety, lack of time to send with family and friends, personal health problems and financial issues (Alatawi, Morsy & Sharif, 2022; Baluwa et al., 2021).

Stress is thought to be beneficial in small doses because it increases excitement and motivation (Gibbons, 2010). It has been stated that stressors that are not well managed can cause sleep disorders, decreased concentration, depression and emotional disorders that may negatively affect the academic performance of nursing students (Aljohani et al., 2021; Alghamdi et al., 2019; Msiska et al., 2019; McCarthy et al., 2018). Additionally, chronic stress can have an impact on a nursing student's learning, decision-making, thinking, and, ultimately, academic performance. Stress may even be a factor in their decision to leave the nursing

program (Labrague et al., 2017). Therefore, defining it and planning the necessary interventions are very important for the future of the nursing profession.

In terms of the Turkish and Islamic culture, values such as tolerance, understanding, respect for reach other, being helpful, and compassion are held to be important, and these affect students' coping strategies with regard to various stressors during their education (Sarıkoç et al., 2017). In Turkey, nursing students are 18 years' old when they begin their clinical practice and their baccalaureate education. Before starting clinical practice only basic medical and nursing skills are taught. Nevertheless, it is expected that students will provide quality care to their patients over a short period of time. These expectations may influence nursing students' ability to cope, leading to them to feel that they are under pressure and causing them to feel stress (Sarıkoç et al., 2017). In the literature most studies evaluating the sources of stress that have been conducted in Western countries. Few studies have evaluated stress among undergraduate nursing students in Eastern countries. Therefore, this study aimed to investigate undergraduate nursing students' stress levels and factors affecting these during their education from a Turkish perspective.

2. Materials and Methods

2.1. Type of Research

This was a descriptive and cross-sectional study.

2.2. Place and Time of Research

The study was conducted with nursing students studying at the faculty of health sciences between the dates of March and April 2018.

2.3. Population, Sample and Sampling Method of Research

The sample comprised 319 voluntary students (215 females, 104 males) studying in the Department of Nursing. Since it was aimed to reach the entire universe in the study, no sample selection was made, and all students who were taking classes during the data collection process were included in the study. The participation rate was 78%. The power of the study was calculated using the "G Power-3.1.9.7" program, with a margin of error of 0.05, after data collection. Accordingly, the effect size of the study was 0.3804; The alpha value was calculated as 0.05 and the power of the study was 99.

2.4. Data Collection Tools

A Sociodemographic Characteristics Form and the Student Nurse Stress Index (SNSI) were used for data collection.

2.4.1. Sociodemographic Characteristics Form

This form was designed by the author with one section to collect the descriptive characteristics of the students. The form included questions on year of study, gender, the type of high school they had graduated from, family type, number of siblings, longest place of residence, economic status, educational level of parents, employment status of parents and academic self-perception.

2.4.2. Student Nurse Stress Index (SNSI)

The Student Nurse Stress Index was developed by Jones and Johnston (1999) and the reliability and validity of the Turkish version was evaluated by Sarıkoç et al. (2017). The Turkish version of the SNSI has 15 items and four factors (academic load, personal problems, interface worries, clinical concerns). The SNSI is a five-point Likert scale, ranging from 1 ("not stressful") to 5 ("extremely stressful"). The factors are: i) Academic load: this includes items 1, 2 and 3; ii) Personal problems: this includes items 6, 7, 8 and 9; iii) Interface worries: this includes items 4, 5, 10 and 11; and iv) Clinical concerns: this includes item numbers 12, 13, 14 and 15. The scale consists of the sum of the scores obtained from the four factors, and the total score obtained from the scale does not have a cut-off point. The total score range is between 15 and 75 (Table 1). High scores indicate a high stress level. The Cronbach alpha coefficient of the scale was 0.86 (Sarıkoç et al., 2017). In our study, Cronbach's Alpha values were found between 0.64 and 0.81 in the sub-dimensions of the scale, and 0.86 in the whole scale.

