

## INVESTIGATION OF THE EFFECT OF ENVIRONMENTAL STRESSORS PERCEIVED BY PATIENTS IN THE INTERNAL MEDICINE INTENSIVE CARE UNIT ON SLEEP QUALITY

Asena Aktaş  
Ministry of Education, TRNC  
asenaaktas27@gmail.com

Uzm. Dr. Hüseyin Cenkler  
huseyincenkler@gau.edu.tr

Yrd. Doç. Dr. Azmiye Yinal  
Akdeniz Karpaz University  
azmiye.yinal@aku.edu.tr

### ABSTRACT

In this study, the effect of environmental stressors perceived by patients hospitalized in the internal medicine intensive care unit on sleep quality was examined. The study is a quantitative research and was conducted with relational survey model. The population of the study consisted of 500 patients hospitalized in the internal medicine intensive care unit in private and public hospitals in TRNC. The sample consisted of 266 patients who volunteered to participate in the study. At the end of the study, it was seen that the highest sub-dimension score was the habitual sleep efficiency score in the PDQI sub-dimension scores of the patients, while the lowest PDQI sub-dimension score was determined as the subjective sleep quality sub-dimension score. A strong negative correlation was found between the total ICUOSQ scores of the patients and the total scores of the PDQI. According to this situation; it can be said that the total scores of PDQI also increased with the increase in the ICUWQ scores of the patients. A strong negative correlation was detected between the total ICUPSQ scores of the patients and the total scores of the sleep disturbance sub-dimension. According to this situation; as the ICUWSS scores of the patients increase, the total scores of the sleep disorder sub-dimension decreases. When the stressors perceived most by the patients were analyzed, it was observed that the factors "men and women staying in the same room" and "seeing family and friends for a few minutes a day" were higher than the other factors.

**Keywords:** Internal medicine, intensive care, patient, sleep quality, environmental factors.

### Introduction

Environmental stressors encountered by patients in internal medicine intensive care units and the deterioration in sleep quality due to these stressors is a very broad field of research. Intensive care units can be a stressful environment due to the difficult treatment processes patients experience. In this environment, patients may encounter a variety of stressors, such as high sound levels, intense lighting, frequent monitor checks, noise from medical devices, and frequent interventions. The effects of these factors on sleep quality may vary. For example, some patients may find these factors disruptive and affect their sleep, while for others these factors may be relaxing and help them fall asleep more easily. Research shows that various interventions are effective to improve sleep quality in intensive care units. These interventions may include reducing light levels in rooms, reducing noise levels, providing the most comfortable beds and pillows possible, monitoring patients' sleep regularly, and pharmacological treatments such as sleeping pills. However, since each patient's stress coping mechanisms are different, more research is needed on the effect of environmental stressors on patients' sleep quality. These studies may help develop more personalized treatments to improve patients' ability to manage stress and provide better sleep quality.

### Problem

Internal medicine intensive care unit is a unit located among medical units where patients dealing with serious or life-threatening internal medicine diseases receive intensive care services. Internal medicine is also known as internal medicine and covers dysfunctions of body systems and various internal organ diseases ( Gencer and Kumsar , 2020) . Internal medicine intensive care units generally treat cases requiring intensive care related to internal medicine diseases such as emergencies, serious infections, respiratory problems, heart diseases, and kidney failure. These units are equipped with advanced technology and expert personnel to respond to the intense follow-up and monitoring needs of patients. Necessary treatments and interventions to support patients' vital functions such as respiration, circulation and kidney functions are applied in the intensive care unit ( Kucukardali et al., 2007) .

Internal medicine intensive care units are units that provide temporary service to manage life-threatening situations of patients, ensure stabilization and refer them to other specialties. During the intensive care process, it is aimed to improve and stabilize the medical conditions of patients ( Demir et al., 2016) .

Perceived environmental stressors are elements created by factors or situations in individuals' environment that lead to a stress response. Environmental factors that may cause each individual's stress response may be different, because everyone's level of stress perception and tolerance is different ( Bodur and Aslan, 2020) . Perceived environmental stressors can span many different areas. For example, perceived stressors may include excessive workload at work, constant calendar pressure, or negative relationships in the work environment. In addition, heavy traffic, a noisy environment, crowded environments, financial difficulties, family or relationship problems can also cause a stress response in individuals ( Akyüz, 2021) . Perceived environmental stressors can affect individuals' mental, emotional, and physical health. A person with high stress levels may experience symptoms such as sleep problems, difficulty concentrating, anxiety , depression, digestive problems, and headaches. Therefore, reducing stress factors or improving stress coping skills is important for individuals to live a healthy life ( Şahin and Köçkar , 2018) .

Sleep quality refers to how deep, restful and restorative sleep an individual receives during the sleep period. Sleep quality is as important a factor as sleep duration, because having sufficient sleep time is as important as the depth experienced during sleep, the regularity of sleep structure, and the feeling of rest after waking up ( Aysan et al., 2014) . There are many factors that affect sleep quality, for example, factors such as sleep environment, sleep patterns, stress level, physical activity level, eating habits and sleep disorders can affect sleep quality. To improve sleep quality, it is important to create a suitable sleep environment, establish a regular sleep routine, manage stress and pay attention to healthy life habits ( Güneş et al., 2009) .

Perceived environmental stressors affect the sleep of patients in the internal medicine intensive care unit. It may negatively affect its quality. The hospital environment and the nature of the disease can be a stress factor for patients. Based on this situation, the problem statement of the study is "What is the effect of environmental stressors perceived by patients in the internal medicine intensive care unit on sleep quality?" was determined as .

### **Aim**

study is to examine the environmental stressors perceived by patients in the internal medicine intensive care unit and the effects of these stressors on sleep quality.

### **Hypotheses**

The research hypotheses are given below:

H1: There is a statistically significant difference in the demographic characteristics of the patients and the YBUCSS and PQQI values .

