ORIGINAL ARTICLE



Nursing students' views on the COVID-19 pandemic and their percieved stress levels

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Abstract

Purpose: This study was conducted to evaluate nursing students' views on the COVID-19 pandemic and their perceived stress levels.

Design and Methods: A cross-sectional design was used to carry out this study. The research was conducted between April and May 2020 with 662 nursing students. Data were collected by an information form developed for the study and the Perceived Stress Scale (PSS).

Findings: The average score on the PSS was 31.69 ± 6.91 , indicating that the students had a moderate level of stress. Significant differences in PSS score were found in terms of age and sex (P < .001 and P < .001, respectively).

Practice Implications: Results of this study indicated that age, sex, and some variables related to the pandemic process affect perceived stress levels of nursing students.

KEYWORDS

coronavirus disease, COVID-19, nursing students, perceived stress, perceived stress scale

1 | INTRODUCTION

The coronavirus disease (COVID-19) pandemic, which began in China in December 2019 and spread around the world, has given rise to new issues and debates. Social, economic, political, and, of course, spiritual resources, and consequences must be addressed, and it is necessary that we manage the outbreak through basic principles of public health, and operate the country in a manner that respects basic human rights.

Although the pandemic began later in Turkey, compared with other countries, Turkey is among those countries that had implemented early preventive measures.³ Many countries have implemented various isolation measures to prevent the spread of the outbreak until a vaccine or drug is found. These measures include home isolation, social distancing, closing schools/universities and businesses, canceling or postponing events, canceling or postponing congresses and seminars, postponing sports events, and travel restrictions.^{1,4}

After the first COVID-19 patients were reported in Turkey, on March 12, 2020, one of the most significant measures taken by the Ministry of Education and Higher Education Institutions, was to close

school for 3 weeks.⁵ Then based on the course of the pandemic, it was decided to keep the schools closed until the end of that year's Spring term. Training continued through distance education. Young people worry about the course of COVID-19, how long the pandemic will last, and when they will be able to return to normal life, while being away from friends and with limited to no social life, which causes them to experience stress and tension.⁶

Having limited knowledge with regard to COVID-19 and being overwhelmed by its coverage in the media can cause anxiety and fear in the community. In general, the public may experience distress, frustration, and irritability during the implementation of isolation measures. Quarantine can lead to loneliness, physical distancing from loved ones, grief, anxiety, and chronic stress, which can have long-term psychological effects. It has been demonstrated that the presence of mass traumas and infectious diseases negatively affects the behavior and psychology of society. The level of anxiety increases even more because the outbreak and ending process are unknown.

The interruption of education for nursing students has been unexpected from students. In addition, the clinical practice of nursing students in hospitals has also been discontinued. Because much of

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nursing education consists of clinical practice, students may have been concerned about being inadequate in clinical skill development. In addition, the application skills are insufficient, the uncertainty of when, where and how to do the compensatory training for the elimination of inadequacy could stress nursing students. This research was carried out since it was thought that especially for nursing students to encounter the pandemic process for the first time, and not to engage in clinical practices in which they develop skill teaching may have an impact on their stress levels. So, this study aimed to evaluate nursing students' views on the COVID-19 pandemic and their perceived stress levels.

2 | METHODS

2.1 | Study design

This was a cross-sectional study, and conducted between April and May 2020.

2.1.1 | Study sample

The research population consisted of nursing students at three universities in eastern Turkey (Inonu, Kilis and Bingol University). There were a total of 2025 students studying in the nursing department at these universities. The sample size was determined to be 630 student by conducting power analysis. The power analysis was based on an alpha of 0.05 error level, power of 0.99, and assumed effect size of 0.5 for the sample size estimation. A random sampling method was used. To increase the representation power of the universe, a total of 662 people were surveyed and 662 surveys were included in the analysis.

2.1.2 | Inclusion criteria

Nursing students over the age of 18 with internet access were included in the study.

2.1.3 | Variables of the study

The dependent variable of the study was the perceived stress.

The independent variables of the study were insight, age, sex, class level, and responses to various COVID-19-related questions.

2.2 Data collection tools

2.2.1 | Information form

An information form containing items on students' sociodemographic characteristics, such as age, sex, and year level, and nine items on the

COVID-19 pandemic, was used in this study. These nine items were created by researchers, considering current issues related to the pandemic process, and reviewing the literature. These items; listen to news, follow the developments in other countries, be worried about getting infected, to recognize someone who has positive coronavirus test results, think of taken enough precautions, taken the precautions, be successful in the fight against the pandemic, evaluate curfew and the feeling felt for staying at home during the pandemic.