Table 1. Distribution of Students' SNSI Mean Scores

Scale	Min-max	Mean±SD	Student Nurse's Stressors Under Each Subscale
Academic load	3-15	10.04±2.81	Amount of class work to be learned Difficulty of class work material Examination and/or grades
Personal problems	4-20	10.51±4.18	Personal health problems Family members physical health Relationships with parents Other personal problems
Interface worries	4-20	11.74±3.33	Peer competition Expectations of other personnel towards Nursing Too much responsibility Lack of timely feedback about performance
Clinical concerns	4-20	11.54±3.54	Relation with other professionals Clients attitude towards self Clients attitude towards nursing profession Atmosphere created by teachers
SNSI total score	15-75	43.85±10.58	

Abbreviations: Min, minimum. Max, maximum. SD, standard deviation. SNSI, Student Nurse Stres Index

2.5.Data collection

Data collection tools were applied by the researcher in the classroom before or at the end of the lesson. The names of the students were not included in the data collection forms and it took approximately 6-8 minutes to fill out the forms.

2.6.Ethical Considerations

Before starting the data collection process written permission was obtained from the author who developed the scale. Ethical approval was obtained from a University Human Research Ethics Committee (No: 2018/8; Date: 15/01/2018). Institutional permission was obtained from the Faculty of Health Sciences and written consent forms were received from the students who wanted to participate in the study. The study was conducted in accordance with the principles of the Declaration of Helsinki.

2.7.Statistical analysis

The IBM Statistical Package for the Social Sciences (SPSS) 21 program was used to evaluate the data.

In the statistical analysis, the conformity of the data to the normal distribution was evaluated with the Kolmogorov Smirnov test. Descriptive statistics (frequency, mean, standard deviation) were used to evaluate demographic features and key variables. To determine the association of the level of stress with sociodemographic characteristics the Student's t-test was used for two-category variables with normal distribution, One-Way ANOVA test was used for the variables with more than two categories and normally distributed, and the Kruskal Wallis H test was used for the variables that did not normally distributed. In pairwise comparisons, Tukey test was used if the data showed normal distribution and the groups had homogeneous variance, and the Tamhane test was used if the data showed normal distribution but the groups did not have homogeneous variance. Dunn's test was used for data that did not show normal distribution. Cronbach alpha coefficient was calculated for internal consistency. For all associations and comparisons, $p < 0.05$ was considered statistically significant.

3. Results

A total of 319 students participated in the study. Table 2 presents the distribution of students' sociodemographic characteristics according to SNSI mean scores. Of the participants, 26.6% were in the third year of study, 67.4% were female, 58.0% were Anatolian high school graduates, 84.3% had a nuclear family, 40.8% had three or more siblings, 52.1% of them were living in a big city and 71.6% had an income equal to their expenses. The mothers of 57.4% and the fathers of 37.6% of them were primary school graduates. 75.5% had mothers who were unemployed, while 74.0% of them had fathers who were employed. In addition, 55.5% of the students thought of themselves as moderately successful academically (Table 2).

Table 2. Distribution of Students' Socio-Demographic Characteristics According to SNSI Total Score and Sub-Dimension Scores

Features	No (%)	Academic load	Personal problems	Interface worries	Clinical concerns	Total score
		Mean±SD	**Mean±SD**	**Mean±SD**	**Mean±SD**	**Mean±SD**
Grade						
1st	77 (24.1)	9.10±2.88	9.40±4.03	10.36±3.06	9.93±3.59	38.80±10.38
2nd	81 (25.4)	9.55±2.32	10.08±3.65	11.22±3.08	11.19±3.15	42.06±8.31
3rd	85 (26.6)	9.81±3.04	10.81±4.23	12.21±5.52	11.98±3.13	44.82±10.91
4th	76 (23.8)	11.76±2.21	11.77±4.49	13.18±3.01	13.06±3.63	49.78±10.58
		F=15.42 P<0.001	F=4.704 **p=0.003**	F=11.323 **P<0.001**	F=11.736 **P<0.001**	F=17.069 P<0.001
Gender						
Female	215 (67.4)	9.98±2.84	10.68±4.21	11.76±3.34	11.61±3.69	44.05±10.86
Male	104 (32.6)	10.15±2.76	10.16±4.10	11.71±3.34	11.41±3.21	43.44±10.01
		t=-0.498 p=0.619	t=1.051 p=0.294	t=0.128 p=0.898	t=0.496 p=0.620	t=0.481 p=0.631
Graduate (High school)						
Health School	81 (25.4)	9.40±2.45	9.74±4.25	11.19±3.04	11.01±3.41	41.35±9.42
Anatolian High School	185 (58.0)	10.29±2.85	10.58±4.02	11.81±3.30	11.63±3.56	44.33±10.33
Other	53 (16.6)	10.13±3.08	11.45±4.47	12.33±3.78	12.05±3.65	45.98±12.44
		F=2.839 p=0.060	F=2.780 p=0.064	F=1.984 p=0.978	F=1.534 p=0.217	F=3.571 **p=0.029**
Family type						
Nuclear family	269 (84.3)	10.02±2.85	10.51±4.25	11.76±3.39	11.56±3.58	43.87±10.73
Big family	50 (15.7)	10.10±2.64	10.52±3.79	11.66±3.06	11.44±3.35	43.72±9.82