H2 : Patients are intensely care to the unit after going to bed later sleep There is a statistically significant difference in YBUCSS and PSQI values due to changes in the order .

H3 : There is a statistically positive correlation between the patients' total YBUCSS value and PSQI total and subscale values.

H 4 : There is a statistically negative correlation between the patients' total YBUCSS value and PSQI total and subscale values.

### **Assumptions**

The research assumptions are as follows;

- It was assumed that the method preferred in the research was suitable for the purpose of the study.
- It was assumed that the scales and questions chosen to collect data were reliable and valid.
- It was assumed that the data obtained was valid and reliable.

### **Limitations**

This research; It is limited to patients who have been hospitalized at least once in the internal medicine intensive care units of public/private hospitals in the Turkish Republic of Northern Cyprus (TRNC).

Questions regarding the sources and scale used in this research were limited to the participants to whom the survey was applied.

## Definitions

**Internal medicine intensive care unit:** It is a health unit established to meet the intensive care needs of patients with serious illnesses or in need of vital support functions in the internal medicine department of the hospital. The internal medicine department is a department that is managed by doctors specialized in general medicine and deals with internal diseases ( Hintistan et al., 2009).

**Perceived Environmental Stressors:** They are elements created by factors or situations in individuals' environments that cause a stress response ( Aktaş et al., 2015) .

**Sleep quality:** It refers to how deep, restful and refreshing sleep an individual gets during his sleep ( Karakaş et al., 2017) .

## Importance of the Study

Environmental stressors encountered by patients in the internal medicine intensive care unit negatively affect their sleep quality. Sleep quality is very important in determining the recovery process of patients. A good sleep quality is necessary for the body to renew itself, strengthen the immune system, regain energy and improve mental health. Lack of sleep or poor quality sleep can negatively impact patients' recovery process and increase the risk of complications. Perceived environmental stressors can trigger physiological and psychological stress responses in patients. Factors such as noise, light, uninterrupted care and interventions, and changes in level of consciousness can disrupt sleep patterns and reduce sleep quality. This can cause patients to experience problems such as feeling inadequately rested , insomnia, restlessness, anxiety and even depression when they wake up. Improving the sleep quality of patients in the internal medicine intensive care unit is important to accelerate the recovery process and reduce the risk of complications. Being aware of environmental stressors that affect sleep quality and taking appropriate measures to reduce or manage these stressors can ensure that patients have a comfortable and restful sleep experience. This can support the healing process, improve patients' health and shorten hospital stays. In summary, perceived environmental stressors may affect the recovery process, health status, and length of hospital stay of patients in the intensive care unit. Improving sleep quality can make a positive contribution to treatment by allowing patients to rest better.

## Conceptual Framework

### ICU Definition and Scope

ICU, critical or important \_ health problems the one which... patients closely follow-up by busy medical of care is provided One health is the unit . ICUs , patients life threatening who makes with their situation start over exit , organ functions to support And vital functions to continue for special equipment And expert health staff with is equipped . In ICUs , serious trauma , surgery interventions , intensive care requiring diseases , respiratory difficulty , multiple organ failure , heart crisis , paralysis like situations like various critical with situations start over can be exited . In these units patients , constantly monitored , medication treatments , respiratory support , blood transfusion , nutrition support like important medical procedures is applied ( Stone , 2022).

Busy Care units , usually high to technology owner medical with devices is equipped . These devices between monitors ( heart rhythm , blood pressure , breathing rate , oxygen Level like parameters follow-up ventilators ( breathing \_ \_ support enteral or parenteral nutrition \_ systems , dialysis machines heart \_ monitors And defibrillators like devices is found . Busy Care Units , specialist doctors , nurses , busy care technicians And other health staff by is managed . These personnel are critical with situations start over to leave And patients vital functions to support for special education has received . Busy Care units , patients their lives save , heal to ensure And health your problems -most member download for critical One role play . In these units busy care services , patients to their situation according to is individualized And tight One approach requires ( Karakaş et al., 2017).

### Environmental Stressors Perceived by Patients in the Intensive Care Unit

Environmental stressors perceived by patients in the internal medicine intensive care unit can generally be defined as the challenging factors that patients encounter in this special care environment. These stressors can affect patients' psychological and emotional well-being, as well as medical factors that have an impact on their physical health. Some of the potential environmental stressors perceived by patients in this type of intensive care setting include:

- **Insomnia:** Factors such as constant monitoring, medical interventions, and noise in intensive care units can negatively affect patients' sleep patterns (Devlin, 2018) .
- **Noise:** Noise created by monitors, alarm systems, medical equipment, and other patients' voices can make it difficult for patients to rest and increase their overall stress level ( Kabeoğlu and Gul, 2021) .

- Lack of Privacy: Since patients are frequently under medical supervision during the intensive care unit, they may have difficulty protecting their personal privacy. This situation may create psychological discomfort ( Ülker , 2020 ) .
- Presence of Pain: Pain during intensive care treatment can negatively affect the comfort and general well-being of patients ( Tavşanlı And Akgün , 2021) .
- Mechanical Ventilation and Oxygen Therapy: Respirators and oxygen therapy can help patients cope with breathing difficulties, but these devices can sometimes cause discomfort ( Kabeloglu and Gul, 2021; Tavşanlı and Akgün , 2021) .
- Ambient Humidity, Temperature and Lights Always On: Inappropriate humidity and temperature levels can reduce the comfort of patients. Constantly on lights can also disrupt patients' sleep patterns ( Kabeloğlu and Gül, 2021).
- No Visitation: Visiting limitations can help patients focus, but can also leave patients feeling deprived of emotional support ( Demirtürk And Demirbağ , 2021) .

These factors are important environmental factors that affect patients' experiences during the intensive care process. Health professionals should strive to understand patients' strategies for coping with these stressors and, if possible, to improve environmental conditions.