Content validity of information form was made to assess whether the questions generated were appropriate for the purpose of measurement and whether they represented the space to be measured. The content validity was conducted with expert opinion method. For this purpose, expert opinions were obtained from six academicians (two from Psychiatric Nursing had conducted research on anxiety and depression in nursing students, two from psychiatric specialist, and two from Fundamentals of Nursing had conducted research on COVID-19 pandemic). The form was sent to them via email. They were informed about the concepts involved. The experts were asked to evaluate whether or not each item measured the pandemic proses and the understandability of the items, on a scale rated between 1 and 4. On this scale, "not suitable" is 1 point, "needs to be made suitable" is 2 points, "suitable but requires small changes" is 3 points, and "very suitable" is 4 points. The agreement level of the expert opinions was examined using nonparametric test, Kendall's W analysis. The scores given by the experts were not statistically different (Kendall W = 0.355; P > .05), and there was agreement among the experts. Thus, content validity of the items was provided for the students.

2.2.2 | Perceived Stress Scale

The Perceived Stress Scale, developed by Cohen et al 13 was used in this study to assess students' stress levels. The adaptation, validity, and reliability of the scale to Turkish was made by Eskin et al. 14 Both the group translation techniques and the back-translation techniques were used for the language adaptation of the scale. The linguistic and conceptual equivalence of original and Turkish translations of the scale items was ensured. The PSS consists of 14 items and is designed to measure how stressful some situations in a person's life are perceived. Participants evaluate each item on a 5-point Likert-type scale, ranging from 0 ('Never') to 4 ('Very often'). Total score on the PSS ranges from 0 to 56. There is no cut-off value on the scale, and a high score indicates an excessive perception of stress. The reliability of the scale was evaluated by examining internal consistency (Cronbach's α and factor analysis) coefficients. A Cronbach's alpha of the scale was found to be 0.84 in a study of its validity and reliability. 14 A Cronbach's α of 0.82 was found in this study.

2.3 | Data collection

An online questionnaire was used to collect data. The questionnaire consisted of the information form developed for the study and the

PSS. A link to the questionnaire was provided to the students via WhatsApp (WhatsApp Inc., Menlo Park, CA), and any forms that were incomplete or had errors were to be removed from the analysis.

2.4 | Statistical analysis

Data were analyzed with Statistical Package for the Social Sciences 23.0 software. Values for the demographic characteristics of the students and their views on the COVID-19 pandemic were expressed as numbers, percentages, averages, and standard deviations. Data were analyzed using the independent-samples T, Kruskal-Wallis H, and linear regression tests.

2.5 | Ethical principles of the study

This study was approved by the Ministry of Health of the Republic of Turkey (2020-05-06T23_39_53). Institution permission was obtained from the universities where the research was carried out. For the scale (PSS) we used in the research, permission was obtained by e-mail from Eskin, who carried out the validity-reliability study in Turkish population.

3 | RESULTS

The average age of the students participating in the study was 20.67 ± 1.61 years. Of all the students, 51.7% were in the 18 to 20 age range, 71.9% were female, and 44.4% were in their first year of nursing school (Table 1).

Results indicated that 48% of the students frequently consumed news about the COVID-19 pandemic, and 91.5% followed the developments in other countries. It was determined that 68.1% of students were worried about being infected, and 78.9% thought that they took adequate measures against infection. With regard to the measures taken to prevent infection, 97% washed their hands frequently, 92.9% practiced social distancing, and 91.1% took steps to ensure that their environment was well-ventilated. In addition, 23.6% of the students knew people who had tested positive for the disease, 77.9% thought that Turkey was successful in fighting the COVID-19 pandemic, and 69.5% considered the curfew to be the right decision. Due to the a curfew for people under the age of 20, the students stayed at their homes during the day. Of the students who stayed at home, the majority (66.2%) reported being bored at home, but 44.9% felt safe (Table 2).

The PSS was used to evaluate the stress level of the students. This scale is used to assess the stress experienced in the past month. The average score on the PSS was 31.69 ± 6.91 , indicating that the students had a moderate level of stress. In the analysis, it was determined that there were significant differences in PSS score in terms of age (P < .001), and those between 18 and 20 years of age had higher stress levels. Significant differences in PSS score in terms of

TABLE 1 Socio-demographic characteristics of students

	N (662)	Percentage %
Age (X ± SD:20.67±1.61)		
18-20	342	51.7
21 and above	320	48.3
Sex		
Female	476	71.9
Male	186	28.1
Class		
1	294	44.4
2	205	31.0
3	62	9.4
4	101	15.3

sex were also found (P < .001). The stress levels of female students were found to be higher. It was also determined that the stress levels of the students studying in the first and fourth years were higher, but the difference between year level and PSS was not significant (Kruskal-Wallis: 3.655; P > .05) (Table 3).

