

Original Article

Global Problem of Nursing Students: Nursing Education Stress: A Sample From Turkey

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Abstract

Background: Nursing education is generally described as a stressful process. Therefore, determining the factors that cause stress in students during nursing education is important in terms of developing coping methods.

Objective: The aim was to determine the level of stress that nursing students' experience during their education.

Methodology: A descriptive and cross-sectional study design was used. This study was conducted at a nursing department of a university in Turkey. A convenience sample of 305 nursing students were surveyed. The data were collected by the sociodemographic form and the Nursing Education Stress Scale. Frequency analysis, One-way ANOVA, Student t-test and stepwise method Multiple Linear Regression Analysis were used in data analysis.

Results: The students' Nursing Education Stress Scale's total score average was found to be 70.12 ± 15.90 , the Practice Stress sub-dimension score average was found to be 35.04 ± 8.62 and the Academic Stress sub-dimension score average was found to be 35.07 ± 8.04 . It was determined that there was a statistically significant difference the scale total score averages between the variables of department satisfaction, perception of nursing as a stressful profession, and gender ($p < 0.05$). According to the model formed as a result of the multiple linear regression analysis, it was determined that the variable that the most affected the total score of scale was being the woman. Being a woman increases the total score of scale by 0.29 points ($p < 0.05$).

Conclusions: Students were found to experience intense stress during their nursing education. It is recommended that studies on determining the factors that cause stress in academic and practical areas of students should be studied in larger samples and studies should be carried out to provide students with methods of coping with stress through counseling services and/or compulsory/elective courses.

Keywords: nursing education, nursing students, stress, academic stress, practice stress

Introduction

The main purpose of nursing education is to provide students with professional nursing qualifications, to prepare them for future professional life, to understand the importance of protecting and improving the duty and responsibility of the profession and to educate them with a qualified manner to respond to health problems (Kaya, 2016; Gunay and Kilinc, 2018). With this purpose, it is aimed to provide nursing students with professional knowledge

and skills by using theoretical and clinical education (Arslan & Kuzu Kurban, 2015; Jan & Popescu, 2014; Karaca et al., 2014; Kaya, 2016). Nursing education is generally described as a stressful process (Labrague *et al.*, 2017). The literature states that during nursing education, students often experience stress due to factors related to academic and clinical education (Labrague *et al.*, 2017; Ugwoke *et al.*, 2018), as well as the various biopsychosocial, environmental and economic difficulties associated with being a university student

increase the stress level of the students (Bedewy and Gabriel, 2015; Gomathi, Jasmindebora and Baba, 2017).

While the classroom environment provides students with largely theoretical information, the clinical environment provides opportunities to put theoretical information into practice (Gunay and Kilinc, 2018). Theory and practice are related and the combination of theoretical and practical learning experiences enables students to acquire the knowledge, skills, and attitudes to provide optimum care (Hashemiparast, Negarandeh and Theofanidis, 2019). But it was demonstrated that nursing student experienced stress both in the academic area and clinical practice equally (Senturk and Dogan, 2018).

Fear of failing theoretical courses, heavy assignments and workloads, exams, pressure for good grades, poor satisfaction with class room performance, getting lower grade than anticipated, and problems in communication with instructors cause high academic stress levels in students (Gomathi, Jasmindebora and Baba, 2017; Labrague *et al.*, 2017; Magnavita and Chiorri, 2018). Clinical education, which is the application part of theoretical education, is one of the most important and fundamental components of long nursing education, but it has a different environment than the normal classroom layout that students are accustomed to (Arslan and Kuzu Kurban, 2015). Studies show that experiencing stress during clinical education is a universal problem and that nursing students experience stress during clinical education (Arabacı *et al.*, 2015; Gomathi, Jasmindebora and Baba, 2017). Fear of making mistakes during clinical training, having to care for the suffering/dying patients, lack of professional knowledge/skills, communication problems with members of the medical team, problems with the clinical practice environment, lack of perceived professional support and the instructor affect the stress level of students and therefore their learning processes (Wolf, Stidham and Ross, 2015; Gomathi, Jasmindebora and Baba, 2017; Gunay and Kilinc, 2018; Hashemiparast, Negarandeh and Theofanidis, 2019).

