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ORIGINAL ARTICLE

The effect of environmental stressors perceived by surgical intensive care unit patients on hopelessness level

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Abstract

The aim of the research was to determine the effects of environmental stressors perceived by patients hospitalized in the surgical intensive care unit on hopelessness level. This descriptive research was performed between September 2023 and February 2024. The population of the study included all adult patients hospitalized in the Surgical Intensive Care Clinic of a City Hospital in Eastern Türkiye. The sample of the study includes 230 patients selected by random sampling method from this population. We used Personal Information Form, Intensive Care Unit Environmental Stressors Scale (ICUESS) and Beck Hopelessness Scale (BHS) to collect the data. Descriptive statistics, t-test, ANOVA, and correlation analysis tests were used to evaluate the data. The ICUESS mean score of the patients participated in the study was found to be at a high level with 102.13±15.95. Beck hopelessness scale score mean was found to be at a mild level with 6.36±5.78. It was found that the patients' gender, age, educational status, chronic disease status and previous intensive care experience affected the level of hopelessness. The relationship between ICUESS and BHS scores of the patients included in the study was examined and it was found that there was a low level of positive significant relationship between them (r: 0.162, *p*: 0.014). The hopelessness level of patients in surgical intensive care units was found to increase as the level of exposure to environmental stressors increased. It may be recommended to identify environmental stressors affecting the hopelessness level of patients and to implement interventions to reduce them.

Keyword: Intensive care, environmental stressor, hopelessness, nurse

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Introduction

In Intensive care units (ICU), patients are monitored due to one or more organ failure, necessary devices are used until the life-threatening situation is recovered, and 24-hour uninterrupted care is provided by an interdisciplinary team [1]. ICUs provide care to the most critically ill patients. It works in cooperation with other departments in the hospital [2]. Patients who are hospitalized in the intensive care unit usually come from the emergency department, operating room, surgery or internal units and other hospitals [3]. The patient is hospitalized in the intensive care unit to monitor his condition [4]. Since these units are a different environment for patients, they cause physical and mental stress in patients [5,6]. The pain felt by the patient, the limited duration of the visit, the constantly heard device sounds, noise, the lack of television are the most stressful factors for patients [7,8]. Other factors increasing stress include devices used for monitoring and treatment, lights being on all the time, the temperature of the environment being too high or too low, uncomfortable beds and pillows, the smell of the environment, and lack of privacy [9]. Reducing or eliminating environmental stressors during patients' treatment and care is important. Intensive care nurse gives treatment and care in order to accelerate the recovery process of patients in this process [7]. It evaluates the potential negativities and adverse effects as a result of these treatments and care [10].

In the literature, there are several studies on the perceived stressors and the experiences of the patients hospitalized in intensive care units [7,8,11]. In a study performed by Gültekin et al., the thirst, having tubes in the mouth and nose, and nurses performing continuous procedures at the bedside were found to be serious stressors on patients hospitalized in the intensive care unit [5]. In a study performed in a reanimation unit by Karadeniz et al., the most important stressors perceived by patients were found to be pain, opportunity to see their families and friends for a short time a day, privacy negligence, to be connected to tubes and to miss their family [12]. Patients hospitalized in ICU were observed to have psychological problems due to stressors [8]. They are frequently observed to have psychological symptoms such as stress, fear, hopelessness, confusion, anxiety, desperation and depression [13]. Hopelessness is defined as the desperation, negative perspective, loss of all plans, expectations and hope for the future [14]. By affecting the individual's thoughts and motivation for his/her goals, hopelessness causes loss of confidence, courage, energy and inability to think logically [15].

Hopelessness leads to physical and psychological problems in the patients hospitalized in intensive care. As a result of physical and psychological problems arising out of illnesses, treatment complications are observed [16]. In this respect, intensive care nurses should determine the hopelessness level of patients and apply individualized nursing initiatives that support hope [17]. Therefore, the presence of hope, which is preserved during the treatment process, may give strength to the patient by providing psychological support. Motivating the patients may be useful for them to overcome the adverse effects of treatment [18]. The aim of the research was to determine the effects of environmental stressors perceived by patients hospitalized in the surgical intensive care unit on hopelessness level.