#### **Definition and Scope of Sleep**

Sleep is a state in which an organism's consciousness, and often physical activity, temporarily decreases. Sleep is a biological rhythm that repeats at regular intervals and generally has the function of resting, regenerating and providing physical-spiritual balance. Sleep plays an important role in regulating various biological processes and affects overall health and well-being ( Xie et al., 2013) .

The basic features of sleep are as follows ( Özdel and Uğurlu, 2016):

- Decrease in Consciousness and Physical Activity: Consciousness often decreases or disappears during sleep. At the same time, physical activity and reactions slow down noticeably.
- Change of Biological Rhythms: Sleep occurs as a part of biological rhythms. These rhythms are part of the internal clock (biological clock) that regulates the sleep and wake cycle.
- REM ( Rapid eyes Movement ) and Non -REM Phases: Sleep generally occurs in two basic phases called REM and non -REM phases. The REM phase is characterized by dreaming and accelerated eye movements. The non -REM phase involves deeper sleep.
- Sleep Cycles: Sleep consists of repeated stages in a cycle. Many sleep cycles occur during an average night.

Sleep is important for an overall healthy life. Insufficient sleep can lead to impaired cognitive functions, altered emotional state, weakened immune system, and decreased overall quality of life. Sleep helps the body and mind re-energize and is essential for maintaining a healthy life in the long term.

#### **Sleep Quality**

Sleep quality is a concept that expresses the level of depth, continuity and regenerative effect a person experiences during the sleep period. This is a measure of how effective and restful an individual's sleep is. Sleep quality generally includes the following elements ( Erturan , 2017; Yılmaz , 2006) :

- Sleep Duration: A key component of sleep quality is whether the individual has an adequate sleep duration. Sleep duration varies depending on age and individual needs, but should generally include between 7-9 hours for adults.
- Depth of Sleep: The depth of sleep determines how long it takes for the individual to fall into light, medium or deep sleep and how long this deep sleep lasts. Continuous and regular deep sleep can improve sleep quality.
- Sleep Continuity : Uninterrupted, uninterrupted and continuous sleep affects sleep quality. Frequent awakenings or being awake frequently throughout the night can reduce sleep quality.
- Rapid) Sleep eyes It is important that movement and non -REM phases are balanced. Having these stages in appropriate order and continuity can support a healthy sleep experience.
- Energy Level After Waking: A quality sleep provides the individual with the energy necessary to wake up and start daily activities. It's about feeling refreshed after sleep.
- Sleeping Habits: Having a specific sleep routine and pattern can improve sleep quality. Regular bedtime and wake-up times can help regulate the biological clock.

Factors affecting sleep quality may include various factors such as stress, environmental conditions, comfort of the sleeping environment, and bed and pillow quality. To improve sleep quality, it is important to establish a

regular sleep schedule, create a comfortable sleep environment and pay attention to sleep hygiene principles. Additionally, if sleep problems persist, consulting with a healthcare professional is recommended.

**Method**

**Research Model**

This study is a quantitative research; It was conducted using the relational screening model. This model aims to find interactions or relationships between large amounts of data available in databases. The relational scanning model is used to understand how data are connected by analyzing many tables in databases and the relationships between these tables ( Karasar , 2011).

**Sampling Method**

TRNC Nicosia Burhan Nalbantoğlu State Hospital, Famagusta State Hospital, Near East University Hospital, Kyrenia Dr. white flower 500 patients hospitalized in the internal medicine intensive care unit of the hospital constituted the population of the study. The sample of the research was selected using the purposeful sampling method. This method allows the researcher to select a sample that is representative of a particular population or subgroup of particular interest. Purposive sampling method is generally used when the researcher needs a specific sampling group to answer a specific purpose or research question ( Karasar , 2011) . In general, in descriptive research , the sample size is determined depending on the population examined. While a 20% sample rate is generally preferred in small universes, a 10% sample rate can be used in larger universes. The sample size who volunteered to participate in the study was determined as 266 patients.

**Collection of Data**

In the research, data were collected face to face . Visits to hospitals started on 15.07.2023 and forms continued to be filled until 16.08.2023. A total of 270 scale forms were filled out, but 4 forms were not included in the study due to significant deficiencies. Therefore, 266 forms were included in the study.

were obtained using the "Patient Information Form", " Pittsburg Sleep Quality Scale" (Uğurlu and Sabuncu, 2012) and "Intensive Care Unit Environmental Stressors Scale" (Aslan and Çınar, 2010).

Patient Introduction Form: This form was created by the researchers by reviewing the literature. It consists of questions covering socio -demographic characteristics as well as situations related to hospital stay, such as the effect of ICU on the level of sleep.

Pittsburg Sleep Quality Scale (PSQI): PSQI is a scale used to determine sleep quality and developed by Buysse et al. in 1989. As a result of validity and reliability studies, Cronbach alpha was found to be 0.80. Studies on the Turkish validity and reliability of the scale were conducted by Ağargün et al. Made with. Cronbach's internal consistency coefficient of the scale was found to be 0.80. In this research, Cronbach's alpha was found to be 0.816.

The sub-objectives used in the research include the following information:

1. Individual sleep quality (question 6): Shows how patients rate their sleep quality.
2. Sleep latency (questions 2 and 5a): It is the time required to sleep.
3. Sleeping time (question 4): It is the amount of time a person spends asleep during the night.
4. Habitual sleep efficiency (questions 1, 3, 4): The person's normal sleeping habits.
5. Sleep disorder (questions 5b-5j): It is when the person experiences situations such as snoring, coughing, hot flushes or coldness during sleep.
6. Use of sleeping pills (question 7): It is when a person uses sleeping pills.
7. Disturbance in daytime activity (questions 8 and 9): It is the person's daily living activity tolerance of sleep changes.