		t=-0.162 p=0.872	t=-0.005 p=0.996	t=0.198 p=0.843	t=0.236 p=0.814	t=0.096 p=0.923
Number of Siblings						
No	11 (3.4)	9.90±2.38	9.63±4.38	10.45±3.32	11.00±2.75	41.00±6.46
1	85 (26.6)	10.42±2.61	10.88±4.06	11.97±3.41	11.84±3.15	45.12±9.79
2	93 (29.2)	9.98±3.11	10.29±4.45	11.94±3.44	11.37±3.62	43.60±11.51
3 or more	130 (40.8)	9.83±2.76	10.51±4.06	11.56±3.21	11.52±3.79	43.43±10.66
		KW=2.323 p=0.508	KW=1.430 p=0.699	KW=2.594 p=0.458	KW=1.537 p=0.674	KW=3.243 p=0.356
Long-lived place						
City	166 (52.1)	10.40±2.75	10.97±3.74	12.11±3.22	11.76±3.41	45.25±9.55
Town	113 (35.4)	9.41±2.81	9.90±4.57	11.44±3.41	11.44±3.41	42.00±10.95
Village	40 (12.5)	10.30±2.81	10.35±4.59	10.95±4.37	10.95±4.37	43.25±12.79
		F=4.414 **p=0.013**	F=2.268 p=0.105	F=2.351 p=0.097	F=0.930 p=0.396	F=3.309 **p=0.038**
Family income						
Less income to expense	46 (14.4)	10.47±2.80	11.41±4.40	11.93±3.36	11.73±3.36	45.56±10.45
Equal income to expense	229 (71.8)	9.92±2.81	10.38±4.13	11.81±3.30	11.60±3.66	43.72±10.66
More income to expense	44(13.8)	10.20±2.86	10.25±4.16	11.20±3.52	11.06±3.06	42.72±10.29
		F=0.833 p=0.436	F=1.255 p=0.105	F=0.696 p=0.499	F=0.495 p=0.610	F=0.867 p=0.421
Personal academic perceptions						
Very successful	7 (2.2)	10.42±3.69	12.71±6.01	14.14±5.01	10.71±2.98	48.00±15.36
Successful	120 (37.6)	10.00±2.71	10.70±3.96	11.78±3.32	11.55±3.76	44.05±10.69
Moderate	177 (55.5)	9.96±2.85	10.08±4.10	11.50±3.20	11.37±3.33	42.92±10.00
Unsuccessful	15(4.7)	11.00±2.90	13.06±4.96	13.20±3.62	13.93±3.86	51.20±11.59
		KW=1.798 p=0.615	KW=17.413 p=0.060	KW=5.186 p=0.159	KW=6.621 p=0.085	KW=7.763 p=0.051
Mother education level						
Not literate	25 (7.8)	9.84±3.09	10.28±4.03	11.60±3.77	12.48±4.08	44.20±13.01
Literate	183 (57.4)	10.10±2.86	10.73±4.03	11.66±3.09	11.53±3.52	44.02±10.07
Primary education	52(16.3)	9.98±2.57	9.90±4.04	11.80±3.38	11.03±3.32	42.73±9.57
High school	53 (16.6)	9.90±2.90	10.35±4.93	11.84±3.92	11.66±3.37	43.77±12.31
University	6 (1.9)	10.35±4.93	11.66±3.77	13.50±3.27	11.66±5.27	47.50±8.71
		KW=0.700 p=0.951	KW=2.805 p=0.591	KW=1.247 p=0.870	KW=3.864 p=0.425	KW=2.499 p=0.645
Father education level						
Not literate	6 (1.9)	8.83±3.71	11.50±5.20	12.16±5.15	13.33±4.57	45.83±16.84
Literate	120 (37.6)	10.22±2.90	10.75±4.18	11.90±2.87	11.67±3.40	44.55±9.87
Primary education	55 (17.2)	9.92±3.12	10.25±4.59	12.00±3.82	11.30±3.94	43.49±12.22
High school	83 (26.0)	9.93±2.74	10.79±4.26	11.71±3.69	11.63±3.92	44.08±11.56
University	55 (17.2)	10.03±2.35	9.74±3.49	11.14±3.02	11.18±2.68	42.10±7.79
		KW=1.819 p=0.769	KW=3.125 p=0.537	KW=2.802 p=0.591	KW=3.887 p=0.422	KW=3.507 p=0.477
Mother employment						
Employed	78 (24.5)	10.80±2.81	11.83±4.58	12.51±3.49	11.78±3.40	46.93±10.62
Unemployed	241 (75.5)	9.79±2.77	10.09±3.96	11.49±3.25	11.47±3.59	42.85±10.39
		t=2.794 **p=0.006**	t=3.245 **p=0.001**	t=2.350 **p=0.019**	t=0.669 p=0.504	t=0.885 **p=0.003**
Father employment						
Employed	236 (74.0)	9.93±2.88	10.36±4.18	11.83±3.37	11.51±3.56	43.64±10.71
Unemployed	83 (26.0)	10.34±2.61	10.93±4.16	11.49±3.25	11.65±3.50	44.43±10.23
		t=-1.160 p=0.247	t=-1.070 p=0.285	t=0.799 p=0.425	t=-0.304 p=0.761	t=-0.581 p=0.562