Materials and Methods

Research design and sampling

This descriptive study was performed in the Surgical Intensive Care Unit of Elazığ Fethi Sekin City Hospital in Eastern Türkiye from September 2023 and February 2024. The population of the study included all adult patients hospitalized in the same hospital. The sample size was determined as 240 patients in total according to the power analysis measurement by using the G Power 3.1.9.7 program, with 0.7 effect size, 0.05 error level, 0.95 confidence interval, and a power of 95% to represent the population [19]. The sample includes patients meeting the inclusion criteria and who were selected from the population by random sampling method. 7 patients who did not have the inclusion criteria and 3 patients who did not want to participate in the study were excluded from the study. The research was completed with 230 patients.

Inclusion and exclusion criteria for the study

Inclusion criteria: (i) No communication problems, (ii) Being over 18 years of age, (iii) Having good mental health, (iv) Being willing to participate in the study, (v) Being hospitalized for 48 hours.

Exclusion criteria: Patients who (i) Stayed in the clinic for less than 48 hours, (ii) Patients who did not have the inclusion criteria were not included in the study.

Data Collection Tools

We used Personal Information Form, Intensive Care Unit Environmental Stressors Scale (ICUESS) and Beck Hopelessness Scale (BHS) to collect the data. The data were obtained by the researcher through the face-to-face interview technique in the patient's room at the clinic. Data were obtained from all adult patients who met the inclusion criteria and had a minimum of 48 hours of hospitalization at the clinic. Each interview lasted approximately 30-35 minutes.

Personal Information Form: It was developed by the researcher in accordance with the literature [5,8,12]. The form includes questions regarding disease-related information like the patients' age, marital status, gender, educational status, having chronic disease, the reason of hospitalization in intensive care unit, and intensive care experience.

Intensive Care Unit Environmental Stressors Scale (ICUESS): The scale developed by Ballard was renewed by Cochran and Ganong. Aslan conducted a validity and reliability study. The Likert-type scale consists of 42 items. Although it does not contain any sub-dimensions, the responses are collected and evaluated by obtaining the intensive care unit environmental stressors scale total score. A minimum score of 42 and a maximum score of 168 can be obtained from the scale. As this score increases, the level of exposure to environmental stressors also increases. The cronbach alpha coefficient of the scale was found to be 0.94 [20-22]. In this study, the cronbach alpha coefficient was found to be 0.92.

Beck Hopelessness Scale (BHS): Beck et al. developed the Beck Hopelessness Scale in 1974 and this scale, developed by Durak et al in 1994 due to the smallness of the sample after making validity and reliability checks in our country by Seber et al., includes 20 items aimed at determining the individual's pessimism level for the future [23-25]. While answering the Beck hopelessness scale, the patient is asked to select the "yes" option for the expressions that match him/her and the "no" option for the expressions that do not match. The items 1, 3, 7, 11 and 18 in the scale measure the factor of 'Feelings and expectations about the future'; the items 2, 4, 9, 12, 14, 16, 17, and 20 measure the factor of 'Motivation Loss'; and the items 5, 6, 8, 10, 13, 15, and 19 measure the factor of 'Hope'. The total score of the scale vary between 0-20. It shows that the patients having a total score of 0-3 from the scale have minimal, a score of 4-8 have mild, a score of 9-14 have moderate, and a score of 15 and above have severe hopelessness. In Durak's study, the Cronbach alpha coefficient determined for the reliability of the scale was found to be 0.86 [24,25]. In this study, the Cronbach alpha coefficient was found to be 0.92.

Data Analysis

It was used SPSS 25 (Statistical Package for the Social Sciences 25.0) program to analyze the data and the statistical significance level was accepted to be $p < 0.05$ [26]. Mean, standard deviation, number and percentage were calculated for the quantitative variables of the study. It was analyzed by using t-test, ANOVA and correlation analysis tests as significance tests.

Ethics Committee Approval

For this research, it was obtained written permission from Fırat University Non-Interventional Research Ethics Committee (Decision no: 2023/11-09) and an institutional permission from Elazığ Fethi Sekin City Hospital, where the study will be conducted. All participants were included in the study voluntarily. The aim of the research was explained by the researcher and written consent was obtained from those who agreed to participate in the research. The research was carried out in accordance with Declaration of Helsinki principles.