A linear regression model was used to evaluate the effect of the students' sociodemographic characteristics and their views regarding the pandemic on their stress levels. All variables were included in the model, and it was determined that age, sex, watching news, worrying about the risk of infection, and the imposed curfew affected students' stress levels. The effect of the variables discussed on the stress level was determined, and R = .496 and $R^2 = .293$. It was determined that 29.3% of the total variance in the PSS-dependent variable was explained by variables such as age, sex, watching news, worrying about the risk of infection, and the imposed curfew, and the result was statistically significant (P < .001) (Table 4).

4 | DISCUSSION

The COVID-19 pandemic revealed the need to treat the psychological aspects of epidemics and pandemics and to treat these events as phenomena that have psychological effects. 15 In this study, nursing students' views on the COVID-19 pandemic and their perceived stress levels were evaluated. It was determined that the students perceived moderate levels of stress, but they had higher levels of stress than students assessed in previous years. 12,16 In this study, students scored an average of 31.69 ± 6.91 on the PSS, whereas those assessed by Eskin et al scored an average of 28.1 ± 7.4 on the same scale (PSS-14), indicating that the COVID-19 pandemic negatively affected the stress levels of nursing students. Kwok et al¹¹ conducted a study in Hong Kong, and found that almost all of the participants (97%) were worried about COVID-19, and their daily routines were greatly disrupted. It is stated that the exposure of nursing students to a large number of longterm and uncontrollable stressors during the learning phase negatively affects both their professional identity development and their health. 17 In the literature, conducted studies with nursing students have found

TABLE 2 Students' views on the COVID-19 pandemic

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Worried 125 18.9 Angry 87 13.1 Safe 297 44.9				438	66.2	
Angry 87 13.1 Safe 297 44.9		Worried		125		
Safe 297 44.9						
					20.1	

^aMultiple answers were given.

TABLE 3 Comparison of demographic variables and Perceived Stress Scale score averages

		Perceived Stress Scale X ± SD	Test and significance
Age	18-20 21 and above	32.94 ± 7.10 29.71 ± 6.71	t = 1.583 P = .000*
Sex	Female Male	32.92 ± 7.04 29.57 ± 6.32	t = 3.793 P = .000*
Class	1 2 3 4	32.67 ± 6.70 30.59 ± 7.08 30.52 ± 6.83 30.90 ± 6.71	KW = 3.655 P = .301
Perceived Stress Scale total score	X ± SD		
	31.69 ± 6.91		

Abbreviations: KW, Kruskal-Wallis Test; SD, standard deviation; t, independent sample t test; X, mean. *P < .001.

that many factors such as giving care to sick individuals, lack of self-confidence in practical applications, insufficient support from instructors, and communication problems with other health professionals affect students' stress levels. ¹⁷⁻¹⁹ It is seen that, besides many academic, social, and psychological stress factors that put nursing students in stress, many unusual new developments experienced in the pandemic process may have increased the stress level of the students. Like nurses, who are at the forefront of combating the virus, reducing the stress levels of nurse candidates is important in terms of protecting both themselves and their families and society.

Age was found to have an effect on the level of stress perceived by the students, and there were statistically significant differences in PSS score between age groups (P < .001). The level of stress perceived by those between the ages of 18 to 20 was higher. A study with nursing students before the pandemic found that there was no significant difference between age and perceived stress, but the perceived stress level of students under 20, was higher. 12 With the pandemic process, the stress level of students under-20, was significantly increased. At this subject, it is thought that a curfew for under-20's could be effective. It is thought that due to the curfew under 20, reduced social activities. limited physical activity within the home, changes in nutrition and sleep patterns may have raised students 'stress levels. Also, it is thought that the ability to cope with stress of younger students is not fully developed, and inadequate training received in university about infectious diseases may also have increased the level of stress (because under-20 age students are more likely to be in first or second grade).

There were significant differences in PSS score in terms of sex (P < .001). It was observed that the stress level perceived by female students was higher than that of male students. In a study by Turan et al,¹² it was found that the female students' score on the PSS (27.92 \pm 6.64) were significantly higher than those of the male students

TABLE 4 Analysis of socio-demographic characteristics of the students and the effect of their thoughts on the pandemic process on stress level by regression analysis

