Clinical and Experimental Health Sciences

The Relationship Between Intensive Care Experience and State Anxiety in Patients Treated in Coronary Intensive Care Units

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ABSTRACT

Objective: This study aimed to determine the correlation between the intensive care experience and the state anxiety of patients hospitalized in the coronary intensive care unit.

Methods: This descriptive cross-sectional study included 192 patients from the coronary intensive care unit of a university hospital. Data were collected using a Patient Information Form, the Intensive Care Experience Scale (ICE), and the Spielberger State Anxiety Inventory (STAI-I). The analysis was conducted using SPSS software version 25.0. Descriptive statistics were reported as counts, percentages, means, and standard deviations. A p-value of less than 0.05 was considered to indicate statistical significance.

Results: Among the participants, 38% were aged 65 and older, 76.6% were male, 93.2% were married, 63% were admitted to the intensive care unit from the emergency room, and 88.5% had prior experience in an intensive care unit. The total and sub-dimension scores of the ICE and STAI-I were moderate. We found a weak positive correlation between the STAI-I total score and the ICE total score (r= 0.320). There was a very strong positive correlation between pessimistic experiences in the intensive care unit and the STAI-I total score (r=0.907). Additionally, there was a moderate negative correlation between satisfaction with care received in the intensive care unit and the sub-dimensions of memory of experiences (Awareness of Surroundings, Satisfaction with the Care, Recollection of Experiences) (r=0.252, r=-0.489, r=-0.496).

Conclusion: The study found that pessimistic experiences in the intensive care unit can significantly impact patients' state anxiety.

Keywords: intensive care, anxiety, nursing

1. INTRODUCTION

Coronary intensive care units specialize in the interventional-medical treatment and care of patients with severe cardiovascular conditions (1). Intensive care units have many technical equipment in the relevant field, unlike general clinics, due to their nature. In these units, complex technological devices aimed at better patient care are used, more interventional applications are made, and patients are followed up more closely (2,3).

Intensive care units, designed for intensive treatment, can be a source of stress for patients (1, 2,3). Patients may experience anxiety about the severity of their condition, unfamiliar surroundings, insufficient natural light, disrupted sleep patterns, inability to keep track of time, and separation from their loved ones, which can have a negative psychological impact on them (2,3). Studies have found that being in an unfamiliar environment is one of the most significant factors contributing to the stressful ICU experience (2,4).

Stressful situations can trigger an inflammatory response in the brain and other systems, which can lead to the release of inflammatory mediators and result in different symptoms depending on the intensity and quality of the stressor (5). While the primary objective of the ICU process is to improve the patient's physical condition, it is equally important to prioritize their mental and social well-being. Therefore, a holistic approach should be taken to provide care to patients in the ICU, which includes interventions to improve the patient's physical health and provide psychological and social support to them and their families.

It is possible for patients to have a positive experience during the ICU process, despite their serious health problems and the many stressors they have to face, by providing care that is individualized, systematic, and holistic, as well as by improving the environmental conditions (5). Patients who are critically ill or require close monitoring and treatment after an invasive procedure may experience more physical, psychological, and social anxiety (6).

Staying in coronary intensive care units can be very stressful for patients, and it is believed that this stress can have a significant impact on their well-being (2,6). Research has

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shown that patients with coronary artery disease who experience depression and anxiety may be at higher risk of mortality and morbidity (6,7).

Unfortunately, there are very few descriptive studies that have focused on the experiences of patients in coronary intensive care units (8). This is largely due to the poor health of these patients (8,9). However, understanding and improving the experiences of patients in these units is essential to standardize care and improve its quality (8). Additionally, evaluating patients' experiences in the coronary intensive care unit can help guide nursing practices and improve the physical environment.

This study aims to ascertain the correlation between intensive care experiences and the state anxiety levels of patients in coronary intensive care units.