YBÜÇSÖ: Scale developed with Ballard (1981), Cochran oath It was revisited in Ganong (1989). “Environmental Stressors Scale in Intensive Care Unit” consists of 42 items. Validity and reliability studies in our country were conducted by Aslan and Çınar (2010). cronbach scale alpha coefficient was found to be 0.94. In the study, Cronbach alpha coefficient was found to be 0.89.

**Table 1. Reliability Analyzes of Scales**

	Cronbach's Alpha	Number of Items
YBÜÇSÖ Total Score	0.968	42
PSQI Total Score	0.801	16(x2)

In Table 1, the Cronbach Alpha result in the YBÜÇSÖ Scale is 0.968, in the PSQI Scale Cronbach Alpha result was found to be 0.801.

**Analysis Method**

In this research, the data obtained as a result of the application of measurement tools for the quantitative dimension were analyzed with the SPSS for Windows 26.0 package program.

Percentage, frequency, mean and standard deviation statistics were used to determine the descriptive characteristics of the results regarding demographic variables . Reliability analysis of the scales was performed.

Mann Whitney U test was used when comparing YBÜÇSSS Scale and PSQI Scale scores according to gender and marital status variables . Kruskall Wallis test was used when comparing YBÜÇSS Scale and PSQI Scale scores according to age and educational status variables. Mann Whitney U tests with Bonferroni correction were used in case of differences.

The error rate was determined in all tests ( $\alpha=0.05$ ), and the difference between comparisons was considered statistically significant when  $p<0.05$ . Ms -Excel 2010 and SPSS Statistics 26.0 were used for statistical analysis and calculations.

**Findings**

**Demographic Information of Patients**

Demographic information of the patients is given in Table 2.

**Table 2. Frequency and Percentage Values of Patients' Demographic Variables**

		f	%
Gender	Woman	84	31.6
	Male	182	68.4
Age range	22-30 years old	9	3,4
	31-40 years old	47	17.7
	41-50 years old	117	44.0
	age 51 and over	93	35.0
Educational background	Illiterate	38	14.3
	Primary/secondary school	64	24.1
	High school	127	47.7
	Licence	28	10.5
marital status	Degree	9	3,4
	Married	190	71.4
	Single	76	28.6
	Total	266	100.0

When Table 2 is examined, 68.4% of the participants are male; It is seen that 44% are between the ages of 41-50, 47.7% are high school graduates and 71.4% are married.

**Table 3. Changes in Sleep Patterns After Admission to the Intensive Care Unit**

		f	%
Determining the change in sleep patterns after admission to the intensive care unit	Yes	191	71.8
	No	75	28.2
	Total	266	100.0

When we look at the changes in the patients' sleep patterns after being admitted to the intensive care unit, it is seen that there was a change in 71.8% of the patients (Table 3).

**Data on Patients' Intensive Care Unit Environmental Stressors Scale Total Score and Pittsburg Sleep Quality Scale Total Score and Subscales**

**Table 4. Distribution of YBÜÇSÖ and PSQI Total Score and Sub-Dimension Mean Score (N=266)**

	N	Min.	Max .	$\bar{X}$	Ss .
YBÜÇSÖ Total Score	266	123.00	164.00	153,1917	11.77929
PSQI Total Score	266	19.00	30.00	23.9286	2.60018
Subjective Sleep Quality	266	3.00	4.00	3.5752	0.49525
sleep latency	266	7.00	16.00	11.7669	2.15051
Sleep Time	266	4.00	10.00	8.2556	2.41896
Habitual Sleep Activity	266	12.00	25.00	18.3872	3.61084
Sleeping disorder	266	5.00	8.00	6.2782	1.09443
Sleeping pill	266	4.00	6.00	4.9925	0.91936
daytime dysfunction	266	3.00	6.00	3.6316	1.22535

The total YBUCSSS score average of the patients is  $153.1917 \pm 11.77$  , and the PSQI score average is  $23.92 \pm 2.60$ . When the patients ' Pittsburg Sleep Quality Scale subscale scores are examined, the highest subscale score is the habitual sleep efficiency score, while the lowest subscale score is the subjective sleep quality subscale score.

**With Social-Demographic Characteristics of Patients Findings on Relationships between Pittsburg Sleep Quality Scale and Intensive Care Unit Environmental Stressors Scale Scores**

In the research;

The results of the analysis performed to test the hypotheses are presented in Table 5.

**Table 5. Analysis of YBUCSS and PSQI Scores According to Patients' Gender Status (N=266)**

		N	$\bar{X}$	ss	F	p.
YBÜÇSÖ Total Score	Woman	84	153.7976	11.36130	0.847	0.358
	Male	182	152.9121	11.98770		
PSQI Total Score	Woman	84	22.1310	2.14409	0.057	0.812
	Male	182	24.7582	2.36615		

$p > 0.005$

It was observed that there was no statistically positive correlation between the gender status of the patients and the YBUCSS and PKUQI values ( $p > 0.05$ ). On the other hand, in the study conducted by Gencer (2020), the PSQI scores of female patients were found to be significantly higher than those of men. In their study, Erim and Çamdeviren (2018) discovered that there was a significant difference in sleep quality according to gender and observed that female patients had a worse sleep quality compared to male patients. However, another study conducted on the sleep quality of patients followed in intensive care and wards revealed that gender did not affect sleep quality (Uğurlu and Sabuncu, 2012). The study named Eryavuz (2007) also reached similar conclusions. It has been stated that due to some biological differences, women have more sleep problems than men. It is also emphasized that women need more sleep than men and experience sleep problems despite using sleeping pills (Potter and Perry, 2009).

The results of the analysis performed to test the hypotheses are presented in Table 6.