Results

The patients' mean age hospitalized in surgical intensive care clinic was 60.08±17.60. 58.7% of the patients were determined to be male, 30.4% to be the ages of 60 to 69, 86.1% to be married, and 36.1% to be illiterate. It was found that 57% of the patients had a chronic disease, 32.6% had hypertension, 52.2% had been hospitalized in intensive care due to GI problems, and 54.3% had not been in intensive care before (Table 1).

Patients hospitalized in intensive care were found to have been highly affected by environmental stressors with a mean score of 102.13±15.95. The mean score of hopelessness scale was found to be low with 6.36±5.78 (Table 2).

Table 1. Socio-Demographic characteristics of the patients participating in the study (n:230).

Characteristics	n	%
Gender		
Male	135	58.7
Female	95	41.3
Age category (60,08±17,60)		
19-39	40	17.4
40-49	18	7.8
50-59	29	12.6
60-69	70	30.4
70 and above	73	31.7
Marital status		
Married	198	86.1
Single	32	13.9
Educational status		
Illiterate	83	36.1
Primary school	68	29.6
Secondary school	25	10.9
High School	30	13
College	24	10.4
Chronic disease status		
No	99	43
Yes	131	57
Type of chronic disease		
Diabetes	48	20.9
Hypertension	75	32.6
Heart failure	8	3.5
The reason for being in the ICU		
Respiratory	39	17
Circulatory disorder	37	16.1
Trauma	34	14.8
GI problems	120	52.2
Previous hospitalization status in ICU		
Yes	105	45.7
No	125	54.3

ICU: Intensive Care Unit

Table 2. The patients' mean scores on the Intensive Care Unit Environmental Stressors Scale and Beck Hopelessness Scale.

Scale	**N**	**x±ss**	**Min-max**
ICUESS	230	102.13±15.95	69-138
BHS	230	6.36±5.78	0-18

ICUESS: Intensive Care Unit Environmental Stressors Scale
BHS: Beck Hopelessness Scale

It was found that the most perceived stressor was 'lack of privacy' and the least perceived stressor was 'frequent physical examination performed by doctors and nurses' (Table 3).

The comparison of the patients' mean scores on ICUESS and BHS is shown in Table 4. It was found that the BHS score of female patients hospitalized in intensive care unit was higher than of male patients (*p*: 0.002). Patients aged 19-39 years had a higher ICUESS score than the other groups (*p:* 0.001), and patients at the age of 70 years and older had a higher mean BHS score than the other groups (*p:* 0.001). While the ICUESS score was higher in university-educated patients (*p*: 0.001), it was found that the BHS score was higher in the illiterate group (*p*: 0.001). It was found that ICUESS score of patients without chronic disease was higher (*p*: 0.001), whereas BHS score of patients with chronic disease was found to be higher (*p*: 0.001). The mean BHS score of patients previously hospitalized in the intensive care unit was found to be higher (*p*: 0.001).

The correlation between the ICUESS and BHS scores of the patients included in the study was examined and a low level of positive significant correlation was found between them (*p*: 0.014). It was found that as the level of patients' exposure to environmental stressors increased, their level of hopelessness also increased (Table 5).

Discussion

Psychological problems such as stress, fear, hopelessness, anxiety and depression are observed in patients hospitalized in ICU due to environmental stressors [13]. The thoughts and motivation of the patient who is hopeless are negatively affected [15]. In the study, environmental stressors scale mean scores of the patients hospitalized in the surgical intensive care unit was found to be high at 102.13±15.95 (Table 2). It was stated that in Gencer and Kumsa's study, the mean scale score is similar to 128.32±16.37 [27], while the mean scale score in Barros and Siuves's study is 81.06±18.94 [28], the mean scale score in Karadeniz and Kanan's study is 69.26±21.84 [12], and the mean score in the study of Dönmez et al. is stated to be 79.9±31.3 [7]. In accordance with the studies using the scale, the impaction levels of patients by environmental stressors vary. Although the same scale was used, the differences between the results are thought to be due to many factors such as demographic characteristics, hospitalization diagnosis, and conducting the studies in different intensive care units.

