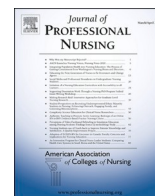




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Nursing students' readiness and coping strategies for the Covid-19 pandemic in Turkey

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ABSTRACT

Background: In the COVID-19 pandemic process, nursing students, who are the nurses of the future, have witnessed a different professional experience.

Purpose: This study was conducted to examine nursing students' readiness and the coping strategies they used during the COVID-19 pandemic process in Turkey.

Methods: This is a descriptive correlational study using descriptive and inferential analysis. 967 nursing students of two public universities completed the online survey. A socio-demographic form and the Coping Strategies used in Crisis Intervention Scale (CSCIS) were used to collect the data.

Results: The mean score for crisis coping of the students was 189.53 ± 27.33 (range 48–240). In case of a state of emergency and an acute pandemic, while 44.1% of the students considered their individual resilience sufficient, 33.6% and 34.6% of them considered their ability to solve problems that may arise and their appropriate coping skills against negative effects, respectively, sufficient. The curriculum of undergraduate nursing education was considered sufficient in terms of readiness by 29.7% of the students, crisis intervention by 25.2% of them, and knowledge/skill level by 30.1% of them.

Conclusions: Nursing students can cope with the crisis during the COVID-19 process.

Introduction

In this unique public health pandemic that we have suddenly found ourselves in (the COVID-19 pandemic), nurses around the world are, as always, at the forefront of this process. Nurses sometimes work until they become completely exhausted in the clinics, emergency services and intensive care units, and they work with a lack of equipment in some places (Jackson et al., 2020). This pandemic, which started in China, has brought not only the risk of dying from viral infection, but also psychological pressure to people worldwide (Duan & Zhu, 2020; Xiao, 2020). There are reports on the psychological effects of the pandemic on healthcare personnel, and especially on children and the elderly, in society (Chen et al., 2020; Li et al., 2020; Wang, Pan, et al., 2020; Yang et al., 2020). Situations such as home quarantine, social isolation, and working at home are relatively radical changes, and all of these may necessitate coping skills and abilities (Arenliu & Berxulli, 2020). Furthermore, strict isolation measures applied in schools and universities around the world and delays in lessons are considered to negatively affect the mental health of university students (Cao et al., 2020).

Background

COVID-19 also has the potential to affect university students studying in the field of health from a professional perspective (Rose, 2020). Fighting a pandemic may contribute to the formation of professional identity in health students, while it may also support them with regard to giving priority to patients, learning self-sacrifice, and their professional commitment. In addition to its effect on people's emotions, COVID-19 also leads to a change in coping strategies. Coping strategies are the thoughts and actions that individuals use to cope with stressful events (Folkman et al., 1987). People have determined two general coping strategies. The first one is problem-oriented coping, and the aim here is to take action in order to solve a problem or change the status quo. The other one is emotion-oriented coping, which aims to reduce emotional distress associated with stressful situations (Folkman & Lazarus, 1980). In the study by Yu et al. (2020), it was found that individuals used negative coping strategies in the COVID-19 process, which increased their psychological stress. In the study by Huang et al. (2020), it was found that nursing students had less psychological stress

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than nurses during the pandemic process but that their coping strategies were negative and immature. In another study, coping was found to be significantly decreased as psychological stress increased (Wang, Xia, et al., 2020).

The main purpose of the nursing departments is to ensure that students graduate as future professional nurses with a high level of competence and confidence (Li et al., 2019). Since student nurses are still at the stage of professional development, it is considered that an acute developing pandemic worldwide has increased students' stress levels with regard to professional readiness. The coping methods applied by them in this process will affect the whole process, from students' questioning their professional education to empathizing with a nurse working with infected patients. In the available literature, there are very few studies that directly examine the coping styles of nursing students during the pandemic process. This study was conducted to examine nursing students' readiness and the coping strategies they used during the COVID-19 pandemic process.

Methods

Study design and participants

This descriptive correlational study was conducted between June 1st and June 30th, 2020. In accordance with the COVID-19 pandemic measures, the study was conducted using a web-based online survey via social media (WhatsApp, Facebook). 1352 students studying in the nursing department of two public universities constituted the population of the study. The convenience sample was recruited through social media for this study; students who attended school during the time when the study was carried out and who volunteered to participate formed the sample. Nursing students were eligible to participate if they were ≥ 18 years old, enrolled on a nursing program, and answered the questionnaires completely. Nursing education lasts four years in total. The study was performed with first, second, third, and fourth grade nursing students registered in the nursing department of a faculty. A total of 1013 forms were filled in; 46 of these forms were not evaluated due to missing data. Thus, 967 students were included in the study. The participation rate was 71.5%. Also, the error rate resulting from the size of the sample was 2.21% at a 99% confidence interval according to the calculation for a sample whose population is known.

Measures

Socio-demographic form

This consists of two parts and contains a total of 19 questions, including 6 questions containing students' introductory information in the first part and 13 questions containing other information and their readiness for the coronavirus pandemic in the second part (Appendix A).