The literature states that prolonged and uncontrollable stress exposure of nursing students in education processes will negatively affect both their professional development and state of health, impair their thinking and decision-making abilities, and decrease their academic success (Gomathi, Jasmindebora and

Baba, 2017; Labrague *et al.*, 2017). Therefore, the emphasis is placed on the need to identify the factors causing stress in the students during nursing education and to carry out studies on the development of coping methods (Labrague *et al.*, 2017; Bhurtun *et al.*, 2019). This study was conducted to determine the level of stress experienced by nursing students during their education.

Methodology

Design of the study: A descriptive and cross-sectional research design was employed. The research was conducted at Bursa Uludag University Faculty of Health Sciences in Bursa/Turkey during the spring semester of the 2019-2020 academic year.

The universe and the sample of the study: The universe of the research had 2nd, 3rd and 4th-year students who were enrolled in the nursing program, received at least one year of nursing education and had clinical practice experience (N=431). The sample was composed of the 305 students who agreed to participate in the study (71.0% of the total number of enrolled students).

Implementation of the study: After students were informed, verbal approval was obtained from the participants and the sociodemographic data collection form and scale forms were distributed to students. It was stated to the participants that the data collected will only be used for the purpose of the research and will not be shared with any other institution or person. Before the application, it was stated that participation in the study was not mandatory and that the study group consisted only of voluntary participants. The time required to apply the scale and the sociodemographic data collection form is 10 minutes.

Instruments: The data were collected through the sociodemographic data collection form and the Nursing Education Stress Scale.

Sociodemographic data collection form: In the form prepared by the researcher, in addition to the information about the student's sociodemographic characteristics, the students were also asked why they chose the nursing profession, whether they were satisfied with the school/department and whether they wanted to work as a nurse after graduation

Nursing education stress scale (NESS): The scale was modified from the Nursing Stress Scale developed by Gray-Toft and Anderson (1981) (Gray-Toft and Anderson, 1981) and then developed as the Nursing Education Stress Scale

by Rhead (1995) (Rhead, 1995). Turkish validity and reliability were made by Karaca et al in 2014 (Karaca *et al.*, 2014). NESS is a 4-point Likert type scale with a score of 0-3, 3 being rated "too stressful for me", 0 being rated "not stressful for me at all". The scale consists of 32 items. It consists of two sub-dimensions:

Practice Stress (PS)
(4,5,7,9,11,13,15,16,18,19,21,24,25,27,29,32)

Academic Stress (AS)
(1,2,3,6,8,10,12,14,17,20,22,23,26,28,30,31).

The total score is 0-96, while the sub-dimension score is 0-48 and the increase of the sub-dimension of the total score indicates increased stress. Karaca et al. found the Cronbach α value of the total score of NESS as 0.90, Cronbach α value of practice stress as 0.84, and the total Cronbach α value of academic stress as 0.83.

Data analysis: The data of the study were analyzed using SPSS 23.0 (IBM package program). Descriptive statistics and frequency distributions of the data were obtained. In order to determine the statistical tests/analyses, the assumptions of normality and homogeneity of variances were evaluated by Kolmogorov-Smirnov and Levene tests, respectively. Parametric tests were used in the analysis of the data determined to be normally distributed. One Way ANOVA and Student t-test were used for cross-group comparisons. Stepwise Multiple Linear Regression Analysis was used to determine to what extent independent variables affect NESS total score. Independent variables in the study were included in the regression analysis as "dummy variables". In regression analysis, one of the classified variable levels is excluded, and a new artificial variable is created that is produced as one minus (G-1) the number of levels and named as dummy variable. If one of these new artificial variables has a significant effect on the dependent variable, it can be interpreted that the relevant independent variable has a significant effect on the dependent variable (Cokluk, Sekercioglu and Buyukozturk, 2010). The scale's reliability analysis was performed and the Cronbach's α has been calculated. Statistical significance value is accepted as a $p < 0.05$.

Ethical approval The ethics committee approval of Bursa Uludağ University Health Sciences Research and Publication Ethics Committee, dated January 29, 2020, and numbered 2020/01-09, and work permit was obtained from the Dean of the Faculty of Health Sciences."