Abbreviations: SD, standard deviation. SNSI, Student Nurse Stres Index, F= One-way ANOVA test, t= student t test, KW= Kruskal Wallis test. Bold values statistically significance (p<0.05).

The overall SNSI mean score was 43.85±10.58 (Table 1). The analysis found a statistically significant difference for all subscales and the total score of the SNSI in terms of year of study

($p < 0.05$). The analysis show that the difference was caused by fourth-year students and the scores of the students were significantly higher than those of the students in other study of years ($p < 0.05$). It was also determined that the students who were graduates of other high schools had significantly higher total scores ($p < 0.05$). Students who lived in a big city had significantly higher scores for academic load ($p = 0.013$) and total scores ($p = 0.038$). Students whose mothers were employed had statistically significantly higher mean scores for academic load, personal problems and interface worries ($p < 0.05$) (Table 2). The present study found no statistically significant difference between the students' SNSI mean scores according to gender, family type, number of siblings, family income, personal perceptions of academic status, parent's education level and father's employment ($p > 0.05$) (Table 2).

The sources of stress among the nursing students for the 15-item SNSI are shown in Table 3. Academic load was the major source of stress reported by students (3.34±0.33), and the highest mean with regard to this was for the examination and/or year-of-study items (3.71±1.15). The second most common source of stress was clinical concerns (2.90±0.38), and the highest mean with regard to this was for the atmosphere created by teachers (3.41±1.27). The third most common source of stress was personal problems (2.70±0.28) and the highest mean with regard to this was personal health problems (3.00±1.27). The least common source of stress was interface worries (2.70±0.34) and the highest mean for the items dealing with this was for the expectations of other personnel with regard to nursing (3.04±1.12).

Table 3. Source of Stress Among Nursing Students

Scale	Mean	SD
Academic load	**3.34**	**0.33**
Amount of class work to be learned	3.08	1.16
Difficulty of class work material	3.23	1.13
Examination and/or grades	3.71	1.15
Personal problems	**2.70**	**0.28**
Personal health problems	3.00	1.27
Family members physical health	2.73	1.13
Relationships with parents	2.32	1.33
Other personal problems	2.77	1.24
Interface worries	**2.70**	**0.34**
Peer competition	2.46	1.23
Expectations of other personnel towards Nursing	3.04	1.12
Too much responsibility	2.37	1.22
Lack of timely feedback about performance	2.96	1.21
Clinical concerns	**2.90**	**0.38**
Relation with other professionals	2.96	1.20
Clients attitude towards self	2.54	1.08
Clients attitude towards nursing profession	2.68	1.15
Atmosphere created by teachers	3.41	1.27

Abbreviations: SD, standard deviation

4. Discussion

It is well understood that providing long-term care is a stressful job. The issue of stress, however, does not begin when a nurse is qualified, but rather during the nurse's education. The aim of this study was to identify the stressors among nursing students at a Faculty of Nursing. The present study findings showed that the nursing students had a moderate level of stress. This result was consistent with the literature (Ahmed et al., 2021; Baluwa et al., 2021; Nebhinani et al., 2020; Madian et al. 2019; Admi et al., 2018; Bodys-Cupak et al., 2018; Labrague et al., 2018; Kasthuri, 2017). It was determined that year of study was the factor that most affected the students' stress levels in all areas ($p<0.05$).