2. METHODS

2.1. Type of Research

This descriptive and cross-sectional study was planned to determine the relationship between intensive care experience and state anxiety of patients hospitalized in the coronary intensive care unit at a university hospital in Ankara.

2.2. Population and Sample of the Research

The research was carried out in the coronary intensive care unit of a university hospital in Ankara between 16.03.2022 and 20.06.2022. In this time period, 227 patients were admitted to the clinic. A total of 192 coronary artery disease patients who were hospitalized in the coronary intensive care unit at the time of the study and met the inclusion criteria were included in the study. Thirty-three people who did not meet the research criteria and 1 person who did not agree to participate in the study were not included. The rate of participation in the research is 84.5%. Inclusion criteria for the study were hospitalization in the coronary intensive care unit for at least 24 hours, being diagnosed with coronary artery disease, being older than 18 years of age, not having auditory, visual and verbal disabilities, and being literate.

2.3. Data Collection Tools

The research data were collected face-to-face using a data collection form consisting of a Patient Information Form, created by the researchers based on the literature, the Intensive Care Experience Scale, and the Spielberger State Anxiety Inventory (STAI-I).

Patient Information Form

In the first part of the form, there are short questions to record patient descriptive data. Personal characteristics such as age, gender, marital status, education level, place of residence, the type of admission to intensive care, the number of previous intensive care hospitalizations, experiencing a physical limitation, witnessing a death in the intensive care unit, history of needing mechanic ventilation, and the status of receiving visitors were questioned.

Intensive Care Experience Scale (ICE)

The ICE was developed by Rattray et al. in 2004 to evaluate the experiences of patients in intensive care (10). Turkish validity and reliability study was made by Demir et al. in 2009 (14). The scale consists of a total of 19 5-point Likert-type items. The scale has 4 sub-dimensions: Awareness of Surroundings, Frightening Experiences in the intensive care unit, Recalling of Experiences in the intensive care unit, and Satisfaction with the Care received in the intensive care unit. The minimum score to be taken from the scale is 19 and the maximum score is 95. As the total score obtained from the scale increases, the patient's experience is considered positive (11). The Cronbach's alpha coefficient of the original scale was 0.79. The Cronbach alpha coefficient of this study was 0.70.

Spielberger State Anxiety Inventory (STAI-I)

The scale was developed by C.D. Spielberger, R.L. Gorsuch and R. Lushene in 1970 to determine the state anxiety level (12). The Turkish adaptation, reliability and validity studies of the scale were carried out by Necla Öner and Ayhan Le Compte between 1974 and 1977 (13). This self-report scale has twenty 4-point Likert-type items. The total score in the scale varies between 20 and 80. High scores indicates high anxiety. The state anxiety scale indicates the level of anxiety in a particular situation. The Cronbach alpha coefficient of the original scale was 0.86 (16). The Cronbach alpha coefficient of this study was 0.73.

2.4. Ethical Considerations

Ethics committee approval (Decision No. 2022/42 No: 2022033) was obtained from the non-interventional ethics committee. Institutional permission was also obtained from the chief physician of the hospital where the study was conducted. After informing the patients about the study, their verbal and written consents were obtained. The study adhered to the principles declared in the Declaration of Helsinki.

2.5. Data Analysis

Research data were evaluated with the SPSS 25.0 program. In the research, descriptive statistics are presented as number, percentage, arithmetic mean, and standard deviation. Kurtosis and Skewness values were examined to determine whether the research variables showed a normal distribution. In the relevant literature, it is accepted as a normal distribution that the results of the kurtosis skewness values of the variables are between +1.5 and – 1.5 (14). Considering the homogeneity of the data in the comparison of

sociodemographic characteristics and scale scores, Student's t test was used to compare two groups in homogeneous groups and One Way ANOVA test was used to compare three or more groups. In case of non-homogeneous distribution, the Mann Whitney U test was used to compare two groups and the Kruskal Wallis test was used to compare three or more groups. When there was a significant difference between three or more groups, the Tukey and Bonferroni corrected Mann Whitney U test were used to determine the group that revealed the difference. Pearson correlation analysis was used to determine the relationship between scale scores. A p values less than 0.05 was considered significant.

