Research Article

Evaluation of Anxiety Levels in Relatives of Patients in the Intensive Care Unit

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ABSTRACT

Objective: Using the State-Trait Anxiety Inventory (STAI) scale, relatives of patients in intensive care (IC); the aim of this study was to evaluate the impact of age, gender, intimacy level, profession, education, and experience in IC, as well as the patients'age, education, and bedtime, on their anxiety levels using the STAI scale and relatives in patients with IC.

Methods: Age 18 and over 18 years old patients were included for the present study. Demographic data, education, and degree of closeness of the patient's relative were recorded. Relatives of patients on admission, 1, 2, 3, 4, 5, 7, 10. "STAI FORM TX-1" was filled in on these days. Relatives of the patient; age, gender, intimacy levels, educational status, professions, their own or their relatives' IC experiences, and anxiety levels were compared.

Results: When compared according to patient age, gender, IC scores, Glasgow Coma Scale, patient relative age, past IC experience, degree of closeness, frequency of meeting with the patient, education level and income level; group of the IC experience has statistically difference ($P < 0.05$). Also, it was staistically difference in the group whose bedtime was 20.00-08.00 hrs ($P < 0.05$). However, it was no statistically difference between the patient's relative's age, degree of closeness, frequency of meetings and income level ($P > 0.05$).

Conclusion: Our findings provide that there are multiple factors that can cause anxiety in the relatives of patients with IC. It has been observed that hospitalization experience of patient relatives in IC unite have high anxiety during hospitalization. Anxiety; although we think that it decreases with adequate information, we think that more detailed research should be done.

Keywords: Anxiety, State-Trait Anxiety Inventory (STAI) scale, patient relatives

INTRODUCTION

Instensive care unit (ICU) represents a crucial sector for healthcare system, wherein healthcare professionals, including physicians and nurses, utilize advanced technologies to sustain patients' survival and support physiological functions that may be compromised. This unit is equipped to maintain respiratory and other essential functions through the application of lifesaving equipment, such as ventilators. Consequently, patients' conditions are stabilized, allowing for the effective administration of treatments. Patients may be admitted to the ICU for a variety of serious conditions, including but not limited to respiratory failure, severe infections (such as pneumonia or meningitis), myocardial infarction, abrupt arrhythmias, loss of consciousness, shock, trauma, poisoning, and scenarios necessitating postoperative surveillance. Various factors inherent to the ICU environment can precipitate stress and anxiety among patients. These factors include the intense atmosphere of the unit, restricted opportunities for family visitation, limited mobility, reliance on medical devices, the complexity of equipment, painful medical procedures, exposure to a cacophony of sounds, and often insufficient information provided to the patient.[1] The experience of being in an ICU can

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evoke significant anxiety not only in patients themselves but also for their families. The gravity of patients' health conditions can fluctuate rapidly, thereby amplifying feelings of uncertainty and distress. Additionally, transitions such as discharge from the ICU or transfer to a general ward can similarly induce anxiety. Patients and their families may perceive such transitions as potentially negative due to concerns over diminished care and monitoring, as well as apprehensions regarding the safety of the new environment.[2] Family members of ICU patients frequently experience anxiety exacerbated by restricted access to the ICU, limited visitation times, insufficient communication from healthcare providers, perceived security threats, and the overarching atmosphere of uncertainty.[3] Specific factors that may negatively influence families in this context include environmental stimuli (such as electrocardiogram monitors and ventilators), invasive medical procedures, inadequate information, insufficient communication, and fears pertaining to mortality.

Despite the profound implications of these experiences, literature focusing on the anxiety levels of relatives of ICU patients remains scarce. Notably, research has evaluated the anxiety levels of parents of adolescents undergoing surgical procedures, relatives of individuals slated for surgery, and those of cancer patients.[4] Literature suggests that understanding and addressing the needs of family members or patient relatives positively influences the recovery trajectory of the patient.[3]

The anxiety degree for patients' relatives have been appraised using the State-Trait Anxiety Inventory (STAI) developed by Spielberger. The STAI differentiates between two categories of anxiety: state anxiety (S-anxiety) and trait anxiety.[5] This inventory comprises two distinct scales, each encompassing 20 items, and is designed for self-administration, facilitating ease of application. For the aim of present study, the S-anxiety scale was employed. The validity and reliability of this scale for measuring situational anxiety in Türkiye were established by N. Öner in 1977.[6] Scores for S-anxiety are assessed as follows: low anxiety is indicated by scores less than 35 points, moderate anxiety is defined as those scoring between 36 to 46 points, and high anxiety corresponds to scores exceeding 47 points (Table 1). In present study, we aimed to evaluate the anxiety degrees experienced by the relatives of patients residing in the resuscitation ICU.