Coping Strategies used in Crisis Intervention Scale (CSCIS)

The scale was developed by Mete-Otlu and Aysan (2015) to measure the coping strategies used by people in crisis intervention by taking into account the crisis situations encountered by them in the last 6 months. It consists of 48 items and has a Likert-type rating, ranging from "Completely agree" to "Completely disagree". Possible scores on the scale range from 48 to 240. The scale has four sub-dimensions: (a) providing social support, (b) acquiring coping skills, (c) evaluation of a crisis situation and (d) constituting a social network. A high score in the scale indicates that the coping strategies used in crisis intervention are high. The Cronbach alpha internal consistency coefficients were calculated as 0.91 for the whole scale and between 0.68 and 0.92 for the sub-dimensions. In this study, these were found to be 0.96 for the total scale and 0.88–0.97 for the sub-dimensions. Permission from the developers of the original scale was obtained to conduct the study.

Data collection

In accordance with the COVID-19 pandemic measures, the study was conducted using a web-based online survey via social media. The socio-demographic form and the Coping Strategies used in Crisis Intervention Scale were used to collect the data. The data collection forms specified by the researchers were transferred to the electronic environment with the Google Forms application. The condition of voluntary consent was indicated on the first page of the online survey, and the students who agreed to participate in the questionnaire started to answer the questions after confirming that they were volunteers electronically. It took an average of 15–20 min for the forms to be answered. It was stated that no fees would be charged and/or paid by students for research purposes. It was explained to the students that the results of the study would not affect their lecture grades. There was no conflict of interest among students and researchers. It was considered that this method enabled students to make unbiased evaluations due to the lack of a person's influence and to give more careful answers by taking the best time to answer the questions, and that the answers to the questions would be more accurate and realistic since students' identities would be kept confidential.

Data analysis

Statistical analyses of the data were made using the SPSS Statistics Base V 23 version of the Statistical Package for the Social Sciences software licensed by Akdeniz University. Descriptive statistics, independent samples *t*-test and one-way ANOVA analysis were used to analyze the data, and the Tukey test was used to determine the differences between the variables. Normal distribution was evaluated by Kolmogorov-Smirnov test, and parametric tests were used since the numerical variables were normally distributed. A value of $p < 0.05$ was considered statistically significant.

Ethical considerations

The study was carried out according to the ethical principles of the Declaration of Helsinki. The Clinical Research Ethics Committee of the state university in the province gave ethical approval before the study was conducted (Date: 28 April 2020, Document ID: KAEK-348). The Ministry of Health General Directorate of Health Services COVID-19 Scientific Research Evaluation Commission gave permission for the research (Document ID: 2020-05-05T17_15_50). A consent page was attached on the front part of the questionnaire that explains the purpose of the research, which is supposed to be read before filling the questionnaire. Participants could only proceed to fill the questionnaire after they had given their consent. Students were assured that participation was completely voluntary and anonymous, and that their choice not to participate would not affect their academic success at the school.

Results

A total of 967 nursing students participated in the study, which was planned to determine the coping strategies used by them during the coronavirus (COVID-19) pandemic, and the results obtained are indicated below.

The CSCIS mean score of the students who participated in the study was found to be 189.53 ± 27.33 . When the sub-dimensions of the CSCIS were analyzed according to their mean scores, it was observed that the highest score was 80.69 ± 12.39 in "providing social support" and the lowest score was 33.96 ± 11.68 in the "evaluation of a crisis situation" (Table 1).

The mean age of the nursing students was 20.57 ± 1.70 years. Of them, 70.8% were female. The majority of the participants were 1st and 2nd grade (65.8%) students, and more than half (52.2%) of them stated that their academic achievement was good. 20.3% and 18.6% of the

Table 1
Students' mean scores in Coping Strategies used in Crisis Intervention Scale (n = 967).

Scale and sub-scales	Score range	Received scores	Total score	Mean score
Providing social support	19–95	26–95	80.69 ± 12.39	4.24 ± 0.65
Acquiring coping skills	13–65	18–65	55.05 ± 8.97	4.23 ± 0.69
Evaluation of a crisis situation	11–55	11–54	33.96 ± 11.68	3.09 ± 1.06
Constituting a social network	5–25	8–25	19.78 ± 3.95	3.95 ± 0.79
Coping Strategies used in Crisis Intervention Scale	48–240	99–238	189.53 ± 27.33	3.94 ± 0.56

students were living in the Mediterranean and Marmara regions, respectively. 85.2% of the students reported that they loved the nursing profession (Table 2). It was determined that those living in the Marmara region (p < 0.001), those who loved the nursing profession (p < 0.001) and those with good academic achievement (p < 0.001) had higher scores in the sub-dimensions of “providing social support” and “acquiring coping skills”. The analyses indicate that those aged 21 and older (p < 0.01), those living in the Mediterranean region (p < 0.001), those who loved the nursing profession (p < 0.01) and those with very good academic achievement (p < 0.001) had higher scores in the

“evaluation of a crisis situation” sub-dimension. It was determined that students aged 21 and older (p < 0.01), those living in the Mediterranean and Marmara regions (p < 0.05), those who loved the nursing profession (p < 0.001), and those with very good and good academic achievement (p < 0.001) had higher scores in the CSCIS and in its “constituting a social network” sub-dimension (Table 2).