	Unstandardized coefficients		Standardized coefficients		
Model	В	SE	β	t	Sig.
Constant	29 998	2987		10 044	.000**
Age	-2111	.689	228	-2162	.002*
Sex	-2170	.600	241	-3616	.000**
Class	015	.319	002	047	.962
Watching news	-1431	.410	.244	-1552	.002*
To follow the developments in different countries	.729	1000	001	029	.877
Worrying about getting infected with the virus	-2117	.579	143	-3653	.000**
Having familiar people with coronavirus test result positive	.952	.623	.009	.244	.807
To think that took enough precautions during the COVID-19 pandemic process	.833	.652	.049	1279	.201
To think that Turkey has succeeded in its fight against the COVID-19 pandemic	836	.344	.072	1848	.065
Curfew decision above age 65, and under 20	-1358	.537	299	-2530	.012*
$R = .496$; $R^2 = 0.293$; Adjusted $R^2 =$.235, Variance	= 29.3%, SE =	6.73, F = 4.	652, Sig. = 0.0	000 ^b ,

Note: aDependent Variable: Total of Perceived Stress Scale. 14

^bPredictors: (Constant), Age, Sex, Class, Watching news, To follow the developments in different countries, Worrying about getting infected with the virus, Having familiar people with coronavirus test result positive, To think that took enough precautions during the COVID-19 pandemic process, To think that Turkey has succeeded in its fight against the COVID-19 pandemic, Curfew decision above age 65, and under 20. *P < .05.

(25.67 ± 8.31). Other studies have found that females generally have high stress levels. 20-22 In a community based study conducted by Ekiz and colleagues on the pandemic process, it was found that the health anxiety levels of females were significantly higher than those of males. $(\beta = -.12; P < .01)$. Females are thought to have increased stress levels due to being more emotional.

No significant difference in PSS score was found between year levels; however, the stress levels of the first - and fourth-year students were higher than those of students at other year levels. In the studies carried out by Karaca et al, Sheu et al, and Pagana, it was determined that first year nursing students experienced more stress due to lack of professional knowledge and skills.²³⁻²⁵ Our research result was found to be compatible with results of the literature. The stress levels of the first-year students may have been increased due to the interruption of education and clinical practices at the beginning of their educational life, lower levels of professional knowledge and skills, more anxiety with regard to passing the lesson, and the imposed curfew. In addition, it is thought that fourth-year students' anxiety about graduation and starting the profession is effective at the stress level.

The COVID-19 pandemic is a trauma that threatens individuals' lives, and emotionally affects us all. The effects of this life experience will be different for each individual, group, and social class.² The fear of getting sick, uncertainty, the fear that the disease will affect one's family, lack of safety in one's own community, and similar factors are sources of intense anxiety. 15 In this study, it was determined that the students' concerns regarding the transmission of the virus affected their perceived stress (β = -2.11; P < .001). In addition, it was determined that the percentage of students who knew people who had positive tests results for the coronavirus was 23.6%, which increased their stress levels.

It was determined that 48% of the students listened to the news frequently, and 91.5% followed the developments in other countries. In a study conducted by Kwok et al, it was found that almost all participants actively researched information about COVID-19. Participants considered the most interesting information to be that on the distribution of cases (92%), number of infected individuals (91%), infection control interventions undertaken by local authorities (88%), and preventive measures (87%).¹¹ Consuming the news was determined to have an effect on the level of stress perceived by the students ($\beta = -1.43$; P < .05). Limited and distressing news about COVID-19 can lead to anxiety and fear in students, which can lead to increased perceived stress.

^{**}P < .001.

5 | IMPLICATIONS FOR NURSING PRACTICE

The COVID-19 pandemic has affected the entire world, and it has also affected nursing students in different ways. Our study found that the stress levels of nursing students have increased during the pandemic. Therefore, nursing students should be bring the ability to cope with stress in cases of pandemic. Thus, in dealing with stress, nursing students will contribute to helping individuals in society cope with stress. This study may have contributed to nursing practice, considering that nursing students should develop skills to protect themselves, their families and the community during their training on epidemic infections. Psychiatric nurses can benefit from the results of this study in clinical practice. The results of the research will enable psychiatric nurses to be aware that nursing students will be affected by Pandemic periods and that their stress levels will increase.

6 | LIMITATIONS

The limitation of the research is that there is only one dependent variable. Another limitation of this study is that only age, gender, and class variables are taken in the sample group.

7 | CONCLUSION AND RECOMMENDATION

It was determined that student nurses perceived a moderate level of stress during the COVID-19 pandemic. Those between the ages of 18 and 20 years and female students were found to have higher levels of stress. Watching news, worrying about the risk of infection, and the imposed curfew were found to affect stress levels. In line with these results, it may be suggested that nursing trainers give training and counseling, especially in the development of stress management skills for students under 20 years old and female students. To help students reduce their stress levels, they should be given up-to-date information about the pandemic. Besides, to reduce the anxiety of infection transmission, it may be recommended to provide students with training on measures to be taken, protective equipment, and hygiene issues via distance education.

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

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