3. RESULTS

It was determined that 38% of the patients were 65 years old or older, 76.6% were male, and 93.2% were married. Of the patients, 47.9% were bachelor's degree and 94.3% lived in the city. Sixty three percent of the patients were transferred to the intensive care unit from the emergency room, 11.5% had no previous history of intensive care unit, 29.7% were hospitalized in an intensive care unit once, 37.5% were hospitalized twice, and 21.4% were hospitalized three times or more. It was determined that 30.7% of the patients witnessed the death of a patient during their stay in the intensive care unit. Twelve percent of the patients were previously connected to a mechanical ventilator and physical restraint was applied to 3.1%. It was determined that 44.8% of the patients had visitors in the intensive care unit (Table 1). The mean ICE score of the patients differed according to age ($p< .001$), and the reason for this difference was that the scores of the patients under the age of 45 were significantly lower than the scores of the other patients ($p< .05$). There was no significant difference between the mean ICE scores according to gender and education level ($p> .05$). The mean ICE score of the married patients was significantly higher than that of single patients ($p< .01$). It was determined that the mean ICE score of the patients living in the city was significantly higher than the scores of the patients living in districts ($p< .001$) (Table 1).

The mean ICE score of the patients differed according to the way they were admitted to the intensive care unit ($p< .001$), and this difference was due to the significantly lower scores of the patients coming from the inpatient service than the other patients ($p< .05$). The mean ICE score of the patients previously hospitalized in the intensive care unit was higher than the scores of the other patients ($p< .01$) (Table 1).

The mean ICE score of the patients differed according to the number of hospitalizations in the intensive care unit ($p< .001$). The reason for this difference was that the scores of the patients who were not admitted to the intensive care unit before were lower than those of the other patients ($p< .05$) and that the scores of the patients who were hospitalized twice in the intensive care unit were higher than the scores of the other patients ($p<.05$). The mean ICE score of the patients who received visitors in the intensive care unit was significantly higher than the other patients ($p< .001$) (Table 1).

The mean ICE score of the patients who were previously connected to mechanical ventilation during their stay in the intensive care unit was significantly higher than the scores of the other patients ($p< .05$). There was no significant difference between the mean ICE scores according to the physical restraint history ($p>.05$). The ICE score of the patients who witnessed the death of a patient during their stay in the intensive care unit was higher than the scores of the other patients ($p< .001$) (Table 1).

The STAI-I scores of the patients participating in the study differed according to age ($p< .01$), and this difference was due to the higher scores of the patients under the age of 45 ($p< .05$). The STAI-I scores of the male patients were significantly higher than the scores of the female patients ($p< .001$). STAI-I scores of the married patients were significantly higher than those of the single patients ($p< .001$). The STAI-I scores of the patients differed according to their education level ($p< .01$), and this difference was due to the lower scores of the patients who graduated from high school ($p< .05$). The STAI-I scores of the patients did not differ according to the place of residence ($p> .05$) (Table 1).

There was a significant difference ($p< .001$) between the STAI-I scores according to the way of admission to the intensive care unit, and this difference was due to the higher scores of the patients admitted to the emergency department than those of the other patients ($p< .05$). There was no significant difference between the mean scores of STAI-I according to the history of intensive care unit stay, being connected to a mechanical ventilator, receiving physical restraint, and witnessing the death of a patient during their stay in the intensive care unit ($p> .05$). It was determined that there was a significant difference ($p< .001$) between the number of hospitalizations in the intensive care unit and the STAI-I score, and this difference was due to the fact that the state anxiety scores of the patients who were hospitalized once in the intensive care unit were lower than those of the other patients ($p< .05$). The STAI-I scores of the patients who were visited during their stay in the intensive care unit were significantly higher than those of the other patients ($p< .001$) (Table 1).