In the present study, academic load was found to be the most common source of stress reported by nursing students. Within this category, grades and examinations had the highest scores, followed by the difficulty of course material. The amount of course material to be learned was the source of least stress. There was a statistically significant difference between academic load and students' year of study ($F=15.42$, $P < 0.001$), place of longest residence ($F=4.414$, $p= 0.013$), and mother's employment status ($t=2.794$, $p=0.006$). As the students' year of study increase, the academic load also increased. The present study found that the academic load of the students living in big cities and whose mothers were working was higher than that of the others. This was an exciting result that distinguished our study from other countries. Because in studies conducted in other countries, junior students' stress levels were found to be higher, and it was found that the stress level decreased over the years. In Turkey, senior students have to take a civil service exam in their final year in order to become government employees. This exam may cause extra stress on the students. With the addition of fears of getting low grades and not being able to graduate, the stress levels of the more senior students may have increased. In contrast, in the study of Labrague et al (2018), it was found that senior nursing students had lower perceptions of stress than junior nursing students. The researchers thought that this was an expected result since the skills, behavior, and adaptability of nursing students grow and develop as they receive more nursing education. Similarly, in the literature, it has been determined that the most common cause of stress in nursing students is academic load (Alatawi et al., 2022; Aljohani et al., 2021; Baluwa et al., 2021; Nebhinani et al., 2020; Alghamdi et al., 2019; Madian et al. 2019; Parveen and Inayat, 2017). A review conducted by Alatawi et al. (2022) found that academic and clinical resources were the most common sources of stress (evaluations, workload associated with studying, fear regarding unknown situations, the use of technical equipment, and making mistakes with patients). Aljohani et al. (2021) noted that the 'academic stressors', that is, the intellectual and clinical challenges scoring highly among baccalaureate students, may be related to the exposure to new experiences while maintaining a heavy academic and clinical workload. Similarly, Baluwa et al. (2021) found that academic issues were a higher cause of stress among nursing students than clinical and external factors. Nebhinani et al. (2020) found that interface worries and academic load were the most common cause of stress. Most of the students felt stress due to attitude of other professionals toward nursing, the lack of free time and their fears about examinations. Similarly, Alghamdi et al. (2019) found that academic work load was a major source of stress. The amount of classwork and grades/examinations were the most common sources. The study conducted by Parveen and Inayat (2017) found that students' stress level increased due to them getting lower grades than they had hoped for. This can be explained by the inconsistency of the contents of nursing courses and the students' expectations about the coursework they were required to do.

Clinical concerns were the second most common source of stress. The most common cause of stress in this area was the atmosphere created by teachers, the second was the relationship with other professionals, followed by clients' attitude towards nursing profession and the clients' attitude towards themselves. This was an expected result and consistent with those of previous studies. As explained above, the clinical concerns of the senior students were found to be higher in this area as well, and this is thought to be due to similar reasons. Alghamdi et al. (2019) found that clinical concerns such as having too many responsibilities, being unsure what is expected from them, and other professionals' expectations of nursing were the most frequently reported stressors. Similarly, in other studies, students reported that pressure from instructors and nursing staff, having to provide patient care, assignments, and the general workload were common stressors among them (Alatawi et al., 2022; Ahmed et al. 2021; Aljohani et al.,2021; Baluwa et al., 2021; Al-Gamal et al., 2017). It is thought that the reason for the student's clinical concerns could be the clinical training process, which can be an intense, pressure-filled experience. Ahmed et al. (2021) found that students felt pressured by their instructors' evaluations of their clinical practice. They also reported that students experienced stress related to teachers and hospital staff. Furthermore, they reported that assignments and workload in clinical settings were among the other sources of clinical stress. Aljohani et al. (2021) reported that clinical practice was the second most common area of concern, and that students' fear of being responsible for what happened to their patients and fear of making mistakes during clinical practice were factors that contributed to their high stress levels. These findings are consistent with our results.