Results

247 (81.0%) of the students constituting the study group were women, 109 (35.7%) of were 2nd grade students, 29 (9.5%) were high school graduates and 24 (7.9%) were graduates of other high schools (Industrial Vocational High School, Anatolian Teacher-High School, Anatolian Technical High School, Multi-Program High School, etc.). Of the Study Group, 20 (6.6%) had a poor economic perception and 11 (3.6%) had an overall academic average of 1.00-1.99. The findings of the sociodemographic characteristics of the study group were given in Table 1.

In the study, 168 (55.1%) of the students preferred nursing willingly. 76% (24.9%) preferred nursing because they love nursing. Of the students who made up the study group, 113 (37%) were satisfied with the faculty and 129 (42.3%) were satisfied with the department. 263 of the students (86.2%) found nursing stressful, while 251 (82.3) consider working as a nurse after graduation. Data on the characteristics of students related to the nursing profession/satisfaction are given in Table 2.

Students' NESS score average was 70.12 ± 15.90 . The median value of the total scale score was 72.00 with a minimum score of 9.00 and a maximum score of 96.00. Descriptive statistics of students' NESS and its sub-dimensions are given in Table 3.

In the statistical evaluation conducted according to the students' sociodemographic characteristics and the NESS sub-dimension and total score average, there was no statistically difference between the variables of grade level, perception of economic status, general academic average and graduated high school and NESS sub-dimension and total score averages ($p > 0.05$). The difference between gender and sub-dimensions of NESS and the total score average was statistically significant ($p < 0.001$). In the statistical evaluation made by gender, it was found that female students' NESS sub-dimension and total score averages were higher than male students ($p < 0.01$). The comparison of NESS sub-dimension and total score averages with the sociodemographic characteristics of the students were given in Table 4. In statistical evaluation made with some characteristics of the students related to the nursing profession/satisfaction and the NESS sub-dimension and total score average; there was no statistical difference between the variables of preferring nursing willingly, the reason for preferring nursing, faculty satisfaction

status, and considering working as a nurse after graduation, and the mean scores of the NESS sub-dimensions and total scores ($p>0.05$). According to the statistical evaluation of the department satisfaction status, the average scores of the students who was not satisfied with the department were higher than the satisfied students ($p<0.01$). There was no statistical difference found between the variable of department satisfaction status and the NESS sub-dimension average scores ($p>0.05$). In the statistical evaluation based on finding the nursing profession stressful, students who found nursing stressful had higher NESS average scores than students who was not find it stressful ($p<0.01$). There was no statistical difference between the variable of finding the nursing profession stressful and the NESS sub-dimension average scores ($p>0.05$). Comparison of NESS sub-dimension and total score averages with

student's characteristics related to the nursing profession/satisfaction were given in Table 5.

According to the model formed as a result of the multiple linear regression analysis, it was determined that the variable that the most affected the total score of NESS was being the woman. Being a woman increases the total score of NESS by 0.29 points ($p<0.05$; Table 6). According to the results of multiple linear regression analysis, with the total score of NESS no statistical difference was found between variables such as grade level, economic status perception, graduated high school, general academic average, faculty/department satisfaction and considering working as a nurse ($p>0.05$; Table 6). Multiple linear regression analysis results of the variables affecting the NESS total score are given in Table 6.

Table 1. Sociodemographic Characteristics of the Students

Variables	<i>n</i>	%
Gender		
Female	247	81.0
Male	58	19.0
Grade Level		
2nd Grade	109	35.7
3rd Grade	112	36.7
4th Grade	84	27.6
Economic Status Perception		
Bad	20	6.6
Neutral	195	63.9
Good	90	29.5
General Academic Average		
1.00-1.99	11	3.6
2.00-2.99	152	49.8
3.00-4.00	142	46.6
Graduated High School		
Regular High School	29	9.5
Medical Vocational High School	49	16.1
Private High School	12	3.9
Science High School	174	57.0
Religious Vocational High School	17	5.6
Other High School	24	7.9
Total	305	100.0