Of the nursing students, 86.7% were afraid/worried about the coronavirus pandemic, and it was determined that 71.7% of them followed information about the pandemic from sources of the Ministry of Health. While most of the students (86.5%) indicated that they considered and applied the warnings on protection from coronavirus, 74.6% of them indicated that they were afraid/worried that coronavirus would be transmitted to someone from their families or immediate circle, and 70.3% of them indicated that their mental health was negatively affected by staying at home due to the pandemic. It was determined that 8.4% of the students and their relatives had coronavirus tests and that 30.9% of the tests were positive (Table 3). The analyses indicate that those who were afraid/worried that coronavirus would become a pandemic, those who received information about the pandemic from the Ministry of Health and scientific journals/articles, those who considered warnings on protection from the pandemic, those who were afraid/worried that coronavirus would be transmitted to someone from their families or immediate circle, and those whose mental health was negatively affected by staying at home due to the pandemic had higher mean scores in the CSCIS and in all its sub-dimensions (p < 0.001). It was

Table 2
Demographic characteristics of students and their mean scores for these characteristics in Coping Strategies used in Crisis Intervention Scale (n = 967)

Characteristics	n	%	PSS	ACS	ECS	CSN	CSCIS	
			X ± SD	X ± SD	X ± SD	X ± SD	X ± SD	
Age	20 and younger	565	58.4	80.13 ± 13.33	54.73 ± 9.44	32.98 ± 10.94	19.44 ± 4.00	187.31 ± 29.16
	21 and older	402	41.6	81.47 ± 10.89	55.50 ± 8.27	35.41 ± 12.53	20.25 ± 3.83	192.64 ± 24.22
	Test ¹ /p			-1.707/0.088	-1.331/0.183	-3.133/0.002**	-3.150/0.002**	-3.005/0.003**
Gender	Female	685	70.8	80.97 ± 12.59	55.22 ± 9.07	33.68 ± 11.38	19.65 ± 4.08	189.53 ± 28.27
	Male	282	29.2	80.00 ± 11.87	54.65 ± 8.75	34.75 ± 12.36	20.09 ± 3.60	189.51 ± 24.94
	Test ¹ /p			1.128/0.260	0.891/0.373	-1.258/0.209	-1.628/0.104	0.012/0.991
Grade	1st and 2nd grade	636	65.8	80.70 ± 12.93	55.18 ± 9.29	32.30 ± 11.52	19.64 ± 4.14	187.84 ± 28.46
	3rd and 4th grade	331	34.2	80.67 ± 11.30	54.80 ± 8.34	37.24 ± 11.31	20.05 ± 3.54	192.77 ± 24.73
	Test ² /p			0.038/0.970	0.647/0.518	-6.368/0.000***	-1.583/0.114	-2.672/0.008**
Region of residence	Mediterranean region ^a	196	20.3	81.83 ± 7.92	55.36 ± 6.19	36.94 ± 9.95	20.04 ± 2.76	194.19 ± 19.77
	Eastern Anatolia region ^b	157	16.2	78.87 ± 16.59	54.01 ± 11.80	35.34 ± 10.41	19.29 ± 4.33	187.54 ± 32.71
	Aegean region ^c	118	12.2	79.66 ± 11.34	55.77 ± 7.36	36.04 ± 12.42	20.34 ± 3.78	191.82 ± 26.84
	Southeastern Anatolia region ^d	145	15.0	78.92 ± 10.97	53.64 ± 8.41	33.00 ± 11.84	19.60 ± 3.47	185.17 ± 24.96
	Central Anatolia region ^e	86	8.9	78.23 ± 16.41	51.50 ± 10.95	33.97 ± 11.78	19.04 ± 3.71	182.75 ± 37.42
	Black Sea region ^f	85	8.8	80.17 ± 16.39	55.07 ± 11.90	27.75 ± 11.26	19.03 ± 5.43	182.03 ± 36.74
	Marmara region ^g	180	18.6	84.53 ± 7.74	57.98 ± 6.19	32.02 ± 12.57	20.42 ± 4.33	194.97 ± 16.67
	Test ² /p			5.071/0.000***	6.798/0.000***	8.488/0.000***	2.800/0.010*	5.102/0.000***
Love of nursing profession	Yes	824	85.2	83.17 ± 8.52	56.93 ± 6.63	34.50 ± 11.72	20.36 ± 3.46	194.97 ± 19.58
	No	143	14.8	66.39 ± 19.54	44.21 ± 12.41	31.06 ± 11.07	16.47 ± 4.87	158.16 ± 41.21
	Test ¹ /p			10.095/0.000***	11.960/0.000***	3.261/0.001**	9.143/0.000***	10.479/0.000***
Academic achievement	Very good ^h	74	7.7	81.27 ± 8.81	56.06 ± 7.55	38.37 ± 12.20	20.87 ± 2.80	196.59 ± 25.53
	Good ^b	505	52.2	83.80 ± 8.01	57.12 ± 6.67	34.43 ± 11.88	20.66 ± 3.31	196.02 ± 18.99
	Moderate ^c	346	35.8	78.85 ± 14.30	53.96 ± 9.56	33.24 ± 11.05	18.87 ± 4.11	184.94 ± 28.65
	Poor ^d	42	4.3	57.40 ± 16.30	37.40 ± 9.78	27.21 ± 9.87	14.76 ± 5.74	136.78 ± 38.29
	Test ² /p			77.464/0.000***	81.270/0.000***	9.121/0.000***	44.154/0.000***	83.576/0.000***
			b > c > d/a > d	b > c > d/a > d	a > c > d/b > d	a-b > c > d	a-b > c > d	