MAIN POINTS

- This study has shown that as the level of education of the relatives of the patients decreases, they become more concerned about their patients.

- The anxiety levels of the relatives of the patients are higher, especially for the patients who are hospitalized at night.

- It has been concluded that the fact that the patients are admitted to the intensive care unit, regardless of their health status, is a sufficient reason to cause concern in the relatives of the patients.

MATERIAL AND METHODS

The ethical approval for this study was granted by the Clinical Research Ethics Committee of Atatürk University Faculty of Medicine (approval no.: 40; date: 30.06.2022). The primary objective of the present study was to determinate and compare the anxiety levels of relatives of patients in the Reanimation ICU on the 1st-7th and 10th days of hospitalization.

The study population comprised the relatives of patients age 18 and over 18 years old patients who were accepted to the Reanimation ICU between March 2023 and May 2024. It was ensured that the same relative completed the survey for each patient. Participation of different relatives for the same patient was excluded from the present study to maintain data consistency. Relatives who were illiterate or under the age of 18 were also excluded from participation. The sample size was determined based on existing literature relating to the correlation between acute physiological changes in intensive care (IC) patients and the associated anxiety and sleep disorders in their relatives. Using the Number Cruncher Statistical Systems/Power Analysis & Sample Size-NCSS/PASS program, a total sample of 175 patients was calculated to be necessary to identify a correlation coefficient (r) of 0.62 between the STAI scores of the patients' relatives and the IC scores of the patients, with a statistical power of 80% and a confidence level of 95%. A total of 185 patient relatives were approached for inclusion in the study. However, five relatives were excluded due to illiteracy, and an additional five were excluded for being under 18 years of age, resulting in a final dataset of 175 evaluated patients. The relatives were asked to complete questionnaire forms on the 1st, 2nd, 3rd, 4th, 5th, 7th, and 10th days of hospitalization. The questionnaire comprised three sections:

Demographic Information: This section collected data on the relatives, including the date of form completion, contact information, degree of relationship to the patient, frequency of visits, profession, income level, education level, and prior experiences in IC settings.

Patient Demographic Information: This section encompassed details related to the patient, such as their demographic information, educational background, file number, age, duration of IC hospitalization, and clinical scores [Glasgow Coma Scale (GCS), Acute Physiology and Chronic Health Evaluation II (APACHE II), Sequential Organ Failure Assessment (SOFA), Simplified Acute Physiology Score II (SAPS-2). GCS ranges from 3 to 15 points, and as the score decreases, the prognosis worsens. APACHE II is a maximum of 71 points, SOFA is a maximum of 24 points, SAPS-2 is a maximum of 163 points. As the score increases in these three scoring systems, the patient's prognosis worsens.

STAI Assessment: The final section enabled the assessment of anxiety levels among the patients' relatives through the STAI forms. The total score for the STAI scale is 80. Scores for S-anxiety are assessed as follows: low anxiety is indicated by scores less than 35 points, moderate anxiety is defined as those scoring between 36 to 46 points, and high anxiety corresponds to scores exceeding 47 points.

Table 1. Spielberger Anxiety State Scale: STAI FORM TX-1

	Not at all (1)	A little (2)	Very Much (3)	Completely (4)
1. I'm feeling calm				
2. I'm feeling secure				
3. I'm feeling tense at the moment				
4. I'm feeling regretful				
5. I'm feeling peaceful				
6. I'm not feeling cheerful				
7. I feel worried for what's waiting for me				
8. I'm feeling rested				
9. At the moment, I'm anxious				
10. I'm feeling comfortable				
11. I'm feeling confident				
12. At the moment, I'm feeling upset				
13. I'm very angry				
14. I'm feeling my nerves are very tense				
15. I'm feeling relieved				
16. At this moment, I feel content				
17. At this moment, I'm nervous				
18. I'm feeling baffled with excitement				
19. I'm joyful				
20. At the moment, I'm in a good mood				

The translated version of the scale in Turkish that was adapted by N. Öner in 1977.