The mean total score of the patients on ICE was 59.30±4.31. The mean score of the sub-dimension of awareness of the environment was 16.50±2.74; pessimistic experiences in intensive care sub-dimension mean score was 17.61±2.33; the mean score of satisfaction with the care received in the intensive care unit was 10.51±0.76; remembering experiences in intensive care sub-dimension mean score was 14.66±2.12. The mean STAI-I score of the patients was 50.32±8.65.

A weak positive correlation was found between the STAI-I score and the ICE total score and the sub-dimension of awareness of the environment, and a strong positive correlation was found with the pessimistic experiences in the intensive care unit score ($p< .001$). There was a moderate negative correlation between the scores of the satisfaction with the care received in the intensive care unit and the sub-dimension of remembering the experiences in the intensive care unit of the STAI-I score ($p< .001$) (Table 2).

Table 1. *Comparison of the descriptive characteristics of the patients with their ICE and STAI-I scores*

Descriptive Characteristics (N=192)	n	%	ICE	STAI-I
Age			**Mean±SS**	**Mean±SS**
45 years and under	38	19.8	57.13±4.97	45.57±6.72
46-64	81	42.2	59.97±4.16	50.83±8.98
65 years and older	73	38.0	59.68±3.78	52.21±8.36
Test and p value			**X=22.351 p=0.0001**	**X=7.719 p=0.005**
Gender				
Male	147	76.6	59.29±4.43	51.64±8.31
Woman	45	23.4	59.31±3.97	46±8.42
Test and p value			t=-0.016 p=0.987	**t=3.974 p=0.0001**
Marital status				
Single	13	6.8	56.76±6.13	41.07±1.18
Married	179	93.2	59.48±4.11	50.99±8.58
Test and p value			**U=634.000 p=0.003**	**U=448.500 p=0.0001**
Education				
Primary and Secondary School	58	30.2	59.58±2.67	50.32±8.41
High school	42	21.9	59.28±3.55	45.88±7.68
Bachelor's degree	92	47.9	59.13±5.37	52.34±8.54
Test and p value			X=7.169 p=0.058	**X=14.543 p=0.001**
Place to live				
County	11	5.7	53.81±3.65	49.18±2.08
Province	181	94.3	59.63 ±4.13	50.39±8.89
Test and p value			**t=-4.558 p=0.0001**	U=935.000 p=0.720
How admitted to intensive care				
Polyclinic	45	23.4	59.04 ±4.12	47.00±8.57
Emergency room	121	63.0	60.22±2.99	52.84±8.08
Inpatient service	26	13.5	55.46±7.05	44.34±6.46
Test and p value			**X=23.807 p=0.0001**	**X=24.374 p=0.0001**
Intensive care experience				
Yes	170	88.5	60.07±3.28	50.23±8.89
No	22	11.5	53.31±6.33	51.00±6.64
Test and p value			**U=1094.500 p=0,001**	U=1687.000 p=0,429
Number of intensive care unit admissions				
Never	22	11.5	53.31±6.33	51.00±6.64
1 time	57	29.7	59.78±3.39	45.57±8.11
2 times	72	37.5	61.23±1.56	53.87±8.33
3 times and above	41	21.3	58.43±4.46	50.31±8.00
Test and p value			**X=31.560 p=0.0001**	**F=11.389 p=0.0001**
Witnessing death in intensive care				
Yes	59	30.7	61.01±1.63	51.94±8.93
No	133	69.3	58.54±4.88	49.60±8.46
Test and p value			**Z=-3.706 p=0.0001**	t=1.743 p=0.083
Connecting to a mechanical ventilator				
Yes	23	12.0	60.95±1.79	52.13±8.79
No	169	88.0	59.07±4.51	50.07±8.63
Test and p value			**U=1481.500 p=0.046**	t=1.068 p=0.287
Physical restraint				
Yes	6	3.1	61.66 ±0.81	56.00±7.34
No	186	96.9	59.22±4.36	50.13±8.65
Test and p value			t=1.366 p=0.174	U=341.500 p=0.086
Being visited in intensive care				
Yes	82	44.8	61.95±0.31	58.54±2.87
No	110	55.2	57.32±4.83	44.19±6.02
Test and p value			**Z=-11.864 p=0.0001**	**Z=-11.443 p=0.0001**