**Table 6. Analysis of YBUCSS and PSQI Scores According to Patients' Age (N=266)**

Scale Dimensions	Age	N	$\bar{X}$	Ss .	Group Comparison
YBÜÇSÖ Total Score	22-30 years old	9	159.0000	0.00000	$\chi^2 = 8,180; p=0.000$
	31-40 years old	47	154.7872	7.11684	
	41-50 years old	117	155.7521	11.73626	
	age 51 and over	93	148.6022	12.90108	
PSQI Total Score	22-30 years old	9	22,0000	0.00000	$\chi^2 = 8.568; p=0.000$
	31-40 years old	47	23.1702	2.80775	

41-50 years old	117	24.7521	2.22798
age 51 and over	93	23.4624	2.74479

p < 0.005

As a result of the examination, a statistically positive correlation is observed between the age status of the patients and the YBÜÇSÖ Total Scores (p < 0.005). As a result of the post hoc test conducted to find out which group the difference is between; YBÜÇSS total scores of patients between the ages of 22-30 were higher than those of patients aged 51 and over; It was determined that the YBÜÇSÖ Total Scores of patients between the ages of 31 and 40 were higher than those of patients aged 51 and over. According to this; It can be said that as age groups decrease, sensitivity to environmental stressors in the intensive care unit also increases. Additionally, there is a statistically positive correlation between the age of the patients and their PSQI scores (p < 0.005). As a result of the post hoc test conducted to determine which group the difference is between; It was determined that the sleep quality of patients between the ages of 41 and 50 was worse than that of patients aged 51 and over. In the study conducted by Eryavuz (2007), by comparing patient groups undergoing hemodialysis and peritoneal dialysis, it was determined that the level of sleep quality worsened with advancing age. Similarly, in another study examining sleep quality in patients diagnosed with COPD, it was found that sleep quality decreased in individuals aged 61 and over ( Kacaroglu Vicdan, 2018). In addition, in their studies by Gencer (2020), Aktaş et al., (2015), Hweidi , (2007) and Durna et al., (1997), no difference was seen between the age groups of the patients and the level of exposure to environmental stressors.

The results of the analysis performed to test the hypotheses are presented in Table 7.

**Table 7. Analysis of YBUCSS and PSQI Values According to Patients' Marriage Status (N=266)**

		N	$\bar{X}$	Ss .	f	p.
YBÜÇSÖ Total Score	Married	190	152.7947	11.69158	0.002	0.969
	Single	76	154.1842	12.01633		
PSQI Total Score	Married	190	24,1947	2.76007	5,362	0.021
	Single	76	23.2632	2.01573		

p > 0.005

A statistical negative correlation was observed between the marital status of the patients and YBUCSS and PSQI scores (p > 0.05). Similarly, in the study conducted by Gencer (2020), no statistically significant difference was found between the marital status of the patients and their PSQI and YBUCSS scores .

The results of the analysis performed to test the hypotheses are given in Table 8.

**Table 8. Analysis of YBUCSS and PSQI Values According to Patients' Education Levels (N=266)**

Scale Dimensions	Educational background	N	$\bar{X}$	ss	Group Comparison
YBÜÇSÖ Total Score	Illiterate	38	155.1842	4.70684	$\chi^2 = 4.944 ; p = 0.001$
	Primary/secondary school	64	148.1250	15.78878	
	High school	127	155.0472	11.35702	
	Licence	28	151.7857	7.20780	
	Degree	9	159.0000	0.00000	
PSQI Total Score	Illiterate	38	22.5000	1.10893	$\chi^2 = 14.425 ; p = 0.000$
	Primary/secondary school	64	25.6563	2.35850	
	High school	127	23.8110	2.73349	
	Licence	28	23.0714	2.19306	
	Degree	9	22,0000	0.00000	

p < 0.005

A statistically positive correlation was detected between the education levels of the patients and YBUCSS scores (p < 0.05). As a result of the post hoc test conducted to determine which group the difference is between; YBÜÇSÖ Total Scores of illiterate patients were higher than those of primary school/secondary school graduates; It was observed that the rate of high school graduates was higher than primary school/secondary school graduates. A statistically positive correlation was also detected between the education levels of the patients and their PSQI scores (p < 0.05). As a result of the post hoc test conducted to determine which group the difference is between; It was determined that the sleep quality of patients who graduated from primary



school/secondary school was worse than patients who graduated from other education levels. In addition, it was observed that the sleep quality of high school graduate patients was worse than that of illiterate patients. On the other hand, in the study conducted by Gencer (2020), no significant difference was found between the educational status of the patients and the level of exposure to environmental stressors. Similarly, the findings of similar studies are similar to the research results (Aktaş et al., 2015; Durna et al., 1997; Hweidi , 2007). The results of the analysis performed to test the hypotheses are given in Table 9.

**Table 9. Intensive Care to the unit after going to bed Later Sleep Analysis of YBÜÇSÖ and PSQI Values According to Change in Order (N=266)**

Scale Dimensions	Sleep patterns	N	$\bar{X}$	Ss .	F	p.
YBÜÇSÖ Total Score	Yes	191	153.7382	11.74082	0.216	0.643
	No	75	151.8000	11.84129		
PSQI Total Score	Yes	191	24.3037	2.65606	0.389	0.533
	No	75	22.9733	2.19319		

p >0.005

Intensive Patients care to the unit after going to bed later sleep It was observed that there was no statistically significant difference between the change in the order and the YBUCSS and PSQI scores (p>0.05). In the study conducted by Yılmaz (2006), it was determined that sleep patterns were disrupted after hospitalization and the main cause of noise was the voices of other patients. In the study, hearing other patients' cries and moans was identified as a second stressor perceived by patients.

#### 4.4. Findings Regarding the Relationship Between Patients' Total YBUCSS Score and PSQI Total and Sub-Dimension Scores

The results of the analysis performed to test the hypotheses are given in Table 10.

