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Anxiety Levels and Clinical Decision-Making Skills of Nurses Providing Care for Patients Diagnosed with COVID-19

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ABSTRACT

Introduction: Although there are studies evaluating the anxiety levels of nurses during COVID-19 pandemic, no study was found evaluating the clinical decision-making skills of nurses and the correlation between anxiety and clinical decision-making.

Objectives: In this study, the anxiety level experienced by nurses providing care for COVID-19 diagnosed patients during the pandemic, their clinical decision-making skills and the correlation between them were evaluated.

Methods: A descriptive and correlational study was completed with 150 nurses who were working in two pandemic hospitals in Istanbul between July and October 2020. The data were collected using Structured Questions Form, State-Trait Anxiety Inventory (STAI) and Clinical Decision Making in Nursing Scale (CDMNS). Data were analyzed using descriptive statistics and Pearson correlation analysis. Significance level was accepted as $p<0.05$.

Results: STAI and CDMNS mean scores of the nurses were 50.59±10.20 and 142.22±14.57, respectively. There was no statistically significant correlation between the state anxiety level and clinical decision-making skills of the nurses participating in the study ($p>0.05$). Nurses' age, educational level and professional experience duration had a positive and statistically significant correlation with CDMNS total scores ($p<0.05$).

Conclusions: State anxiety levels and clinical decision-making skills of the nurses were high during COVID-19 pandemic and there was no correlation between anxiety level and clinical decision-making skills.

Keywords: anxiety, clinical decision-making, COVID-19, nursing

INTRODUCTION

COVID-19 infection has spread rapidly all over the world after the first case seen in Wuhan province in China in December 2019 and it was declared as a pandemic by the World Health Organization (WHO) on March 11, 2020 [1,2]. Epidemics of infectious diseases such as COVID-19 negatively affect both the physical health and psychological health of healthcare professionals [3,4]. In the studies, it has been reported that healthcare professionals experience psychological problems such as anxiety, stress disorder and depression during the COVID-19 pandemic [5,6]. It is stated that psychological problems experienced by healthcare professionals are often caused by contacting with infected people, lack of personal protective equipment, being isolated, adapting to a new work environment, feeling vulnerable, uncertainty of the process, having to protect the health of themselves, their families and other individuals, witnessing the loss of cared individuals/teammates, having children that need to be taken care of, concern of infecting family member, weak organizational support and being away from family and social support resources [7-11]. It is reported that nurses are at risk in terms of psychological distress and mental health problems since they meet the care needs of COVID-19 diagnosed patients [11] and even more anxiety is observed in nurses than physicians [5,10].

As in COVID-19 pandemic period, nurses may have to make clinical decisions in a short time in versatile and complex environments in the healthcare system [11]. Clinical decision making, which is a part of the nursing process and adopted as a problem-solving approach by nurses [12], is a complex cognitive process involving the synthesis of information obtained through analysis, interpretation, explanation, inquiry, evaluation, communication, experience and observation. Clinical decision-making in nursing is very important in providing quality and safe care during nursing practices and improving the care outcomes of the patient/healthy individual [13,14]. Nurses' knowledge, clinical experience, individual characteristics (intuition, self-confidence, healthy skepticism, etc.), complexity of the decision situation, and properties of the decision environment affect nurses to make correct and effective clinical decisions [15-17].

Nurses may have to make clinical decisions in a short time in multifaceted and complex environments, as in during the COVID-19 pandemic. The anxiety level experienced by the

nurses during this process may negatively affect their clinical decision-making skills. While there are studies about the anxiety level of nurses during COVID-19 pandemic [7,8,11,18-20], no study was found evaluating the clinical decision-making skills of nurses and the relationship between the clinical decision-making skills and the anxiety level of nurses. Therefore, in this study aimed to evaluate the anxiety and clinical decision-making skills of nurses providing care to COVID-19 diagnosed patients during the pandemic period and the correlation between them.