Relatives were instructed to complete the first and second sections during hospitalization, and they were specifically prompted to fill out the STAI form on the designated days: 1, 2, 3, 4, 5, 7, and 10.

Statistical Analysis

Data were evaluated with using the IBM SPSS Statistics version 20. Descriptive statistics. Mean, standard deviation, median, percentage, and count provided for numerical variables as descriptive statistics. Normality of continuous variables was evaluated using the Shapiro-Wilk test, Kolmogorov-Smirnov test, Q-Q plots, as well as Skewness and Kurtosis assessments. Independent Samples t-test was used for data that were normally distrubuted for two independent groups while Mann-Whitney U test was used for of the data. Kruskal-Wallis test was used to compare continuous variables between more than two independent groups. A P value < 0.05 was considered statistically significant.

RESULTS

Clinical and demographic data of both patients and their relatives are outlined in (Table 2). When analyzing the education level of the patient relatives, there was a statistical difference between the illiterate and middle school education groups, compared to those with primary school, high school, and university education, favoring the illiterate and middle school education cohorts ($P < 0.05$), as detailed in (Table 3). Further analysis revealed a statistical difference in hospitalization anxiety scores between relatives with prior IC experience and those without, with the findings favoring the group possessing prior IC experience ($P < 0.05$) (Table 4). Additionally, significant differences were found in the anxiety scores of patient relatives on the 2nd, 4th, and 5th days of hospitalization for patients admitted during the hours of 20:00-08:00 compared to those admitted between 08:00-20:00, with the former group displaying lower anxiety degree ($P < 0.05$) (Table 5). On the 5th and 10th days, a statistical difference was noted between the patient groups classified by their GCS scores. Specifically, relatives of patients with a good GCS monstrated lower anxiety levels compared to those with moderate and poor GCS scores, and all of the differences were difference ($P < 0.05$) (Table 6).

DISCUSSION

ICU patients are critically ill patients who have a very extended hospital stay and a high risk of morbidity and mortality.[7] Many factors, especially the fear of losing their patients, can cause advanced degree of anxiety and sleep disorders for patients' relatives in IC.[8] Establishing and maintaining communication with the relatives of these patients, who are mainly unconscious and in need of more care, also poses difficulties when viewed by healthcare personnel. The training of healthcare personnel, especially for patient needs and patient care, results in ignoring the existing conditions of the patient's relatives. The patients' relatives in IC often have increased levels of anxiety, and their quality of life decreases.[9]

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Table 2. Demographic Data of the Patients and Their Relatives

		n	(%)
Relative's gender	Male	116	(66)
	Female	59	(34)
Relative's age	18-30	28	(16)
	30-50	109	(62)
	>50	38	(22)
Type of relation	Spouse	25	(14)
	Mother-Father-Siblimg	26	(14)
	Daughter	38	(22)
	Son	86	(50)
How frequent does the relative see the patient?	Day	137	(78)
	Week	28	(16)
	Month-Year	10	(6)
Relative's monthly income	0-5000	27	(15)
	5000-10000	32	(18)
	10.000-20.000	68	(39)
	>20000	48	(28)
Relative's degree of education	Illiterate	8	(5)
	Primary school	44	(25)
	Middle school	25	(14)
	High school	43	(25)
	College	55	(31)
Relative's history of ICU	Patient's experienced	8	(5)
	Relative's experienced	60	(34)
	None	107	(61)
Patient's gender	Male	111	(63)
	Female	64	(37)
Patient's age	18-50	25	(15)
	>50	150	(85)
Patient's degree of education	Illiterate	41	(23)
	Primary school	76	(43)
	Middle school	25	(14)
	High school	23	(14)
	College	10	(6)
Time of hospitalisation during the day	08.00-20.00	81	(46)
	20.00-08.00	94	(54)

All data are represented as n (number) and % (percentage).