**Table 10. Analysis of the Relationship Between Patients' Total YBUCSS Value and PSQI Total and Sub-Dimension Values (N=266)**

		Sleeping pill	daytime dysfunction	sleep latency	Sleep Time	Habitual Sleep Activity	PSQI Total Score	YBÜÇSÖ Total Score
Sleeping disorder	r	-0.069	-.132 *	0.068	.155 *	.138 *	.593 **	-.396 **
	p.	0.261	0.032	0.271	0.011	0.025	<b>0.000</b>	<b>0.000</b>
Sleeping pill	r	one	0.004	0.053	0.035	0.024	0.008	-0.105
	p.		0.945	0.393	0.572	0.701	0.901	0.087
daytime dysfunction	r		one	-0.004	0.068	0.052	-0.075	-0.020
	p.			0.947	0.272	0.398	0.225	0.743
sleep latency	r			one	.521 **	.557 **	.390 **	-0.063
	p.				<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	0.308
Sleep Time	r				one	.885 **	0.014	-0.044
	p.					<b>0.000</b>	0.824	0.474
Habitual Sleep Activity	r					one	0.056	-0.049
	p.						0.366	0.422
PSQI Total Score	r						one	-.444 **
	p.							<b>0.000</b>

\*. Correlation is significant at the 0.05 level

\*\* . Correlation is significant at the 0.01 level

A strong negative relationship was found between the total YBUCSS values and PSQI total values of the patients included in the study (r = 444; p = 0.000). According to this situation; It can be said that as the patients' YBUCSS values increase, their PSQI total values also increase. A strong negative relationship was detected between the patients' total YBUCSS values and the sleep disorder subscale total values. ( r =,-396; p = 0.000). According to this; As the patients' YBÜÇSS increases, their sleep disorder subscale total values decrease. Gencer (2020) stated that as the environmental stress level of patients increases, the sleep onset time (sleep

latency ) subscale total scores also increase; It was found that sleep duration subscale total scores decreased and at the same time daytime dysfunction subscale total scores increased. In another study, it was found that patients who used sedatives or sleeping pills had more sleep problems after hospitalization than those who did not use such medications ( Incekara , 2004). It has been reported that these drugs are used to reduce emotional reactions such as anxiety and restlessness seen in patients in intensive care , but they also increase alertness, disrupt the sleep-wake cycle and cause insomnia ( Stanik , 2003; Black et al., 1993). Frisk and Nordström (2003) found that sedative and hypnotic drugs used in intensive care patients negatively affected sleep quality. Additionally, it has been stated that commonly used ICU medications have profound effects on sleep quality ( Kamdar et al., 2012 ). In a study conducted by Erim (2018), to determine the sleep quality of patients in Intensive Care Units, it was found that patients using sleeping pills had worse sleep quality than those who did not use medication. These findings highlight the effects of medications used in intensive care on sleep quality. Table 11 lists the factors that patients perceive as the most stressful.

**Table 11. Findings Most Perceived as Stress Factor (N=266)**

<b>Factors where stressors are most commonly perceived</b>	<b>Mean±SD</b>
missing your spouse	3.387±0.72
Not explaining the treatments to you	3.184±0.71
Nurses monitoring machines more closely than you	1.815±0.60
Men and women sharing the same room	3.755±0.56
Seeing family and friends for a short period of time	3.755±0.56
Nurses not introducing themselves	3.635±0.48
Nurses should not be in a hurry	3.635±0.48
not being able to drink water	3.635±0.48
Frequent blood pressure measurement	3.635±0.48
The bed or pillow is not at a comfortable level	3.635±0.48
phone ringing	3.635±0.48
Frequent check-ups by doctors and nurses	3.635±0.48

<b>YBÇSÖ</b>	<b>total</b>	<b>score</b>
<b>average</b>		<b>153.191±11.77</b>

When the stressors most perceived by patients are examined; It was observed that the factors " men and women staying in the same room " and " seeing family and friends for a few minutes a day " were higher than other factors ( 3.387±0.72). The total score average of the scale is 153.191±11.77. was found as (Table 9). In the same study by Zaybak and Çevik (2015), it was determined that men and women being in the same room was the third important stressor perceived by patients. Gencer (2020) study found that the most important stressor perceived by patients was lack of privacy. Aktas et al. (2015) in their study to determine the environmental stressors of intensive care patients, it was determined that lack of privacy was the fourth important stressor.

### **Conclusion And Recommendations**

#### **Conclusion**

In this study, the effects of environmental stressors encountered by patients in the internal medicine intensive care unit on sleep quality were examined. According to the research results, the highest sub-dimension value in the PSQI sub-dimension value of the patients was defined as the habitual sleep efficiency value, while the lowest PSQI sub-dimension value was defined as the subjective sleep quality sub-dimension value. A statistically negative correlation was found between the gender of the patients and their YBUCSS and PSQI scores. A statistically positive difference was found between the patients' ages and YBÜÇSÖ Total Scores. Accordingly, the YBUCSS total scores of patients between the ages of 22-30 are higher than those of patients aged 51 and over; It was determined that the YBÜÇSS total scores of patients between the ages of 31 and 40 were higher than those of patients aged 51 and over. According to this situation; It is observed that as age groups decrease, the sensitivity of the intensive care unit to environmental stressors also increases. It was determined that there was a statistically positive correlation between the patients' ages and their PSQI scores. Accordingly, it was determined that the sleep quality of patients between the ages of 41 and 50 was worse than that of patients aged 51 and over.