METHODS

Study Design and Questions

The design of this study is a descriptive and correlational. Research questions:

1. What is the anxiety level experienced by nurses providing care for patients diagnosed with COVID-19?
2. What is the clinical decision-making skills of nurses providing care for patients diagnosed with COVID-19?
3. Is there a correlation between anxiety level and clinical decision-making skills of nurses providing care for patients diagnosed with COVID-19?

Sample

The population of the study was composed of 307 nurses working in two pandemic hospitals in Istanbul province between July and October 2020. 150 nurses who were over the age of 18 years, working as a nurse in a pandemic hospital, providing care to a patient diagnosed with COVID-19, were not off or sick within the dates when the study would be conducted, agreed to participate were included in the study with the sampling error of 0.05.

Data Collection Tools

Data were collected using the "Structured Questions Form", "State-Trait Anxiety Inventory (STAI)", and "Clinical Decision Making in Nursing Scale (CDMNS)".

Structured Questions Form prepared by the researchers in accordance with the literature [11,18,20-23]. There are 5 questions about determining descriptive characteristics of the nurses such as age, gender, marital status, education status, and professional experience duration, in the first section of the structured questions form consisting of two sections. The second part is composed of 11 questions for determining the effect of COVID-19 pandemic on the nurses' working style, lifestyle, mood, patient care, and emotions they experience during patient care.

State-Trait Anxiety Inventory (STAI) a self-report questionnaire consisting of short statements developed by Spielberger, Gorsuch and Lushene [24] to determine the state anxiety level. It was adapted to Turkish by Öner and Le Compte [25]. STAI is composed of a total of 20 items requiring the individual to describe how he/she feels at a certain moment and specific conditions and to respond by considering their emotions about the conditions he/she is in. In the four-point Likert type inventory, each item is scored between 1-4 points. There are 10 reversed items in the inventory. The total score of the inventory varies between 20 and 80. In the assessment, it is interpreted that 0-19 points refer to "no anxiety", 20-39 points refer to "mild anxiety", 40-59 points refer to "moderate anxiety", 60-79 points refer to "severe anxiety", and 80 points refer to "panic value" [25,26]. The Cronbach's alpha internal consistency coefficient of the inventory adapted to Turkish is 0.94 [25]. It is 0.91 in this study.

Clinical Decision Making in Nursing Scale (CDMNS) developed by Jenkins [27] for nursing students in the USA, defines the clinical decision-making levels of the students based on their own statements [28]. CDMNS is composed of 40 items and four sub-scales. The subscales of the scale are "Search for alternatives or options", "Canvassing of objectives and values", "Evaluation and reevaluation of consequences", and "Search for information and unbiased assimilation of new information". Each subscale is composed of 10 items. The overall scale of four-point Likert type is scored between 40 and 200 and each subscale is scored between 10 and 50 points and there is no cut-off point. High score from the scale indicates high decision-making skill and low score refers to low decision-making skill. Assessment of the scale is made over each subscale and the scale total score [28,29]. The Cronbach's alpha internal consistency coefficient of the original scale is 0.83 [27]. It is 0.78 in the Turkish adaptation made by Edeer and Sarıkaya [29]. It is 0.82 in this study.

Data Collection

The data of the study were collected after obtaining the approval of ethics committee. Participants filled out the data collection form on Google Forms link shared via e-mail.

Ethical Considerations

This study was conducted in accordance with the principles stated in the Declaration of Helsinki. In order to implement the study, ethics committee approval was obtained (01.07.2020/121). Before data collection, the participants were informed about the subject of the study, and their consent to participate in the study was obtained through an electronic survey.

Statistical Analysis

The data was analyzed with SPPS 22 (Statistical Package for the Social Science for Windows, Version 22.0) statistical package program. For the categorical and continuous variables, number, percentage, mean, standard deviation, minimum and maximum values from descriptive statistics were calculated. Kolmogorov-Smirnov test was used in determining the compatibility of the data to normal distribution. Pearson correlation coefficient was used to investigate the correlation between two quantitative variables having normal distribution. Significance level was accepted as $p<0.05$.