PSS: Providing Social Support, ACS: Acquiring Coping Skills, ECS: Evaluation of a Crisis Situation, CSN: Constituting a Social Network, CSCIS: Coping Strategies used in Crisis Intervention Scale.

¹ Independent Samples t-Test.

² One-Way ANOVA.

* p < 0.05.

** p < 0.01.

*** p < 0.001.

Table 3

Characteristics of students related to coronavirus pandemic and their mean scores for these characteristics in Coping Strategies used in Crisis Intervention Scale (n = 967)

Characteristics	n	%	PSS	ACS	ECS	CSN	CSCIS	
			X ± SD	X ± SD	X ± SD	X ± SD	X ± SD	
Afraid/worried about coronavirus becoming a pandemic	Yes	838	86.7	82.05 ± 10.85	55.93 ± 7.91	34.88 ± 11.71	20.17 ± 3.68	193.04 ± 23.55
	No	129	13.3	71.85 ± 17.27	49.37 ± 12.70	28.21 ± 9.67	17.25 ± 4.90	166.69 ± 37.47
	Test ¹ /p			6.509/0.000***	5.698/0.000***	7.073/0.000***	6.494/0.000***	7.753/0.000***
Source of information about the pandemic	Social media ^a	223	23.1	74.73 ± 17.04	51.00 ± 11.77	29.62 ± 10.23	18.46 ± 4.62	173.82 ± 37.13
	Scientific journal/article ^b	51	5.3	81.82 ± 6.90	55.09 ± 7.12	42.11 ± 12.28	21.19 ± 2.80	200.23 ± 15.62
	Ministry of Health ^c	693	71.7	82.52 ± 10.14	56.35 ± 7.57	34.08 ± 11.59	20.10 ± 3.68	193.79 ± 21.84
	Test ² /p			36.024/0.000***	31.829/0.000***	31.467/0.000***	18.584/0.000***	54.573/0.000***
Considering and applying the warnings on protection	Yes	836	86.5	83.08 ± 8.49	56.71 ± 6.69	34.84 ± 11.54	20.35 ± 3.37	195.00 ± 19.67
	No	131	13.5	65.42 ± 20.16	44.45 ± 13.44	28.56 ± 11.13	16.12 ± 5.25	154.58 ± 40.54
	Test ¹ /p			9.886/0.000***	10.243/0.000***	5.819/0.000***	12.221/0.000***	18.241/0.000***
Afraid/worried about its transmission to someone from family or immediate circle	Yes ^a	721	74.6	82.30 ± 9.99	56.20 ± 7.52	34.77 ± 12.16	20.29 ± 3.53	193.57 ± 21.74
	Sometimes ^b	70	7.2	77.64 ± 15.69	53.14 ± 10.77	31.92 ± 9.85	18.85 ± 4.00	181.56 ± 33.57
	No ^c	176	18.2	71.77 ± 18.75	48.00 ± 12.99	31.21 ± 9.74	16.87 ± 5.87	167.85 ± 43.13
	Test ² /p			31.396/0.000***	33.697/0.000***	6.408/0.002**	31.726/0.000***	40.420/0.000***
Coronavirus testing for themselves or their relatives	Yes	81	8.4	83.92 ± 9.10	56.41 ± 7.82	34.17 ± 11.35	19.25 ± 3.62	193.77 ± 22.53
	No	886	91.6	80.39 ± 12.61	54.93 ± 9.07	33.98 ± 11.72	19.83 ± 3.98	189.14 ± 27.71
	Test ¹ /p			2.461/0.014*	1.428/0.154	0.141/0.888	-1.252/0.211	1.462/0.144
Positive results of coronavirus tests [‡]	Yes	25	30.9	83.68 ± 8.29	53.72 ± 9.24	34.80 ± 11.63	20.68 ± 3.79	192.88 ± 18.50
	No	56	69.1	84.03 ± 9.51	57.62 ± 6.86	33.89 ± 11.31	18.62 ± 3.38	194.17 ± 24.26
	Test ¹ /p			-0.161/0.872	-2.118/0.037*	0.330/0.742	2.430/0.017*	-0.238/0.812
Effect on mental health of staying at home due to the pandemic	Positive ^a	72	7.4	77.09 ± 14.83	52.51 ± 10.29	27.98 ± 10.50	18.83 ± 4.54	176.43 ± 27.27
	Negative ^b	680	70.3	82.73 ± 9.93	56.29 ± 7.62	35.11 ± 11.50	20.40 ± 3.52	194.55 ± 21.58
	Has no effect ^c	215	22.3	75.42 ± 16.17	51.98 ± 11.31	32.46 ± 11.88	18.14 ± 4.48	178.01 ± 37.10
	Test ² /p			33.869/0.000***	23.003/0.000***	14.918/0.000***	30.745/0.000***	42.160/0.000***
			b > a-c	b > a-c	b > c > a	b > a-c	b > a-c	