As a result of the research, a statistically negative correlation was found between the marital status of the patients and their YBUCSS and PSQI scores. It was observed that there was a statistically positive correlation between the education levels of the patients and YBUCSS scores. According to this; YBUCSS Total Scores of illiterate patients were higher than those of primary school/secondary school graduates; It was observed that the rate of high school graduates was higher than primary school/secondary school graduates. It was also found that there was a statistically positive correlation between the educational status of the patients and their PSQI scores. Accordingly, it was determined that the sleep quality of patients who graduated from primary school/secondary school was worse than patients who graduated from other education levels. In addition, it was observed that the sleep quality of high school graduate patients was worse than illiterate patients. A statistical negative correlation was observed between the change in sleep patterns of the patients after admission to the Intensive Care Unit and their YBUCSS and PSQI scores.

A negative relationship was found between the patients' total YBUCSS scores and PSQI total scores. According to this; It can be said that as patients' YBUCSS scores increase, their PSQI total scores also increase. A negative relationship was found between the patients' total YBUCSS scores and the sleep disorder subscale total scores. According to this situation; When patients' YBUCSS values increase, their sleep disorder subscale total scores decrease. When the stressors most perceived by patients are examined; The factors " men and women staying in the same room " and " seeing family and friends for a few minutes a day " were found to be higher than other factors.

### Suggestions

According to the research results, it is important to pay attention to the following recommendations to reduce environmental stressors that affect the sleep quality of patients in the internal medicine intensive care unit:

- Differences in sleep quality and stress levels have been detected between different age groups. Therefore, it may be recommended to create patient care plans to ensure stress management and sleep patterns specific to age groups.
- A significant relationship has been identified between education level and sleep quality. Patients with lower education levels have generally been shown to have worse sleep quality. Therefore, awareness programs or educational materials that will provide support on sleep habits can be developed for patients with low education levels.
- A negative relationship has been found between the stress levels and sleep quality of married patients. In this case, it may be beneficial for married patients to develop methods that increase communication with family members or encourage supportive family visits.
- Different stressors have been shown to have different effects. Therefore, it may be beneficial to develop a customized stress management plan based on patients' individual preferences and sensitivities. For example, segregating rooms according to gender or making visiting hours more flexible.
- Changes in sleep patterns have been observed in patients after admission to the intensive care unit. Considering the relationship of these changes with stress levels, supportive measures can be taken to facilitate patients' adaptation processes. These measures may be, for example, lighting regulations or control of noise levels.
- A significant relationship was found between YBUCSS scores and PSQI scores. In this case, considering that sleep quality deteriorates as stress levels increase, therapy or support programs can be developed accordingly.

### References

- Aktaş YY, Karabulut N, Yılmaz D, Özkan AS. (2015). Kalp damar cerrahisi yoğun bakım ünitesinde tedavi gören hastaların algıladıkları çevresel stresörler, *Kafkas Tıp Bilimleri Dergisi*, 5, 81-86.
- Akyüz, M. A. (2021). *Cerrahi yoğun bakım ünitesinde yatan hastaların algıladıkları çevresel stresörler ve sosyal destek durumlarının incelenmesi*, Yüksek lisans tezi, Ege Üniversitesi, Sağlık Bilimleri Enstitüsü.
- Aslan, F. (2010), *Yoğun bakım ünitesinde tedavi gören hastaların algıladıkları çevresel stresörler: geçerlilik ve güvenilirlik çalışması*, Yüksek Lisans Tezi, Marmara Üniversitesi Sağlık Bilimleri Enstitüsü.
- Aysan, E., Karaköse, S., Zaybak, A., & İsmailoğlu, E. G. (2014). Üniversite öğrencilerinde uyku kalitesi ve etkileyen faktörler. *Dokuz Eylül Üniversitesi Hemşirelik Fakültesi Elektronik Dergisi*, 7(3), 193-198.
- Black, J.M., Matassarin-Jacobs, E. (1993), Luckmann and Sorensens's *Medical Surgical Nursing*, p: 362-370. W.B. Saunders Company, Philadelphia.
- Bodur, İ., & Aslan, Ö. (2020). Koroner yoğun bakım ünitesinde yatan hastaların algıladıkları çevresel stresörlerin belirlenmesi. *Ordu Üniversitesi Hemşirelik Çalışmaları Dergisi*, 5(3), 298-305.
- Demir, M. V., Taycı, İ., Yıldız, H., & Demir, T. Ö. (2016). Dahiliye yoğun bakım hastalarının düşme riski açısından değerlendirilmesi. *Journal of Human Rhythm*, 2(3).