RESULTS

Characteristics of the Nurses

It was found that of 150 nurses, who had a mean age of 33.82±8.75 years, 83.3% were female, 56.7% were married, and 60% had a bachelor's degree. It was determined that the nurses had a professional experience duration of 11.90±9.46 years in average, clinics of 64.7% of them changed due to the pandemic, 56.7% were working in shifts and 45.4% changed their working style due to the pandemic, 64.7% were not satisfied with the changed working and style, most of them received training on the care of patients diagnosed with COVID-

Table 1. Characteristics of the nurses (n=150)

Variables	Mean±SD	Min-Max
Age (years)	33.82±8.75	20-56
Professional experience duration (years)	11.90±9.46	1-33
Variables	**n**	**%**
Gender		
Male	25	16.7
Female	125	83.3
Marital status		
Married	85	56.7
Single	65	43.3
Educational level		
High school	6	4.0
Associate degree	15	10.0
Bachelor's degree	90	60.0
Master's degree	39	26.0
Change of the clinic due to the pandemic		
Yes	53	35.3
No	97	64.7
Working style		
Shift	85	56.7
Steady daytime	53	35.3
Night constantly	12	8.0
Change of working style due to the pandemic		
Yes	68	45.4
No	82	54.6
Satisfaction with the new working style		
Yes	24	35.3
No	44	64.7
Training status for the care of the patient diagnosed with COVID-19		
Yes	94	62.7
No	56	37.3
Training status for the use of isolation and protective equipment		
Yes	109	72.7
No	41	27.3

19 (62.7%), the use of isolation and protective equipment (72.7%) (**Table 1**).

Feelings and Experiences In-patient Care of the Nurses

It was seen that the majority of the participants felt anxious (69.3%) and stressful (60%) while providing care to a patient diagnosed with COVID-19. Anxiety (58%) and stress (50.7%) feelings took place near the top although they decreased during the next care giving. Almost all of the participants (96.7%) did not receive psychological support during the COVID-19 pandemic (**Table 2**).

It was determined that 52% of the participants had difficulties about the patient care. These experienced difficulties were working by using personal protective equipment (sweating due to the equipment, preventing to move freely, etc.) (50.7%) and having difficulties in communicating with the team and patients due to personal protective equipment (**Table 2**).

Distribution of the STAI and CDMNS Mean Scores of the Nurses

STAI mean score of the nurses was 50.59±10.20. Nurses' mean scores of the "Search for alternatives or options", "Canvassing of objectives and values", "Evaluation and reevaluation of consequences", and "Search for information and unbiased assimilation of new information" subscales of CDMNS were 37.64±4.46, 35.98±5.18, 34.34±3.45, and 34.26±4.04, respectively. CDMNS mean score of the nurses was 142.22±14.57 (**Table 3**).

Table 2. Feelings and experiences in-patient care of the nurses during pandemic

Variables	n	%
How do you feel while providing the first care to the patient diagnosed with COVID-19*		
I didn't feel any difference	9	6.0
Anxiety	104	69.3
Stress	90	60.0
Fear	85	56.7
Sadness	38	25.3
How do you feel in the steps after the first care to the patient diagnosed with COVID-19*		
I didn't feel any difference	33	22.0
Anxiety	87	58.0
Stress	76	50.7
Sadness	68	45.3
Fear	55	36.7
Status of receiving psychological support		
Yes	5	3.3
No	145	96.7
Status of having difficulty in patient care		
Yes	78	52.0
No	72	48.0
Difficulties experienced during patient care*		
Working with personal protective equipment (sweating due to equipment, preventing movement, etc.)	76	50.7
Difficulty in communicating with the team and patients due to personal protective equipment	59	39.3
Difficulty due to the constant cleaning of tools such as stethoscope, phone, keyboard during the shift due to the risk of infection	48	32.0
Difficulty in treatment practices due to the infection risk	32	21.3
Difficulty in practices for respiratory activity (oxygen therapy, nebulization, aspiration, etc.) due to the infection risk.	27	18.0
Difficulty in monitoring vital signs due to infection risk	26	17.3
Answering the phone calls of patients' relatives	24	16.0
Difficulty in positioning the patient because of the concern of infection risk	15	10.0