Informing the relatives of patients about the interventions and treatments to be applied to their patients and the decisions they will make further increases their anxiety levels.[10] Relatives of patients monitored in ICUs should be supported psychosocially. Anxiety, social isolation, physical dysfunction, sleep disorders, and depression are psychological disorders that can be seen in people with patients in IC.[11] The resulting sleep disorders and anxiety can cause changes such as decreased tolerance to stress, irritability, decreased attention, impaired immunity and decision-making ability.[12] Although studies have examined anxiety and sleep disorders in patients, few studies have examined the anxiety and sleep problems of patients' relatives treated in the ICU in detail. Purposes of the present study to investigate the relationship between the patient's age, education level, gender, hospitalization time, and the patient's relative's age, gender, income status, degree of closeness, frequency of visits, level of education, past IC experiences, and the acute physiological state changes of the patients and the stress and anxiety disorder seen in patients' relatives treated in ICU. Our study sample was created by accepting the article published by Opuş et al.[13] in 2020 as a reference. While the number of relatives who would fill out the survey according to the sample was determined to be 175, a total of 185 relatives of patients were included in the present study. Five relatives of patients participating in the study were excluded because they were illiterate, and five other relatives were under 18.

Our study evaluated the anxiety levels of patients' relatives for their patients in the resuscitation ICU. Up to now on the literature screening process, anxiety levels have primarily been compared with the characteristics of relatives of patients.

The number of studies investigating the characteristics of both patients and relatives and the anxiety degree of patients' relationships according to a comprehensive acute physiological condition change is quite limited.

66% of the patients' relatives participating in the present study were male and 34% were female, and these percentages were 37% female and 63% male for the patients included in the present study.

The mean score of the State Anxiety Scale of individuals with patients in the ICU was found to be 39.45 ± 6.81. When the lowest and highest scores obtained from the scale are considered, it can be said that the S-anxiety levels of the individuals participating in the study are above the moderate level.

In our study, when comparing the groups based on the age and gender of the patient relatives, the degree of closeness to the patient, the frequency of visits, the income level of the patient relatives, as well as patient age, gender, education level, and APACHE II score, no statisticall differences were monitored in anxiety scores across the groups.

When the anxiety scores due to the age of the relatives of patients were examined, no statistical difference was found between the groups in our study. However, as the patient's relative's age increased, the anxiety scores increased, although not statistically significant. Again, in the group where the patient's relative's age was >50, the anxiety scores increased as the number of days of hospitalization increased.

In their study, Türedi[14] found that anxiety scores increased as the patient's relative's age increased, consistent with our study.

Table 3. Anxiety Level According to the Education Degree of Patients' Relatives

	Illiterate (n=8)	Primary school degree (n=44)	Middle school degree (n=25)	High school degree (n=43)	College degree (n=55)	P*
Day of hospitalisation in the ICU STAI	41.25 ± 10.17;42	40.18 ± 7.24;40	38.38 ± 5.91;38	38.36 ± 5.02;39	38.60 ± 6.13;37	0.481
Day 1 STAI	36.71 ± 8.40;37	39.85 ± 7.86;38	40.38 ± 8.94;38	37.92 ± 5.51;37.5	39.63 ± 5.44;38.5	0.596
Day 2 STAI	36.14 ± 8.23;35	40.16 ± 8.23;39.5	41.00 ± 6.96;42	39.27 ± 6.64;39	38.98 ± 5.51;39	0.589
Day 3 STAI	41.29 ± 9.21;42	38.88 ± 6.35;38.5	41.45 ± 5.96;40	39.89 ± 7.86;40	38.11 ± 5.65;38	0.519
Day 4 STAI	43.00 ± 10.4;48.5[α]	37.50 ± 5.96;38	44.44 ± 6.11;43[α]	38.41 ± 5.60;37	38.53 ± 7.15;38	**0.047**
Day 5 STAI	43.80 ± 7.79;47	39.00 ± 10.42;37.5	42.00 ± 6.65;41	41.06 ± 6.01;40.5	38.91 ± 7.05;38	0.399
Day 7 STAI	42.67 ± 4.93;45	36.43 ± 4.61;36	38.67 ± 3.27;39	40.31 ± 7.22;40	39.62 ± 7.37;39	0.613
Day 10 STAI	45.50 ± 4.95;45.5	35.33 ± 5.13;34	39.60 ± 2.61;40	40.15 ± 6.69;40	39.29 ± 7.77;38	0.371

Data are represented as mean ± standard deviation; Median
*Kruskal-Wallis H test
[α]P < 0.05 Kruskal-Wallis H test favors the groups of being illiterate and having middle school degree
ICU, intensive care unit; STAI, State-Trait Anxiety Inventory score.