The mean hopelessness scale score of the patients who participated in the study was found to be 6.36±5.78 at a low level (Table 2). When the literature was examined, it was not found a study to determine the level of hopelessness of patients hospitalized in intensive care. Therefore, the findings of the study were compared with the findings in other patient groups. While in the study conducted with cancer patients by Madani et al., the mean hopelessness score was similar [29] with 5.93±4.71, in the study carried out by Karakaş et al. with diabetic patients, the mean hopelessness scale score was 11.2±1.8 [30], and

Table 3. Most and least perceived environmental stressors in the intensive care unit.

Perceived Stressor	N	x±ss
The most perceived environmental stressor		
Lack of privacy (lack of confidence)	230	3.62±0.52
Unable to sleep	230	3.49±0.66
Get bored	230	3.4±0.56
Being in the same room of men and women	230	3.24±0.71
Feeling pain	230	3.21±0.78
The least perceived environmental stressor		
The nurses' constantly doing something besides the beds	230	1.71±0.76
Being cared for by unfamiliar doctors	230	1.64±0.68
Nurses' monitoring machines closer than they monitor you	230	1.59±0.76
Nurses' getting to know themselves	230	1.48±0.6
Frequent physical examinations by doctors and nurses	230	1.47±0.73

Table 4. Patients' ICUESS and BHS mean scores comparison.

		ICUESS	BHS
Characteristics	**N**	**x±ss**	**x±ss**
Gender			
Male	135	101.60±14.56	5.42±5.59
Female	95	102.89±17.79	7.93±6.27
	Test	t: -0.602 *p*:0.548	t:-3.180 ***p*:0.002**
Age			
19-39(1)	40	109.75±14.11	5.22±5.86
40-49 (2)	18	108.83±19.85	4.61±6.62
50-59 (3)	29	108.24±18.86	5.48±6.12
60-69 (4)	70	99.74±11.37	5.28±5.50
70 and above (5)	73	96.19 ±15.70	9.12±5.60
	Test	F:7.909 ***p*:0.001**	t:5.743 ***p*:0.001**
		1,2,3>4,5	**5>1,2,3,4**
Marital status			
Married	198	101.94±15.76	6.27±5.88
Single	32	103.34±17.33	7.62±6.68
	Test	t:-0.459 *p*:0.646	t:-1.179 *p*:0.289
Educational status			
Illiterate	83	96.85±15.37	9.46±5.92
Primary school	68	102.14±15.21	5.13±5.86
Secondary school	25	105.48±12.99	3.04±3.25
High School	30	108.46±15.54	5.80±6.05
College	24	109.00±17.99	4.25±4.44
	Test	F:5.192 ***p*:0.001**	F:10.464 ***p*:0.001**
Chronic disease status			
No	99	106.07±15.71	4.89±5.30
Yes	131	99.16±15.54	7.64±6.24
	Test	t:3.319 ***p*:0.001**	t:-3.524 ***p*:0.001**
Type of chronic disease			
Diabetes	48	99.16±15.12	8.64±6.15
Hypertension	75	99.13±16.04	7.42±6.41
Heart failure	8	99.50±15.15	3.75±3.10
	Test	F:0.002 *p*:0.988	F:2.262 *p*:0.108
The reason for being in the ICU			
Respiratory	39	99.10±14.88	5.92±5.56
Circulatory disorder	37	97.83±14.41	6.62±5.75
Trauma	34	103.67±17.72	7.88±6.67
GI problems	120	104.01±16.00	6.19±6.03
	Test	F:2.054 *p*:0.197	F:0.827 *p*:0.480
Previous hospitalization status in ICU			
Yes	105	101.74±15.59	7.98±5.92
No	125	102.47±16.31	5.19±5.78
	Test	t:-0.345 *p*:0.731	t:3.600 ***p*:0.001**

ICUESS: Intensive Care Unit Environmental Stressors Scale
BHS: Beck Hopelessness Scale

Table 5. Investigation of the correlation between ICUESS and BHS Scores of patients.

		BHS
ICUESS	r	.162*
	p	**.014**
	N	230

* Correlation is significant at the 0.05 level (2-tailed).

in the study carried out by Budak et al. with cancer patients, the mean hopelessness score was 10.23±1.94 [31]. The differences between the findings are thought to be due to the differences in the sample groups.