* Multiple answers were given

The Correlation between Nurses' Clinical Decision-making Skills and Anxiety Levels, Age, Educational Level and Professional Experience Duration

There was no statistically significant correlation between the state anxiety level and clinical decision-making skills of the nurses participating in the study. The nurses' age and professional experience duration had no statistically significant correlation with their STAI total mean scores ($p>0.05$). Nurses' age and professional experience duration had a positive and statistically significant correlation with "Search for alternatives or options" and "Evaluation and reevaluation of consequences" subscales and CDMNS total mean scores ($p<0.05$). Nurses' educational level had a positive and statistically significant correlation with all subscales and CDMNS total mean scores ($p<0.05$). As the nurses' age, educational level and professional experience duration increased, their clinical decision-making skills in nursing also increased ($p<0.05$) (**Table 4**).

Table 3. STAI and CDMNS mean scores of the nurses (n=150)

	Min	Max	Mean±SD
STAI			
Total	20.00	75.00	50.59±10.20
CDMNS			
Search for alternatives or options	26.00	49.00	37.64±4.46
Canvassing of objectives and values	27.00	45.00	34.34±3.45
Evaluation and reevaluation of consequences	25.00	48.00	35.98±5.18
Search for information and unbiased assimilation of new information	27.00	44.00	34.26±4.04
Total	115.00	178.00	142.22±14.57

STAI: State-Trait Anxiety Inventory, CDMNS: Clinical Decision Making in Nursing Scale

Table 4. The correlation between age, educational level, professional experience duration, STAI and CDMNS mean scores of the nurses (n=150)

			Clinical Decision Making in Nursing Scale				
		STAI	Search for alternatives or options	Canvassing of objectives and values	Evaluation and reevaluation of consequences	Search for information and unbiased assimilation of new information	Total
STAI	r	-	0.040	0.041	0.018	-0.159	-0.016
	p	-	0.626	0.618	0.828	0.052	0.849
Age	r	0044	0.198*	0.087	0.194*	0.087	0.174*
	p	0.594	0.015	0.291	0.017	0.287	0.033
Educational level	r	-0.083	0.310**	0.208*	0.323**	0.364**	0.360**
	p	0.311	0.000	0.011	0.000	0.000	0.000
Professional experience duration	r	0.042	0.194*	0.109	0.187*	0.063	0.169*
	p	0.609	0.017	0.186	0.022	0.444	0.039

Pearson Correlation, *: p<0.05, **: p<0.01, STAI: State-Trait Anxiety Inventory, CDMNS: Clinical Decision Making in Nursing Scale

DISCUSSION

COVID-19 infection constitutes a great threat to human life and health due to its high transmission rate and fatality in severe cases [1,30]. Healthcare professionals are always at the forefront of the pandemic and risking their lives to fulfill their duties [30]. It was reported in previous studies that Severe Acute Respiratory Syndrome (SARS) caused great pain to healthcare professionals and caused much more pain in nurses than physicians. This is because nurses are in close contact with patients for a long time as the nature of their profession [31].