Table 4. Anxiety Levels According to History of ICU Experience

	Patient's experienced (n=8)	Relative's experienced (n=60)	None (n=107)	P*
Day of hospitalisation in the ICU STAI	40.04 ± 5.97;39[α]	37.38 ± 5.85;37	39.25 ± 11.83;38.5	**0.009**
Day 1 STAI	38.87 ± 6.22;38	39.46 ± 7.46;39	42.00 ± 8.83;38	0.626
Day 2 STAI	39.35 ± 6.13;39	39.10 ± 7.70;38.5	43.00 ± 7.48;42	0.430
Day 3 STAI	38.52 ± 6.10;38	40.05 ± 7.45;40	41.83 ± 6.65;45	0.246
Day 4 STAI	39.30 ± 7.53;38	38.86 ± 6.24;39	39.75 ± 4.03;40	0.886
Day 5 STAI	40.53 ± 8.07;40	39.88 ± 7.05;39	40.67 ± 1.53;41	0.861
Day 7 STAI	39.87 ± 6.67;40	38.90 ± 6.73;38	39.5 ± 0.71;39.5	0.890
Day 10 STAI	39.09 ± 5.55;40	40.16 ± 8.46;38	40.00 ± 1.41;40	0.961

Data are represented as mean ± standard deviation; Median
*Kruskal-Wallis H test
[α]P < 0.05 Kruskal-Wallis H test. favors the group of experienced patient
ICU, intensive care unit; STAI, State-Trait Anxiety Inventory score.

Table 5. Relatives Anxiety Levels According to the Time of Hospitalisation During the Day

	08:00-20:00 (n=81)	20:00-08:00 (n=94)	P*
Day of hospitalisation in the ICU STAI	38.28 ± 6.37;38	39.67 ± 6.32;39	0.129
Day 1 STAI	38.42 ± 6.12;37.5	39.95 ± 7.33;38	0.281
Day 2 STAI	38.15 ± 6.80;37	40.48 ± 6.72;40[α]	**0.049**
Day 3 STAI	38.08 ± 5.86;38	40.25 ± 7.17;40	0.053
Day 4 STAI	37.54 ± 6.25;37	40.52 ± 7.14;40[β]	**0.026**
Day 5 STAI	38.76 ± 7.33;37	41.45 ± 7.42;41.5[γ]	**0.031**
Day 7 STAI	38.05 ± 5.36;37	40.41 ± 7.10;40	0.157
Day 10 STAI	39.11 ± 8.07;37.5	39.92 ± 5.89;40	0.332

Data are represented as mean ± standard deviation; Median
*Mann-Whitney U test
[α]P < 0.05 Mann-Whitney U test, favors the group 20:00-08:00
[β]P < 0.05 Mann-Whitney U test, favors the group 20:00-08:00
[γ]P < 0.05 Mann-Whitney U test, favors the group 20:00-08:00
STAI: State-Trait Anxiety Inventory score, ICU: intensive care unit.

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Table 6. Relatives Anxiety Levels According to the Patients GCS on the Time of Hospitalisation

	Bad	Moderate	Good	P*
Day of hospitalisation in the ICU GCS	38.45 ± 6.05;38	39.52 ± 7.08;41	39.60 ± 6.53;39	0.421
Day 1 GCS	38.53 ± 5.79;37	39.65 ± 7.24;38	39.97 ± 7.80;39	0.536
Day 2 GCS	39.02 ± 6.58;37	41.86 ± 8.49;39.5	39.25 ± 6.64;40	0.611
Day 3 GCS	38.60 ± 5.34;38	41.22 ± 8.21;41	39.63 ± 7.60;39	0.514
Day 4 GCS	38.48 ± 5.23;37.5	39.50 ± 7.17;37.5	39.81 ± 8.39;39	0.852
Day 5 GCS	38.44 ± 6.34;37.5	37.56 ± 5.22;39	44.41 ± 8.38;42.5[a]	**0.009**
Day 7 GCS	38.24 ± 6.62;38	39.00 ± 4.93;40	43.17 ± 6.18;42	0.052
Day 10 GCS	39.32 ± 7.28;38	36.25 ± 5.42;35.5	42.64 ± 5.55;42[β]	**0.035**