PSS: Providing Social Support, ACS: Acquiring Coping Skills, ECS: Evaluation of a Crisis Situation, CSN: Constituting a Social Network, CSCIS: Coping Strategies used in Crisis Intervention Scale.

¹ Independent Samples t-Test.

² One-Way ANOVA.

* p < 0.05.

** p < 0.01.

*** p < 0.001.

‡ n: 81.

determined that the students and their relatives who had undergone coronavirus tests had higher mean scores in the “providing social support” sub-dimension, and that those with positive test results had higher mean scores in the “acquiring coping skills” and “evaluation of a crisis situation” sub-dimensions (p < 0.05) (Table 3).

Information on nursing students’ individual and educational readiness in case of a state of emergency and an acute pandemic such as COVID-19 is presented in Table 4. In case of a state of emergency and an acute pandemic, while 44.1% of the students considered their individual

resilience sufficient, 33.6% and 34.6% of them considered their ability to solve problems that may arise and their appropriate coping skills against negative effects, respectively, sufficient. The curriculum of undergraduate nursing education was considered sufficient in terms of readiness by 29.7% of the students, crisis intervention by 25.2% of them, and knowledge/skill level by 30.1% of them. It was determined that the students who considered their individual resilience, ability to solve problems that may arise, and appropriate coping skills against the negative effects sufficient or partially sufficient in case of a state of

Table 4

Readiness of students for state of emergency and an acute pandemic and their mean scores for this readiness in Coping Strategies used in Crisis Intervention Scale (n = 967)

Characteristics	n	%	PSS	ACS	ECS	CSN	CSCIS	
			X ± SD	X ± SD	X ± SD	X ± SD	X ± SD	
Individual resilience	I am sufficient ^a	426	44.1	82.69 ± 8.30	56.83 ± 6.88	35.73 ± 11.81	20.62 ± 3.10	195.89 ± 20.79
	Partially ^b	445	46.0	83.16 ± 8.82	56.31 ± 6.68	33.95 ± 11.19	20.06 ± 3.44	193.49 ± 17.94
	I am insufficient ^c	96	9.9	60.34 ± 20.60	41.33 ± 13.68	26.45 ± 10.38	14.78 ± 5.61	142.91 ± 41.31
	Test ² /p			204.312/ 0.000***	168.041/ 0.000***	25.982/ 0.000***	106.653/ 0.000***	229.480/ 0.000***
				a-b > c	a-b > c	a > b > c	a-b > c	a-b > c
Ability to solve problems that may arise in emergencies	I am sufficient ^a	325	33.6	84.14 ± 8.25	58.19 ± 6.22	34.95 ± 12.90	20.99 ± 3.19	198.28 ± 19.62
	Partially ^b	532	55.0	81.72 ± 9.20	55.19 ± 7.30	34.67 ± 10.49	19.67 ± 3.47	191.26 ± 20.72
	I am insufficient ^c	110	11.4	65.47 ± 21.70	45.14 ± 14.52	27.89 ± 11.64	16.74 ± 5.99	155.25 ± 44.23
	Test ² /p			121.783/ 0.000***	105.702/ 0.000***	17.585/ 0.000***	53.115/ 0.000***	132.608/ 0.000***
				a > b > c	a > b > c	a-b > c	a > b > c	a > b > c
Appropriate coping skills against the negative effects	I am sufficient ^a	335	34.6	85.11 ± 7.67	58.72 ± 5.90	34.80 ± 13.25	21.05 ± 3.30	199.69 ± 19.50
	Partially ^b	497	51.4	81.70 ± 8.68	55.06 ± 6.95	34.96 ± 10.42	19.79 ± 3.32	191.53 ± 18.68
	I am insufficient ^c	135	14.0	65.95 ± 20.24	45.91 ± 14.05	28.42 ± 10.37	16.61 ± 5.52	156.90 ± 42.43
	Test ² /p			156.660/ 0.000***	122.675/ 0.000***	18.524/ 0.000***	69.042/ 0.000***	160.520/ 0.000***
				a > b > c	a > b > c	a-b > c	a > b > c	a > b > c
Curriculum of undergraduate nursing education in terms of readiness	Sufficient ^a	287	29.7	84.93 ± 7.93	58.85 ± 5.74	36.89 ± 12.47	21.12 ± 3.17	201.81 ± 18.27
	Partially ^b	472	48.8	81.31 ± 8.56	55.01 ± 6.87	34.15 ± 10.47	19.83 ± 3.24	190.31 ± 19.23
	Insufficient ^c	208	21.5	73.42 ± 19.59	49.91 ± 13.28	29.62 ± 11.91	17.82 ± 5.37	170.78 ± 40.24
	Test ² /p			59.568/ 0.000***	68.156/ 0.000***	24.600/ 0.000***	46.164/ 0.000***	92.938/ 0.000***
				a > b > c	a > b > c	a > b > c	a > b > c	a > b > c
Curriculum of undergraduate nursing education in terms of crisis intervention	Sufficient ^a	244	25.2	84.91 ± 8.36	58.46 ± 6.13	35.38 ± 12.86	21.09 ± 3.42	199.86 ± 19.47
	Partially ^b	510	52.7	81.40 ± 8.34	55.43 ± 6.74	34.94 ± 10.50	19.92 ± 3.16	191.70 ± 19.16
	Insufficient ^c	213	22.1	74.15 ± 19.69	50.23 ± 13.33	30.13 ± 12.18	17.96 ± 5.33	172.49 ± 40.78
	Test ² /p			49.115/ 0.000***	54.065/ 0.000***	15.481/ 0.000***	38.917/ 0.000***	68.892/ 0.000***
				a > b > c	a > b > c	a-b > c	a > b > c	a > b > c
Curriculum of undergraduate nursing education in terms of knowledge/skill level	Sufficient ^a	291	30.1	85.58 ± 8.43	59.13 ± 6.00	35.75 ± 13.20	21.27 ± 3.33	201.74 ± 18.93
	Partially ^b	478	49.4	80.85 ± 9.02	54.87 ± 7.14	33.92 ± 10.26	19.65 ± 3.21	189.31 ± 20.83
	Insufficient ^c	198	20.5	73.09 ± 18.91	49.50 ± 12.76	31.58 ± 12.14	17.91 ± 5.33	172.10 ± 39.49
	Test ² /p			68.282/ 0.000***	78.835/ 0.000***	7.638/ 0.001**	47.044/ 0.000***	80.779/ 0.000***
				a > b > c	a > b > c	a-b > c	a > b > c	a > b > c