F: One-way ANOVA; t=Student-t Test; U, Z=Mann Whitney U Test; X= Kruskal-wallis test

Table 2: *Relationship between intensive care experience scale and state anxiety scale scores*

		STAI-I score
Intensive care subject scale total score	**N**	192
	r	0.320
	p	**0.0001**
Awareness of Surroundings	**N**	192
	r	0.252
	p	**0.0001**
Frightening Experiences	**N**	192
	r	0.907
	p	**0.0001**
Satisfaction With the Care	**N**	192
	r	-0.489
	p	**0.0001**
Recalling of Experiences	**N**	192
	r	-0.496
	p	**0.0001**

r= Correlation coefficient

4. DISCUSSION

Intensive care units are specifically for the treatment and care of patients with serious life-threatening illnesses (15,16). In these units, factors such as the patient's health status, physical conditions, continuous monitoring of vital signs, placement of tubes and cables, experiencing pain and other physical limitations, and restriction of communication with their relatives may cause limitations in patients (6,7).

Considering this situation, the importance of a positive intensive care experience in improving health parameters of patients hospitalized in the coronary intensive care unit becomes evident once again. The nurse has an important role in reducing the negative impact of staying in the intensive care unit on the patient and providing a positive intensive care experience (6). In the literature, there are findings supporting the idea that providing adequate patient information increases the treatment compliance of the patients and reduces the level of anxiety (6,17-19).

Therefore, in this study, the effect of intensive care experience on state anxiety of patients treated in coronary intensive care unit was evaluated.

The total mean ICE score of the patients included in the study was 59.30±4.31, which showed that the awareness levels of the patients were above the average and their experiences in the intensive care unit were positive. It can be said that this situation is due to the positive nature of the nursing care applied in the intensive care unit. In another study, it was determined that 190 patients who were discharged from the intensive care unit evaluated their intensive care experience and received a high mean ICE score (62.1±5.2) (20). In this study, it was determined that the average score in the following sub-dimensions of the intensive care experience scale was moderate: the sub-dimension of awareness of the environment; pessimistic experiences in intensive care sub-dimension score; satisfaction with the care received in the intensive care sub-dimension score; and recall of experiences in intensive care sub-dimension score. Our research is compatible with the literature in this respect (1,2,6).

The sociodemographic characteristics of the patients, age, marital status, and place of residence had an effect on the ICE scores, but gender and educational status did not have an effect on the ICE scores. Our research is compatible with the literature in this respect (20,21), but in the study conducted by Dinlegör & Ünsar (22), it was determined that male intensive care patients had a positive intensive care experience compared to female intensive care patients.

In the study, the mean ICE score of the patients differed according to the way of admission to the intensive care unit, previous intensive care experience, and the status of receiving visitors. It is thought that this result is due to the lack of companions of the patients in the intensive care unit. In other studies, it has been reported that there is no statistically significant difference between the characteristics of the patients hospitalized in the intensive care unit (type of hospitalization, type of room, hospitalization experience, number of hospitalizations) and the scores they received from the sub-dimensions of the scale (22,23). In some sources in the literature, it has been reported that the increase in the length of stay in the intensive care unit negatively affects the intensive care experience of the patients (24). It was found that there is a statistically significant difference between the ICE scores of patients who were connected to mechanical ventilation during their stay in the intensive care unit or who witnessed the death of a patient during the intensive care unit stay. In other study, similar to our study, no statistically significant difference was found between the ICE scores of patients who were previously connected to a mechanical ventilator or who witnessed the death of a patient during the intensive care unit stay (25).