It was determined that the majority of the nurses felt anxious (69.3%) and stressed (60%) during the first care of patients diagnosed with COVID-19, feelings of anxiety (58%) and stress (50.7%) decreased but continued during the next care. In addition, STAI mean score (50.59±10.20) of the nurses was higher than normal. Similar to results of the present study, it was determined that most of the healthcare professionals felt anxious and moderately stressed during COVID-19 pandemic [32], STAI mean scores of the nurses were 51.51±9.94 [8] and 57.0±5.64 [19]. Protecting the mental health of the nurses who constitute the backbone of the healthcare system in the delivery of healthcare services is very valuable in managing the process more effectively. Therefore, it is important to determine and implement appropriate and effective strategies for the protection of mental health of nurses [33]. However, it was determined in this study that almost all of the nurses (96.7%) did not receive any psychological support during the COVID-19 pandemic. Zhan et al. [34], stated in their study that almost 90% of the nurses did not receive professional psychological support. Supporting especially nurses with high levels of anxiety and stress psychologically is important for the protection of their short and long-term health. For this purpose, mobile mental health support systems (RUHSAD application, mental support line for healthcare professionals etc.) has been implemented especially by the Ministry of Health as well as many other organizations and associations. Since the number of nurses receiving psychological support is less in this study, it is also crucial to raise nurses' awareness about receiving psychological support and to establish in-house individual and group support systems.

The pandemic process requires nurses to be more creative for new solutions and to make fast and difficult decisions in care environments. In this study, the clinical decision-making skills of the participants were higher than normal. In addition, there was no statistically significant correlation between the nurses' state anxiety level and clinical decision-making status. One of the primary duties and independent roles of a nurse is patient care. The nurse performs this role in accordance with the contemporary nursing philosophy with an individual-centered, humanistic and holistic approach, using his/her scientific knowledge and decision-making skill through the nursing process. High clinical decision-making skills of the nurses during COVID-19 pandemic has showed that nurses searches for information, inquire about goals and values, investigate options and ideas and evaluate results even under difficult conditions. High clinical decision-making skill despite the anxiety level higher than normal was considered as reflection of professionalization and autonomy in nursing.

The nurses' age, educational level and professional experience duration had a positive and statistically significant correlation with CDMNS total score and "Search for alternatives or options", "Evaluation and reevaluation of consequences" subscale mean scores. Although there are different research results, it has often been reported that age, knowledge, experience, education and environmental factors positively affect the clinical decision making [23,35]. Although it is not a factor affecting clinical decision-making alone, education is stated to develop situational awareness in professional settings and facilitate patient management [36].

In the study by Park and Kwon [16], clinical decision making scores of nurses with undergraduate and graduate degree were found to be high. It is stated in the literature that the time spent as a nurse increases self-confidence and facilitates decision-making. It is also emphasized that professional experience may affect autonomous decision making in nursing practices [36]. In the study by Park and Kwon [16], clinical decision-making scores of nurses with more than five years of clinical experiences were found to be high. In conclusion, it was determined that increasing age and professional experiences of nurses positively affected the clinical decision-making even during the pandemic.

Limitation and Strengths of the Study

The obtained data belong to the nurses, who were working in two pandemic hospitals and agreed to participate in the study, and cannot be generalized to all nurses in the pandemic process. No study was found in the current literature on the evaluating the correlation between the anxiety levels experienced by nurses and their clinical decision-making skills during COVID-19 pandemic. It is recommended to conduct similar studies with larger samples on this subject in the future.

CONCLUSION

In conclusion, nurses felt anxious and stressed during the first care of patients diagnosed with COVID-19 and their feelings of anxiety and stress decreased but continued during the next care. State anxiety levels and clinical decision-making skills of the nurses were higher than normal. Also, very few nurses applied to psychological support during this period. There was no statistically significant correlation between anxiety level and clinical decision-making skills. The nurses' age, educational level and professional experience duration had a positive and statistically significant correlation with CDMNS total score.

It is recommended to protect and promote the nurses' health, conduct interventions toward psychological self-care (developing skills about anxiety and stress management, receiving professional mental health support, etc.), professional self-care (improving working conditions, organizing regular meetings with colleagues to discuss important cases, getting support from a more senior colleague or clinician for difficult situations, etc.).

Author contributions: Conception and design: **CS**, **ACA**, **FK**; Acquisition of data: **CS**, **FK**; Analysis: **CS, ACA**, **FK**; Interpretation of data: **CS**, **ACA**, **FK**; Been involved in drafting the manuscript or revising it critically for important intellectual content: **CS**, **ACA**. All authors have sufficiently contributed to the study, and agreed with the results and conclusions.

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