PSS: Providing Social Support, ACS: Acquiring Coping Skills, ECS: Evaluation of a Crisis Situation, CSN: Constituting a Social Network, CSCIS: Coping Strategies used in Crisis Intervention Scale.

² One-Way ANOVA.

** p < 0.01.

*** p < 0.001.

emergency and an acute pandemic had higher mean scores compared to those who considered them insufficient (p < 0.001). The analyses indicate that those who considered that the curriculum of undergraduate nursing education was sufficient or partially sufficient concerning readiness for a state of emergency and an acute pandemic, crisis intervention and knowledge/skill level had higher mean scores compared to those who considered them insufficient (p < 0.001) (Table 4).

Discussion

The need to prepare future nurses has never been more important than during the current global emergency. The powerful effects of the coronavirus pandemic may change the way future nurses are educated forever. Although students were able to continue their education under many conditions such as earthquakes, fires and other disasters previously, formal education of students has been interrupted in many countries along with the emergence of a highly infectious pandemic,

which has been especially important for health students who have completed more than half of their professional education in health institutions. Since very few studies examining nursing students' coping strategies during the coronavirus pandemic process were found in the literature review, the results are discussed with the current literature.

In the study, it was determined that nursing students had high CSCIS scores and received the highest score in the "providing social support" sub-dimension and the lowest score in the "evaluation of a crisis situation" sub-dimension. After the World Health Organization (WHO) declared a pandemic, most university students went back to their families along with the interruption of formal education and have continued their education at home through distance education. In this process, the students have provided a flow of information about the pandemic to their families and circles in line with their knowledge, experience and research, as required by the educational role of nursing. Which may have increased students' scores in providing social support. It is known that social support is protective against stress since it increases the coping ability and psychological resilience of individuals (Luo & Wang, 2009). Nevertheless, it was considered that the fact that they could not professionally intervene in the widespread crisis situation due to continuing their undergraduate education decreased their crisis evaluation scores. In the study by Huang et al. (2020), it was found that nursing students had less psychological stress than nurses during the pandemic process, which is highly related to the working environment of nurses. Although nurses and nursing students have similar professional knowledge, nurses, who are one of the most vulnerable groups, are at the center of the risk of infection. Factors such as close contact with patients, physical discomfort caused by special protection, facing the pain and death of critically ill patients, and long-term separation from family members increase nurses' stress (Huang et al., 2020).