The mean STAI-I score of the patients participating in the study was 50.32±8.65. This outcome is due to the severity of the disease, the fact that they stay in the intensive care unit, and the fact that they are exposed to many invasive interventions. Similar to the present findings, in a study conducted in emergency and intensive care units, the STAI-I scores of the patients were found to be 43.6±10.5 (21).

It was determined that there was a statistically significant difference between the sociodemographic characteristics of the patients (age, gender, marital status and educational status) and STAI-I scores. In a study, statistically significant difference was found between age and anxiety. However, no relationship was found between gender and anxiety in the same study (11). Another study, unlike our study, women's state anxiety was found to be higher than men's (26). In our study, it was found that the state anxiety of married patients was higher than that of single patients. In other study, similar to our study, a statistically significant difference was found between the mean scores of anxiety and depression and the marital status of the patients (23). In a study similar to

our study, it was determined that the educational status of the patients and the place they lived had effects on their state anxiety (23,26). Among the patients in our study, the anxiety score of the group living in the city was found to be high. In the study conducted by Türker & Bedük (26), it was determined that the anxiety scores of patients living in villages were higher. According to the way of admission to the intensive care unit, it was determined that the STAI-I scores of the patients transferred from the emergency department were higher than the other patients. This outcome is probably due to the sudden and unplanned development of patients' admission to the emergency department compared to their admission the outpatient clinic or inpatient service. Sarıgül & Kavurmacı (23) it was determined that this factor did not have an effect on the state anxiety of the patient. In our study, it was determined that patients with previous intensive care experience had lower STAI-I scores than the other patients. In other study, it has been concluded that this factor did not have an effect on the state anxiety score (23). It was determined that the STAI-I scores of the patients who were visited during their stay in the intensive care unit were significantly higher than those of the other patients. It can be thought that this situation is probably due to the fact that patients who are conscious and in communication feel lonely after the visit. In a study evaluating the intensive care experience of patients and their relatives, it was found that patients thought that there was uncertainty at every stage of treatment, and as a result of this situation, the anxiety of both groups increased (24,25).

In our study, there was a weak positive correlation between STAI-I score and ICE total score and environmental awareness sub-dimension score; positive and strong correlation with pessimistic experiences in intensive care sub-dimension score; and, a moderate negative correlation with the satisfaction with the care received in the intensive care sub-dimension and the sub-dimension of remembering the experiences in the intensive care unit. Other studies have also found a relationship between anxiety scores and ICE scores (10,15,19).

5. CONCLUSION

According to the results, the increase in the pessimistic experience of intensive care in patients hospitalized in the coronary intensive care unit increased the patient's anxiety level, and the increase in the patient's satisfaction with the care provided in the intensive care unit decreased their anxiety level. The increase in the number of intensive care unit admissions increased the patient's anxiety and the anxiety level of the patients transferred from the emergency to the intensive care unit was higher.

Patients are admitted to the intensive care unit when their medical needs increase and the need for close and intensive follow-up arises. In this case, it is expected that patients will primarily worry about critical health problems. However, in addition to health problems, negative intensive care experiences can increase patients' anxiety level. During the patient's stay in the intensive care unit, the role of the whole healthcare team, primarily nurses, is important in reducing anxiety and ensuring acceptance of care. It is necessary for the nurse to evaluate the patient in a holistic and systematic way during their stay in the intensive care unit and to prioritize the social and spiritual needs of the patient as well as their physical needs.

In the literature, it is recommended that attempts should be made to improve the intensive care experience of patients by increasing the number of multicenter studies addressing the intensive care experiences and concerns of intensive care patients. It is recommended to raise awareness in the healthcare team about the problems that patients face due to negative intensive care experiences. It is recommended that healthcare professionals working in the coronary intensive care unit receive training to improve their communication skills.

Limitations of the Research

The findings of this study can only be generalized to the population under study.

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Design of the study: ET, EÖY
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