Table 2. Characteristics of Students Related to Nursing Profession/Satisfaction

Variables	<i>n</i>	%
Preferring Nursing Willingly		
Yes	168	50.1
No	137	49.9
Reason for Preferring Nursing		
Loving the field	76	24.9
Guaranteed job	177	58.1
Family expectation	52	17.0
Faculty Satisfaction Status		
Yes	113	37.0
No	192	63.0
Nursing Department Satisfaction Status		
Yes	129	42.3
No	176	57.7
Is the Nursing Profession Stressful?		
Yes	263	86.2
No	42	13.8
Considering Working as a Nurse After Graduation		
Yes		
No	251	82.3
	54	17.7
Total	305	100.0

Table 3. Descriptive statistics of students' NESS and its sub-dimensions (n=305)

NESS and its Sub-Dimensions	$\bar{X} \pm SD$	<i>M</i>	<i>Min.</i>	<i>Max.</i>
Practice Stress (PS)	35.04 ± 8.62	36.00	4.00	48.00
Academic Stress (AS)	35.07 ± 8.04	36.00	5.00	48.00
NESS Total Score	70.12 ± 15.90	72.00	9.00	96.00

NESS: Nursing Education Stress Scale, \bar{X} : Average, SD: Standard Deviation, M: Median, Min: Minimum, Max: Maximum

Table 4. Comparison Of NESS Sub-Dimension And Total Score Averages With The Sociodemographic Characteristics Of The Students

Variables	Practice Stress ($\bar{X} \pm SD$)	Academic Stress ($\bar{X} \pm SD$)	NESS ($\bar{X} \pm SD$)
Gender			
Female	36.21 \pm 7.69	36.04 \pm 7.37	72.25 \pm 14.19
Male	30.10 \pm 10.51	30.96 \pm 9.41	61.06 \pm 19.42
t; p	4.619; .000	4.805; .000	4.573; .000
Grade Level			
2nd Grade	35.02 \pm 9.19	34.00 \pm 8.67	69.02 \pm 17.16
3rd Grade	36.00 \pm 8.39	35.82 \pm 7.75	71.83 \pm 15.36
4th Grade	35.00 \pm 8.62	35.48 \pm 7.48	69.28 \pm 14.89
F;p	4.318; .115	2.472; .291	2.280; .320
Economic Status Perception			
Bad	32.25 \pm 11.49	33.25 \pm 9.71	65.60 \pm 20.20
Neutral	35.13 \pm 8.45	35.40 \pm 7.87	70.53 \pm 15.63
Good	35.45 \pm 8.26	34.78 \pm 8.02	70.24 \pm 15.48
F;p	.907; .635	.986; .611	.915; .663
General Academic Average			
1.00-1.99	35.00 \pm 10.61	35.81 \pm 7.33	70.81 \pm 17.32
2.00-2.99	34.32 \pm 8.96	34.73 \pm 8.60	69.05 \pm 16.84
3.00-4.00	35.82 \pm 8.08	35.39 \pm 7.48	71.21 \pm 14.77
F;p	2.149; .341	.223; .895	1.105; .576
Graduated High School			
Regular High School	34.06 \pm 8.40	33.51 \pm 8.24	67.58 \pm 16.19
Medical Vocational High School	33.28 \pm 9.19	34.95 \pm 7.42	68.24 \pm 16.06
Private High School	35.58 \pm 9.42	35.75 \pm 7.97	71.33 \pm 17.09
Science High School	35.66 \pm 8.34	35.43 \pm 8.12	71.09 \pm 15.53
Religious Vocational High School	35.94 \pm 8.11	34.23 \pm 7.19	70.17 \pm 14.33
Other High Schools	34.50 \pm 9.90	34.87 \pm 9.43	69.37 \pm 19.14
F;p	3.150; .677	2.399; .792	2.450; .784

NESS: Nursing Education Stress Scale \bar{X} : Average, SD: Standard Deviation, t: Student t-test, F: One Way ANOVA

Table 5. Comparison of NESS Sub-Dimension and Total Score Averages with Student's Characteristics Related to the Nursing Profession/Satisfaction.