In the study, the analyses indicate that students aged 21 and older, those studying in the 3rd and 4th grade, those living in the Mediterranean and Marmara regions, those who loved the nursing profession, and those with very good academic achievement had higher scores in the CSCIS and in its sub-dimensions of "evaluation of a "crisis situation"" and "constituting a social network". An age of 21 years and older corresponds to the last two years in university education. In terms of nursing education, this grade requires completing most of the professional education and having a command of basic knowledge. It is expected that students with these characteristics in the data set will have high coping scores. In our country, the Marmara and Mediterranean regions are the regions where there are more urban areas and metropolitan cities. The sanitary conditions in metropolitan cities and urban areas are better than in towns and villages, where the chance to get rid of the virus is decreased. Cities also have more resources for providing non-formal education and there is a constant flow of up-to-date information on the pandemic (Tang et al., 2020). Furthermore, many cities in our country have been exposed to various disasters that have partially or completely interrupted the normal life and activities of society. 58% of the people affected by disasters are those affected by earthquakes, and 98% of the population in Turkey live in regions threatened by earthquakes (Altun, 2018). It is considered that the Marmara earthquake in 1999, with a loss of 18,374 lives, increased the coping strategies used in crisis intervention of students living in coastal areas that are at risk. This information is consistent with the results of the study.

Those who were afraid/worried that coronavirus would become a pandemic and that coronavirus would be transmitted to someone from their circles, and those who considered warnings on the pandemic had higher crisis coping scores. Many stressors, such as the situation caused by the current pandemic, the presence of widespread infection, isolation, losses in daily routines, mental distress due to reduced social contact, the lack of protective equipment and materials, the lack of accurate information, and poor coordination of state institutions, lead to intense stress in society (Arenliu & Berxulli, 2020; Brooks et al., 2020). Higher levels of panic and stress require a higher level of coping (Cao et al., 2020). In a study examining nurses' coping strategies during the

pandemic process, the analyses indicate that nurses used psychological defense mechanisms such as isolation, distracting attention, self-consciousness, humor and rationalization, and active or passive psychological techniques such as keeping a diary or letter writing, breathing relaxation, attention, music, meditation and expressing emotions (Sun et al., 2020), which is supported by the high coping scores of students with anxiety and stress in the results of this study. In another study, it was found that most of the health care students had high awareness of the use of personal protective equipment and hand hygiene (Modi et al., 2020). Nursing students receive detailed education on health protection and hand hygiene from the first year of their education. It is considered that the fact that the current state of emergency is infection-based and that hygiene is the basic principle in protection also increased the coping scores of this group of students with high awareness.

In case of a state of emergency and an acute pandemic, nearly half of the students considered their individual resilience, ability to solve problems that may arise, and appropriate coping skills against the negative effects sufficient, and the coping strategies they used in crisis intervention were high. People with crisis experience usually have vulnerability and difficulty in their feelings of anxiety. An emotional disappointment and imbalance occur (Sen et al., 2015). Social support is material aid and spiritual assistance provided to an individual who is in a difficult situation or under stress (Rastegar Kazerooni et al., 2020). It is an important result that students with high coping skills and individual resilience help individuals, take care of them in case of crisis, make them feel they are not alone, and try to help them. Furthermore, it indicates that nursing students quickly evaluated the pandemic situation, performed the necessary interventions and practices, and cooperated, which improved their acquisition of coping skills for overcoming the pandemic in the healthiest way. Culture, lifestyle and social network are of great importance in overcoming a state of emergency and an acute condition (Rastegar Kazerooni et al., 2020). It is observed that students with high individual resilience, problem-solving ability and appropriate coping skills performed interventions to evaluate crisis situations and provide support to the needy at a high level, since the support of the environment is important in terms of contributing to people's ability to solve problems in such periods. In our country, students receive education on emergency-trauma nursing, disaster management, and approach to emergency situations from the beginning of the second year in nursing education. As it is seen in the results of the study, this professional preparation process also positively affects students' readiness for a state of emergency.

In the study, more than a quarter of the students considered the curriculum of undergraduate nursing education sufficient in terms of readiness, crisis intervention and knowledge/skill level, which positively affected their coping scores. In other words, nearly three quarters of nursing students did not consider undergraduate education sufficient in terms of readiness in case of a global crisis. This result may be due to the fact that the students were still in the learning process or that they had not encountered individual crisis management. Furthermore, simulation programs are not yet available in some nursing schools across the country, and the fact that students could not perform clinical practices during the pandemic process may have caused them not to feel ready. However, in the literature, it is suggested that personal simulation and virtual learning experiences are an effective backup for traditional clinical learning experiences (Wild et al., 2020). In the same study, it was also shown that virtual simulation was a reasonable and effective teaching modularity for nursing students to learn and develop skills and that it increased clinical reasoning capacity safely and effectively (Wild et al., 2020). It is considered that virtual simulation programs will be the most effective clinical teaching method since the clinical learning environment will increase the risk of transmission among students during the pandemic process, and thus, professional readiness of students will be ensured by performing interventions to infected patients, and their crisis coping skills can be increased.