Other reported sources of stress were personal problems and interface worries. The most frequently reported personal problems were personal health problems, other personal problems, the physical health of other family members and relationships with parents. The most common interface worries items were: expectations of other personnel with regard to nursing, a lack of timely feedback, competition with peers and having too much responsibility. In previous studies it was found that personal problems had the lowest mean scores compared to other items such as interface worries and academic load (Nebhinani et al., 2020; Alghamdi et al., 2019).

5. Conclusion and Suggestions

Stress is a universal problem which everyone experiences, and it is well known that student nurses undergoing rigorous skills training are always at risk. The goal of this study was to use the SNSI scale to determine the sources of stress among nursing students. It was found that the stress levels of the most senior students were higher than those of other students. This situation, which is thought to be caused by the current civil service law in Turkey and the desire of students to become government employees, should be particularly noted, and stress management interventions should be provided, especially in the final year of study, when the students experience the most intense stress. The study assisted in identifying main stressors among Turkish student nurses and will be useful in developing stress management interventions to build more resilient future nurses. The findings of this study will assist researchers, college staff, and nursing students in better understanding the origins of stress and developing further measures to lessen these.

Implications for nursing practice: It is critical to take precautionary measures to reduce the negative impacts of stress on nursing students. Nursing students' mental health must be protected in order for them to effectively fight stress and continue to provide adequate care and treatment to patients. It is vital to prevent the factors that cause stress among nursing

students in advance, devise techniques to help them cope with the stress produced by these factors, and, in particular, to increase the social support provided to them in particular. Nursing educators should create a stable academic atmosphere that enables students to achieve optimal learning outcomes. They should also focus on students' personal needs in order to reduce the sources of stress during the students' academic careers. In addition, it would be beneficial for the Psychiatric Nursing Department of the faculty to design a stress management program suitable for students in each year of study, including modules on social skills, rapid training, stress reduction, and counseling techniques.

Limitations: Since this study had a descriptive design, the causal relationships between the findings could not be examined. In addition, the research was carried out in a single center. Therefore, the research results cannot be generalized. In order to make a more comprehensive evaluation, it is recommended that multicenter interventional studies be conducted with larger samples.

Declarations

*This article was not produced from the thesis study. It was not presented as a verbal / poster presentation at any meeting. No kind of support has been received from any institution / organization / person. The authors declared that there is no conflict of interest. Ethical Explanations: Ethical approval was obtained from a University Human Research Ethics Committee (No: 2018/8; Date: 15/01/2018). Institutional permission was obtained from the Faculty of Health Sciences and written consent forms were received from the students who wanted to participate in the study. The study was conducted in accordance with the principles of the Declaration of Helsinki.

References

Admi, H., Moshe-Eilon, Y., Sharon, D. & Mann, M. (2018). Nursing students' stress and satisfaction in clinical practice along different stages: A cross-sectional study. *Nurse Education Today*, 68:86–92.

Ahmed, W. A. & Mohammed, B. M. (2019). Nursing students' stress and coping strategies during clinical training in KSA. *Journal of Taibah University for Science*, 14(2):116–122.

Alatawi, A. O., Morsy, N. M. & Sharif, L. S. (2022). Relation between resilience and stress as perceived by nursing students: A Scoping Review. *Evidence-Based Nursing Research,* 4(1): 42-60.

Al-Gamal, E., Alhosain, A. & Alsunaye K. (2017). Stress and coping strategies among Saudi nursing students during clinical education. *Perspectives in Psychiatric Care*, 54:198-205.

Alghamdi, S., Aljabri, S., Jafar, G., Alzebali, R., Alkunaidiri, N. & Kalantan, N. (2019). Sources of stress among undergraduate nursing students. *Global Journal of Health Science*, 11(9):116-122.

Aljohani,W. Banakhar, M., Sharif, L., Alsaggaf, F., Felemban, O. & Wright, R. (2021). Sources of stress among saudi arabian nursing students: A Cross-Sectional Study. *International Journal of Environmental Research and Public Health*, 18: 11958.

Bodys-Cupak, I., Majda, A., Skowron, J., Zalewska-Puchała, J. & Trzcińska, A. (2018). First year nursing students' coping strategies in stressful clinical practice situations. *Journal of Education in Science, Environment and Health,* 4(1):12-18.