Data are represented as mean ± standard deviation; Median
*Kruskal-Wallis H test
[a]$P < 0.05$ Kruskal-Wallis H test, favors the Group-Good
[β]$P < 0.05$ Kruskal-Wallis H test, favors the Group-Good
GCS, Glasgow Coma scale; ICU, intensive care unit.

Bilgin and Türkleş[15] could not find a significant relationship between the patient's relative's age and anxiety scores in their study. When we looked at the gender of the patient relatives in our study, no statistically significant difference was found between the groups in terms of anxiety scores. However, although the anxiety levels of female patient relatives were not statistically significant, they increased as the patient's hospitalization days increased. Opuş et al.[13] also did not find a difference between the genders in their study, where they looked at the anxiety scores of patient relatives who had patients in IC, as in our study. Türedi[14] also found a difference between the gender of the patient relatives and anxiety scores in their study, which is consistent with our study. Maruiti et al.[16] also stated that anxiety was not related to gender with the data they obtained from their study covering 39 patient relatives. Pochard et al.,[17] on the other hand, found that the anxiety level was higher in women than in men in their study conducted with 920 patient relatives. When the degree of closeness of the patient relative to the patient in IC was examined, no statisticall difference was discovered between the anxiety scores between the groups in our study. However, it was observed that the patient's mother, father, and siblings, although not statistically significant, felt more anxious than their spouse and children. Again, when the groups were evaluated within themselves, it was observed that the anxiety scores increased as the days of hospitalization increased, although not statistically significant. Baltalı and Turkoz,[18] in their study in which they grouped the patients with and without first-degree relatives, could not find a significant difference between the degree of closeness and anxiety levels, similar to our study. In other studies conducted on the anxiety symptoms of patients' relationships in the ICU, contrary to our study, it was stated that the stress level of spouses was higher than other family members. Paparrigopoulos et al.[10] reported that spouses showed more anxiety symptoms. No statisticall difference was established between the groups in our study when the anxiety scores of the patients' relationships were examined according to the frequency of seeing the patient in the ICU in normal life. However, as the patient's hospitalization period increased, a decrease in anxiety scores was observed in the group with a lower frequency of seeing the patient, although not statistically significant. Since no study in the literature review examined the anxiety scores according to the frequency of seeing the patient in the ICU in normal life, a comparison could not be made. When the anxiety scores of the patients' relatives were examined according to their income level, significant difference was not established between the groups in our study. However, the anxiety score was discovered to be lower in the groups with high-income levels than in the groups with low-income levels, although not significant. In two different studies, it was found that the relatives of patients with lower income levels were more worried about their patients in IC and had significantly higher anxiety scores.[15,19] This supports the findings in our study. When the anxiety scores of the patient relatives were compared between the groups in terms of education level, a statisticall difference was found between the illiterate and middle school education groups and the primary school, high school, and university education groups in favor of the illiterate and middle school education groups. In addition, although there was no statistical difference, the anxiety scores in the low-educated groups increased with the number of days the patient stayed. This showed that the level of education was also connected to the anxiety levels of the individuals. In a study including 133 patient relatives, Chui and Chan[20] found that the anxiety levels of women with low education levels were significantly higher. In another study, it was reported that relatives of patients with lower levels of education were more reluctant to be involved in decisions that needed to be made about the patient and, therefore, experienced anxiety. However, significant relationship was not discovered between anxiety and level of education.[21] In another study investigating the degree of anxiety in patients' relationships, it was discovered that the anxiety scores of patients' relationships with higher levels of education were lower, consistent with our study. This suggested that as the level of education increases, patients' relationships can better understand the information given to them about their patients and can create adequate protection mechanisms.[16]