Study limitations

The present study has several limitations. The results cannot be generalized to all nursing students, because the research was conducted only with students in the nursing department of two public universities in Turkey. The data in this study can only be generalized to this sample. Also, the study data are limited to students' self-reports.

Implications for nursing education

Although fear and anxiety about becoming infected with COVID-19 were experienced by nursing students, it is seen that generally, their levels of coping with the crisis were good. In the next period, faculties should consolidate their undergraduate program planning against various epidemics and pandemics that may affect the public. The curriculum must be enriched in a way that will increase students' knowledge and skills, reinforce their state of readiness, and develop their crisis intervention ability related to states of emergency and cases of acute pandemic. Faculties should develop various simulation approaches aimed especially at crisis situations. In this regard, the consolidation of faculty members is also of great importance. In this way, in coping with states of emergency and cases of acute pandemic, nursing students will first be able to assist themselves in coping with the crisis, and later individuals in the community. Nursing educators and students were caught unawares by this epidemic, but we can be prepared for the outcomes of the epidemic and similar emergency situations that might occur in the future. Therefore, in order to prepare nurses, who have a key role, in the best possible way for future healthcare problems such as these or other states of emergency in society, undergraduate education curricula must be reviewed.

Conclusions

Being 21 years and older, studying in the 3rd and 4th grade, and living in the Marmara and Mediterranean regions positively affected crisis coping skills. Those who were afraid/worried that coronavirus would become a pandemic and that coronavirus would be transmitted to someone from their circles, and those who considered warnings on the pandemic had higher crisis coping scores. In case of a state of emergency and an acute pandemic, while nearly half of the students considered their coping skills sufficient, nearly three quarters of them did not consider the curriculum of undergraduate nursing education sufficient about readiness, crisis intervention and knowledge/skill level. Accordingly, it is considered that

- The use of virtual clinical simulation during the process of COVID 19 until clinical settings are considered safe for students will be beneficial,
- The provision of quality and crisis-oriented psychological services to university students by the government and universities will be useful.

This study also shows that it is necessary to review current nursing education in order to increase nursing students' readiness for states of emergency and to ensure their professional readiness.

Ethical approval

The Ministry of Health General Directorate of Health Services COVID-19 Scientific Research Evaluation Commission gave permission for research (Document ID: 2020-05-05T17_15_50). Ethics committee approval was received for this study from the Akdeniz University Medical Faculty Clinical Research Ethics Committee (Date: 28 April 2020, Document ID: KAEK-348).

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CRediT authorship contribution statement

Adem Sümen: Conceptualization, Methodology, Software, Formal analysis, Resources, Writing - Original Draft, Visualization. **Derya Adıbelli:** Software, Formal analysis, Resources, Data curation, Writing - Review & Editing, Visualization, Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Socio-demographic Form

1. What is your gender?
 Female Male
2. What is your age?
3. What is your grade level?
 1st grade 2nd grade 3rd grade 4th grade
4. What is your region of residence?
 Mediterranean region
 Eastern Anatolia region
 Aegean region
 Southeastern Anatolia region
 Central Anatolia region
 Black Sea region
 Marmara region
5. Do you love the nursing profession?
 Yes No
6. How would you describe your academic achievement?
 Very good Good Moderate Poor
7. Are you afraid or worried that the coronavirus will become a global pandemic?
 Yes No
8. Where do you obtain information about the coronavirus epidemic?
 Social media
 Scientific journal/article
 Ministry of Health
9. Do you consider and apply the warnings that are made related to protection from the coronavirus and prevention of the epidemic?

Yes No Sometimes

10. Are you afraid or worried that that the coronavirus will be transmitted to anyone from your family or immediate circle?

Yes No Sometimes

11. Have you or your relatives been tested for the coronavirus?

Yes No

12. Have you or any of your relatives received a positive result from a coronavirus test?

Yes No

13. Has your mental health been positively or negatively affected by the requirement to stay at home or not to go out due to the coronavirus epidemic?

- Yes, it positively affected
 Yes, it negatively affected
 No, it had no effect

14. How would you evaluate your individual resilience against a state of emergency or an acute pandemic?

- I am sufficient
 Partially
 I am insufficient

15. Do you think you are competent to solve problems that might occur in emergency situations such as a state of emergency or an acute pandemic?

- I am sufficient
 Partially
 I am insufficient

16. Do you think you are competent in appropriate coping skills against the negative effects of a state of emergency or an acute pandemic?

- I am sufficient
 Partially
 I am insufficient

17. How would you evaluate the undergraduate nursing curriculum in terms of its readiness for a state of emergency or an acute pandemic?

- Sufficient
 Partially
 Insufficient

18. How would you evaluate the undergraduate nursing curriculum in terms of crisis intervention in a state of emergency or an acute pandemic?

- Sufficient
 Partially
 Insufficient

19. How would you evaluate the undergraduate nursing curriculum in terms of knowledge/skill level in a state of emergency or an acute pandemic?

- Sufficient
 Partially
 Insufficient

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