Variables	Practice Stress ($\bar{X} \pm SD$)	Academic Stress ($\bar{X} \pm SD$)	NESS ($\bar{X} \pm SD$)
Preferring Nursing Willingly			
Yes	34.31 \pm 9.07	34.42 \pm 8.37	68.74 \pm 16.70
No	35.94 \pm 7.98	35.87 \pm 7.56	71.82 \pm 14.76
t; p	12.594; .156	12.561; .169	12.602; .153
Reason for Preferring Nursing			
Loving the field	35.02 \pm 8.77	34.48 \pm 8.84	69.51 \pm 16.88
Guaranteed job	34.69 \pm 8.73	35.07 \pm 7.81	69.77 \pm 15.80
Family expectation	36.28 \pm 8.08	35.94 \pm 7.63	72.23 \pm 14.88
F;p	1.359; .507	.549; .760	.792; .673
Faculty Satisfaction Status			
Yes	34.83 \pm 8.52	34.10 \pm 8.20	68.93 \pm 16.05
No	35.17 \pm 8.71	35.65 \pm 7.90	70.82 \pm 15.82
t; p	11.167; .667	11.998; .122	11.549; .346
Nursing Department Satisfaction Status			
Yes			
No	34.47 \pm 8.76	34.13 \pm 8.44	68.60 \pm 16.43
	35.47 \pm 8.53	35.77 \pm 7.68	71.24 \pm 15.46
t; p	12.052; .357	12.553; .114	12.298; .021
Is the Nursing Profession Stressful?			
Yes	35.38 \pm 8.61	35.25 \pm 8.01	70.63 \pm 15.88
No	32.97 \pm 8.51	33.97 \pm 8.22	66.95 \pm 15.88
t; p	4.610; .085	5.126; .455	4.834; .002
Considering Working as a Nurse After Graduation			
Yes	34.90 \pm 8.43	34.68 \pm 8.05	69.58 \pm 15.69
No	35.70 \pm 9.55	36.92 \pm 7.76	72.62 \pm 16.79
t; p	7.310; .364	7.815; .077	7.580; .172

NESS: Nursing Education Stress Scale, \bar{X} : Average, SD: Standard Deviation, t: Student t-test, F: One Way ANOVA

Table 6. Multiple Linear Regression Analysis Results of Independent Variables Affecting NESS Total Score

Independent Variables	Unstandardized		Standardized	<i>t</i>	<i>p</i>	VIF
	β	SE	β			
Constant	58.166	3.097	-	18.784	0.000	-
Gender						
Female	11.875	2.222	.293	5.345	.000	1,011
Preferring Nursing Willingly						
No	-4.138	1.760	.130	-2.350	.019	1,020
Is the Nursing Profession Stressful?						
Yes	5.363	2.542	.116	2.109	.036	1,021
$R^2 = 0.103$; Durbin Watson = 1.995						

Discussion

While theoretical training is given to students during nursing education, on the one hand, psychomotor skills are also provided through clinical training (Jan & Popescu, 2014; Karaca et al., 2014). Nursing education aimed at educating students in the nursing profession; is a training program with anxiety and stress that adopts a planned, disciplined, theoretical and practical training approach (Ergin, Cevik and Pakis Cetin, 2018). This situation confronts nursing students with stress factors that affect academic performance and quality of life from the very first moments of their educational life (Karaca et al., 2014). In this study, the total NESS score of nursing students was found to be 70.12 ± 15.90 , the mean score of Practice Stress sub-dimension was found to be 35.04 ± 8.62 and the mean Academic Stress score was found to be 35.07 ± 8.04 (Table 3). These results show that students have high-stress levels. When the other studies were examined, it was observed that the average score of the total score of NESS ranged from 52 ± 17.1 to 62.55 ± 15.94 . At the same time, score averages of Academic Stress and Practice Stress were also found to be higher in these studies (Agacdiken et al., 2016; Senturk & Dogan, 2018; Yildirim et al., 2016). In various studies related to nursing students, it has been reported that students experience academic stress due to reasons such as having too much

curriculum load, doing excessive homework, having to constantly prepare for exams, fearing being graded unfairly and having communication problems with the instructors (Wolf, Stidham and Ross, 2015; Labrague et al., 2017), and that they also feel a different level of stress in clinical education due to the reasons such as having a communication problem with healthcare professionals and patients, having a fear of giving care to patients with complex health problems, fear of making a mistake in care, and the characteristics of the clinical setting (Arabaci et al., 2015; Labrague et al., 2017). Stress is a universal problem among nursing students. In parallel with the literature, the results of this study show that nursing students experience high levels of stress both academically and in the field of application.