Baluwa, M.A., Lazaro, M., Mhango, L. & Msiska, G. (2021). Stress and coping strategies among Malawian undergraduate nursing students. *Advances in Medical Education and Practice,* 12:547–556.

Chaabane, S., Chaabna, K., Bhagat, S., Abraham, A., Doraiswamy, S., Mamtani R., & Cheema S. (2021). Perceived stress, stressors, and coping strategies among nursing students in the Middle East and North Africa: an overview of systematic reviews. *Systematic Reviews,* 10(1):136-153.

Gibbons, C. (2010). Stress, coping and burn-out in nursing students. *International Journal of Nursing Studies*, 47, 1299–309.

Gomathi, S., Jasmindebora, S. & Baba, V. (2017). Impact of stress on nursing students. *International Journal of Innovative Research and Advanced Studies*, 4(4):107–110.

Jones, M.C. & Johnston, D.W. (1999). The derivation of a brief student nurse stress index. *Work Stress,* 13(2):162e81.

Kasthuri, S. (2017). Stress management techniques: its impact on perception of stressors among nursing students. *International Journal of Multidisciplinary Education,* 6;11(2):27-42.

Kumar, R. (2018). Personality traits, academic stress and adjustment styles among nursing students. *The Nursing Journal of India,* 109:184–188.

Kupcewicz, E., Grochans, E., Kadučáková, H., Mikla, M., & Jóźwik, M. (2020). Analysis of the relationship between stress intensity and coping strategy and the quality of life of nursing students in Poland, Spain, and Slovakia. *International Journal of Environmental Research and Public Health,* 17(12): 4536.

Labrague, L., McEnroe-Petitte, D., Gloe, D., Thomas, L., Papathanasiou, I. & Tsaras, K. (2017). A literature review on stress and coping strategies in nursing students. *Journal of Mental Health,* 26(5):471–480.

Labrague, L. J., McEnroe-Petitte, D. M., Papathanasiou, I.V., Edet, O. B., Tsaras, K., Leocadio, M. C. …Velacaria, P. I. T. (2018). Stress and coping strategies among nursing students: an international study. *Journal of Mental Health,* 27(5): 402-408.

Madian, A. A. E. M., Abdelaziz, M. M. & Ahmed, H. A. E. (2019). Level of stress and coping strategies among nursing students at Damanhour University, Egypt. *American Journal of Nursing Research,* 7(5): 684-696.

McCarthy B, Trace A, O'Donovan M, Brady-Nevina, C., Murphyd, M., O'Sheae, M. & O'Reganaet, P. (2018). Nursing and midwifery students' stress and coping during their undergraduate education programmes: an integrative review. *Nurse Education Today,* 1(61):197–209.

Msiska, G., Kamanga, M., Chilemba, E., Msosa, A. & Munkhondya, T.E. (2019). Sources of stress among undergraduate nursing students during clinical practice: A Malawian perspective. *Open Journal of Nursing,* 9(1):1-13**.**

Nebhinani, M., Kumar, A., Parihar, A. & Rani, R. (2020). Stress and coping strategies among undergraduate nursing students: a descriptive assessment from Western Rajasthan. *Indian Journal of Community Medicine,* 45(2):172-175.

Onieva-Zafra, M. D., Fernández-Muñoz, J. J., Fernández-Martínez, E., García-Sánchez, .FJ., Abreu-Sánchez, A. & Parra-Fernández, M. L. (2020). Anxiety, perceived stress and coping strategies in nursing students: a cross-sectional, correlational, descriptive study. *BMC Medical Education,* 20(1):1–9.

Parveen, A. & Inayat, S. (2017). Evaluation of factors of stress among nursing students. *Journal of Advanced Practices in Nursing*, 2(2):136-140.

Sarıkoç, G., Bayram, D. M., Öksüz, E. & Pazar, B. (2017). Turkish version of the Student Nurse Stress Index: Validity and reliability. *Asian Nursing Research,* 11:128-133.

Smith, G.D. & Yang, F. (2017). Stress, resilience and psychological well-being in Chinese undergraduate nursing students. *Nurse Education Today,* 49:90-95.

Turner, K. & McCarthy, V.L. (2017). Stress and anxiety among nursing students: A review of intervention strategies in literature between 2009 and 2015. *Nurse Education in Practice,* 22:21–29.