- Demirtürk Selçuk E., Demirbağ B, C. (2021). COVID-19 salgınının sağlık çalışanlarında ikincil travmatik strese ve uyku kalitesi üzerine etkisi. the effect of covid-19 outbreak on secondary traumatic stress and sleep quality in healthcare workers. *Türkiye Klinikleri Hemşirelik Bilimleri Dergisi*, 13(3):533-43.
- Devlin J. (2018). Clinical practice guidelines for the prevention and management of pain, agitation/sedation, delirium, immobility, and sleep disruption in adult patients in the ICU. *Crit. Care Med*, 46, 825–873.
- Durna, Z., Can, G. & Özcan, Ş. (1997), Akut miyokard infarktüsü geçiren hastalarda koroner yoğun bakım stresörlerinin ve stres düzeylerini etkileyen faktörlerin saptanması. *Yoğun Bakım Hemşireleri Dergisi*, 1 (1), 25-31.
- Erim, H. (2018), *Yoğun bakım ünitesinde yatan hastaların uyku kalitesinin belirlenmesi*, Yüksek Lisans Tezi, Medipol Üniversitesi Sağlık Bilimleri Enstitüsü, İstanbul.
- Erturan, S. (2017). *Lumbal disk hernisi tanısı alan hastalarda uyku kalitesinin, yorgunluğun, yaşam kalitesinin, dengenin, depresyonun ve ağrının değerlendirilmesi*. Yüksek Lisans Tezi, İstanbul Üniversitesi Sağlık Bilimleri Enstitüsü.
- Eryavuz, N. (2007), *Hemodiyaliz ve periton diyalizi hastalarında uyku kalitesinin karşılaştırılması*, Yüksek Lisans Tezi Afyon Kocatepe Üniversitesi Sağlık Bilimleri Enstitüsü.
- Frisk, U., Nordström, G. (2002), Patients' sleep in an intensive care unit--patients' and nurses' perception. *Intensive Crit Care Nurs*, 19 (6): 342-9.
- Gencer, A. (2020). *Yoğun bakım ünitesinde tedavi gören hastaların algıladıkları çevresel stresörlerin uyku kalitesine etkisi*, Yüksek Lisans Tezi, Biruni Üniversitesi Lisansüstü Eğitim Enstitüsü.
- Gencer, A., & Kumsar, A. K. (2020). Yoğun bakım ünitesinde tedavi gören hastaların algıladıkları çevresel stresörlerin uyku kalitesine etkisi. *Online Türk Sağlık Bilimleri Dergisi*, 5(3), 434-443.
- Güneş, S. (2022). *Kocaeli Üniversitesi Tıp Fakültesi araştırma görevlisi doktorların uyku kalitesi ve uyku kalitesine etki edebilecek faktörlerin değerlendirilmesi*, Tıpta Uzmanlık Tezi, Kocaeli Üniversitesi, Tıp Fakültesi
- Hintistan, S., Nural, N., & Öztürk, H. (2009). Yoğun bakım ünitesinde yatan hastaların deneyimleri. *Yoğun Bakım Hemşireliği Dergisi*, 13(1), 40-46.
- Hweidi, I.M. (2007), Jordanian patients' perception of stressors in critical care units: a questionnaire survey. *International Journal of Nursing Studies*. 44 (2): 227- 235.
- İncekara, E. (2004), *Koroner yoğun bakım ünitesine başvuran uyku sorunları ve uyku sorunlarını etkileyen faktörlerin değerlendirilmesi*, Yüksek Lisans Tezi, Marmara Üniversitesi Sağlık Bilimleri Enstitüsü.
- Kabeloğlu V, Gül G. (2021). Covid-19 salgını sırasında uyku kalitesi ve ilişkili sosyal ve psikolojik faktörlerin araştırılması. *Journal of Turkish Sleep Medicine*, 2, 97-104.
- Kacaroglu, A., (2018), Kronik obstrüktif akciğer hastalarının uyku kalitesinin değerlendirilmesi. *DEUHFED*, 11 (1): 14-18.
- Kamdar, B.B., Needham, D.M., Collop, N.A. (2012), Sleep deprivation in critical illness: its role in physical and psychological recovery. *J Intensive Care Med*, 27 (2):97-111.
- Karakaş S. A, Gönültaş N, Okanlı A. (2017). Vardiyalı çalışan hemşirelerde uyku kalitesi, *Erciyes Üniversitesi Sağlık Bilimleri Fakültesi Dergisi*, 4(1), 17-26
- Karasar, N. (2011). *Bilimsel araştırma yöntemi*. Ankara: Nobel Yayınevi.
- Küçükardalı, Y., Solmazgül, E., Kaplan, M., Karataş, M., Musa Salmanoğlu, M., Çevir, S., & Sarı Gül, A. Ş. (2007). Dahiliye servisi ve yoğun bakım ünitesine yatan hastalarda nutrisyon riski taraması. *Yoğun Bakım Dergisi*, 7(2), 270-275.
- Özdel, O., & Uğurlu, T. T. (2016). Uyku bozukluğu genetiği. *Türkiye Klinikleri J Psychiatry-Special Topics*, 9(1), 88-91.
- Potter, P.A. & Perry, A.G. (2009), *Sleep in fundamentals of nursing*, Canada: Mosby.
- Stanik, J.A. (2003), Pain management in the critically ill. *Critical Care Nurse*, 23 (2), 99-103
- Şahin M, Köçkar Ç. (2018). Bir stresör olarak yoğun bakım. *Yaşam Becerileri Psikoloji Dergisi*, 2, 207-214.
- Taş, N.P. (2022). Effect of body weight on pain, sleep quality and depression in patients with primary fibromyalgia syndrome. *The Egyptian Rheumatologist*, 44(4), 339- 342.
- Tavşanlı, N.G. & Akgün, S. (2021). Gebeliğin başlangıcındaki kadınlarda uyku hijyeni eğitiminin uyku kalitesine etkisi. *International Anatolia Academic Online Journal Health Sciences*, 7(2), 93-108.
- Uğurlu, T. (2012). *Yoğun bakım ünitesinde yatan ve serviste takip edilen hastaların uyku kalitesi ve sorunlarının değerlendirilmesi*, Yüksek Lisans Tezi, Haliç Üniversitesi Sağlık Bilimleri Enstitüsü.
- Ülker, G. (2020). *Üçüncü basamak dahiliye yoğun bakım ünitesinde 2017-201 yılları arasında yatırılan hastaların retrospektif değerlendirilmesi*. Tıpta Uzmanlık Tezi, Eskişehir Osmangazi Üniversitesi Tıp Fakültesi.
- Xie L., Kang H., Xu Q., Chen MJ, Liao Y., Thiagarajan M., & Nedergaard M. (2013). Uyku, yetişkin beyninden metabolitlerin temizlenmesini sağlar. *Bilim*, 342, 373-377
- Yılmaz, E. (2006). *Kronik ağrılı hastalarda yaşam kalitesi*. Yüksek Lisans Tezi, İstanbul Üniversitesi Sağlık Bilimleri Enstitüsü. İstanbul.

Zaybak, A., Çevik, K. (2015), yoğun bakım ünitesindeki stresörlerin hasta ve hemşireler tarafından algılanması. *Turkish Journal of Medical & Surgical Intensive Care Medicine/Dahili ve Cerrahi Bilimler Yoğun Bakım Dergisi*, 6(1).