In the study, the first five stressors perceived most by the patients were lack of privacy, inability to sleep, being bored, being shared of the same room by men and women and pain (Table 3). Koyuncu et al. found in a study that the first five stressors perceived most by the patients were inability to drink water, pain, inability to sleep, machine sounds and alarms, inability to move their arms due to serum sets, respectively [32]. Aktaş et al. found that the stressors were pain, not being able to sleep, lack of privacy, missing their spouse, being shared of the same room by men and women and pain [33]. In Berber and Kızıltan's study, these factors were stated as pain, lack of privacy, being connected to tubes, the tubes in the nose or mouth, not to have a comfortable bed and/or pillow [34]. There are similarities and differences between the results. In general, it can be said that patients are more affected by stressors such as lack of privacy and pain.

In the study, the lack of privacy was found as the most perceived stressor by patients (Table 3). Privacy negligence was found to be the fourth ranked stressor in Karadeniz and Kanan's study [12]. It was found to be the second ranked stressor in Zaybak and Çevik's study [35]. In Şahin and Köçkar's study, it was found to be the sixth ranked stressor [8]. The differences in the study results were thought to be due to the intensive care environment in which the study was performed, the fact that the patients were not dressed and were covered only with bed linen during their hospitalization in the intensive care unit.

In the study, inability to sleep was determined as the second most perceived stressor (Table 3). There are studies determining that insomnia is an important stressor. In the study of Gültekin et al. insomnia was found to be the fourth-ranked stressor [5]. Insomnia, the fourth-ranked stressor [7] in the study of Dönmez et al.was found to be the thirteenth ranked stressor in the study of Barros and Siuves [28], and in the study of Koyuncu et al. it was found to be the third-ranked stressor [32]. It is thought that reasons such as the lights being on in the intensive care unit, noise, and nurses' hustling in patient rooms cause insomnia to be seen as an important stressor in patients.

In the study, it was found that the difference between the mean scores obtained from the intensive care unit environmental stressors scale and age, educational status and chronic disease status was significant (Table 4, $p < 0.05$). In the study, it was found that patients aged 9-59 years had a higher ICUESS score than the other groups (p: 0,001). In the study of Şahin and Köçkar, a significant correlation was found between age and total scores in the environmental stressor scale, and it was determined that patients aged 31-50 years were more likely to be affected by stressors than patients in other age groups [8]. The reason why the patients aged 60 years and younger were more affected by environmental stressors is thought to be resulted from higher perception of patients in this group. In the study, the ICUESS score was found to be higher in patients having bachelor's degree (p: 0.001). Dönmez et. Al determined in a study that patients with bachelor's degree were more affected by environmental stressors [7]. As the educational level increases, the level of patients' exposure to environmental stressors also increases. According to this result, it is thought that patients having higher education level are more affected by the noise or devices in the environment and have higher comfort expectations than patients with lower education level.

It was determined that the difference between the patients' gender, age, educational status, chronic disease status, and previous hospitalization in intensive care unit and the Beck hopelessness scale mean scores were significant (Table 4, $p < 0.05$). In Taşan and Sarıtaş's study, the difference between the Beck hopelessness scale and age and marital status was found to be significant [36]. In the study of Salık and Sarıtaş, the difference between the Beck hopelessness scale and age, marital status and educational status was found to be significant [37]. The literature findings are similar to the study findings. In the study,

it was found that as the level of being affected by environmental stressors increased, the level of hopelessness also increased and there was a significant positive correlation between them (Table 5, *p*: 0.014). Koyuncu et al. examined the effect of environmental stressors on sleep patterns and they found that there was a very strong negative correlation between them [32]. In a study, Gencer and Kumsar examined the effect of environmental stressors on sleep quality and they found that there was a weak positive correlation between patients' sleep quality and their level of being affected by environmental stressors [27]. As environmental stressors increase, conditions that negatively affect the patient such as hopelessness, insomnia, etc. are also increasing.

Conclusion

The patients in intensive care units were found to be affected by environmental stressors at a high level and their hopelessness level was at a mild level. It has been determined that as the level of patients' exposure to environmental stressors increases, their level of hopelessness also increases. It may be recommended to plan and implement nursing interventions to identify and reduce environmental stressors that affect the hopelessness level of patients. To improve the quality of patient care, levels of hopelessness can be reduced by reducing environmental stressors in environments where patients receive care, such as intensive care units.

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Conflict of interest

The authors have no relevant financial or non-financial interests to disclose.

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