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In our study, the patients' relationships were also questioned about their past IC experiences for themselves and other patients. The anxiety scores of the patients' relationships who had previous IC experience were discovered to be statistically significantly higher only on the day of admission compared to the other two groups, namely, the groups without experience and the groups with relatives. The anxiety scores of the group who had no previous IC experience for themselves or any relatives were higher than the other two groups with IC experience except for the day of admission. However, it was not statistically significant. In their study, Baltalı and Turkoz[18] only asked whether the patient's relatives had previous IC experience, but they did not publish any data on the effect of this on their anxiety. Since no other study on the experience of patients in ICU was established in the literature review, no comparison could be made. When the patients' relatives anxiety scores were evaluated to according to the patient's age, no statisticall difference was found between the groups. However, for the younger patient group, the anxiety scores of the patients' relatives increased as the patients' hospitalization period increased. However, it was not statistically significant. Similarly, when the anxiety scores of the patients' relatives were examined according to the patient's gender, no significant difference was established between the anxiety scores for male or female patients in our study. Since no study was found in the literature review measuring patient relatives' anxiety levels according to patient age and gender, no comparison could be made.

When the anxiety scores of the patients were evaluated to according to their hospitalization hours in our study, it was seen that the relatives of the patients were more worried about the patients they admitted at night. Anxiety scores were found to be statisticall higher on days 2, 4, and 5 in the relatives of the patients admitted to the ICU at night and on all other days, compared to those revealed during the day. In their study, Bilgin and Türkleş[15] only provided numerical information about the patients' emergency or planned admissions to the ICU and did not present data on the anxiety scores of the patients' relatives according to these situations. Other studies were no showed in the literature review regarding anxiety scores according to the time of admission to the ICU, so no comparison could be made.

When the patient relatives' anxiety scores were examined according to the patient's education level, no statisticall difference was found between all groups. However, although the patients relatives' anxiety scores increased as the patient's education level increased, these values were not statisticall significant. Since other studies was no showed in the literature review regarding the anxiety status of relatives of patients hospitalized in ICU according to their level of education, a comparison could not be made.

Informing patients' relatives hospitalized in ICU was very important in terms of providing comprehensible intelligence about the patient's condition that day. Pure knowledge about the patient's condition that day can only be obtained by calculating the patient's acute physiological scores.[22] In our study, the patient's physiological scores with SAPS-2, APACHE II, and organ system status with SOFA were calculated, and the relatives of the patients were informed about their patients. As the patients' physiological and organ system scores improved, the anxiety scores of the relatives of the patients also increased. Tok et al.[23] showed in their study that, contrary to our study, the anxiety scores of the patients' relatives increased as the patients' acute physiological scores increased. In other studies, contrary to our study, it was shown that if there was an increase in the patient's acute physiological scores, the anxiety symptoms of the relatives increased.[10,24,25]

When the anxiety scores of the patients' relatives were examined according to the GKS, the patients were in the 5th and 10th. It was observed that the anxiety scores of the patients' relatives with better GCS on the days were statisticall higher. When we look at our data in general, the better the patien's GCS, the higher the anxiety scores of the patients' relatives. Bilgin and Türkleş[15] stated that as the patients' GCS increased, the anxiety scores of the patients' relatives increased, similar to our study.

Study Limitations

The fact that the study was single-centered and that other ICUs in the same hospital were not included limits the study. This study has shown that as the level of education of the relatives of the patients decreases, they become more concerned about their patients. The anxiety levels of the relatives of the patients are higher, especially for the patients who are hospitalized at night. It has been concluded that the fact that the patients are admitted to the ICU, regardless of their health status, is a sufficient reason to cause concern in the relatives of the patients.

Ethics

Ethics Committee Approval: The ethical approval for this study was granted by the Clinical Research Ethics Committee of Atatürk University Faculty of Medicine (approval no.: 40; date: 30.06.2022).

Informed Consent: Written informed consent was obtained from persons who participated in this study.

Footnotes

Author Contributions

Concept - H.A., Ö.Ö.; Design - H.A., Ö.Ö.; Supervision - H.A., Ö.Ö.; Fundings - H.A.; Materials - H.A.; Data Collection and/or Processing - H.A.; Analysis and/or Interpretation - Ö.Ö.; Literature Search - Ö.Ö.; Writing - H.A., Ö.Ö.; Critical Review - Ö.Ö.

Alkan and Özmen. Anxiety Levels in Relatives of Intensive Care Patients

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