It is expected that female students will experience more stress in nursing education than male students due to the traditional view of nursing as a women's profession, the burden of care in societies as a female role, and the roles that society places on female gender (Blackley, Morda and Gill, 2019). In this study, gender-based statistical analysis showed that the sub-dimension and the NESS total score of female students were higher than male students ($p < 0.01$; Table 4). According to the results of multiple linear regression analysis, it was found that female gender increased the total score of NESS

by 0.29 points ($p < 0.05$; Table 6). Similar results have been reported in other studies (Yildirim *et al.*, 2016; Firat Kilic, 2018; Senturk and Dogan, 2018). This situation thought to be associated with male students feeling less anxiety during the nursing education process than female students, but also more abstention in expressing their feelings and thoughts. A study conducted with nursing students in Pakistan reported that male students experience more stress than female students (Watson, Rehman and Ali, 2017). It has been stated that this difference is related to gender-specific cultural characteristics of Pakistan society. Another study stated that there is no relationship between the gender and stress levels of nursing students (Ahmed and Mohammed, 2019).

In the literature, it is stated that the level of stress experienced by nursing students according to their grade levels varies and different internal and externally induced factors influence stress perception at different grade levels (Arslan and Kuzu Kurban, 2015; Wolf, Stidham and Ross, 2015; Labrague *et al.*, 2017). In this study, there was no statistical difference between the grade level and the NESS sub-dimension and total score averages ($p > 0.05$; Table 4). Similar results have been reported in other studies (Senturk and Dogan, 2018; Shdaifat, Jamama and Al-Amer, 2018). This situation was thought to be associated with high levels of stress in each class as nursing students learn different knowledge and skills in each class, experience different clinical practices and therefore, experience different stress specific to each class.

The literature states that people's socio-economic status and perceptions of economic status are an effective variable in maintaining healthy lifestyle behaviors, school success and stress management (Wang, Xing and Wu, 2013; Senturk and Dogan, 2018). In this study, it was determined that there was no significant relationship between the perceptions of the economic situation of the students and the NESS sub-dimension and total score averages ($p > 0.05$; Table 4). A similar result was reported in another study (Senturk and Dogan, 2018). Unlike our research findings, a study found that students with financial problems showed more signs of stress (Shdaifat, Jamama and Al-Amer, 2018). In a study done by Liaw *et al.* (2017), it has been determined that the economic situation is a factor that affects the choice of profession (Ying Liaw *et al.*, 2017). In line with these results, it is thought that students

may have chosen the nursing department for economic reasons, however, in terms of nursing education, the perception of economic status is not a stress factor in students.

There was no statistical difference found between the general academic average and the NESS sub-dimension and total score averages in our study ($p > 0.05$; Table 4). A similar result was reported in another study (Firat Kilic, 2018). This is thought to be due to the stress experienced by students with low overall academic averages to raise their academic averages and the stress experienced by students with high academic averages to maintain their current academic averages. In a study, unlike our study findings, it was reported that students with high academic success had lower stress levels (Karaca *et al.*, 2017).

In our study, there was no statistical difference between the graduated high school and NESS sub-dimension and total score averages ($p > 0.05$; Table 4). A similar result was reported in another study (Agacdiken, Mumcu Boga and Ozdelikara, 2016). In Turkey, students generally make their professional preferences according to their university exam results and then get to know about the professions after choosing them. It was therefore thought that the graduated high school was not a factor affecting the stress level of nursing students.

It is a known fact that choosing the profession willingly and working willingly increases the sense of success and happiness in individuals and the quality of the work done (Wilkes, Cowin and Johnson, 2015). This situation is also expected to reduce both education and work stress. However, in this study, it was determined that there was no significant relationship between the voluntary selection of the nursing department and the NESS sub-dimension and total score averages ($p > 0.05$; Table 5). A similar result was reported in another study (Senturk & Dogan, 2018; Ergin *et al.*, 2018). This situation, regardless of whether students choose the nursing department willingly, is thought to be related to the stress of all nursing students because nursing education is an education process that aims to take responsibility for patient care and has a high knowledge-skill burden. On the other hand according to the results of multiple linear regression analysis performed in this study, it was found that choosing nursing unwillingly, increased the NESS total score by 0.13 points ($p < 0.05$; Table 6). Similar to our study findings,

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