



Sleep Disturbances and Resilience in Tertiary Critical Care Patients' Relatives: A Study from a City Hospital

Üçüncü Basamak Yoğun Bakım Hasta Yakınlarında Uyku Bozuklukları ve Dayanıklılık: Şehir Hastanesinden Bir Araştırma

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Abstract

Objective: This study aimed to examine sleep disturbances and resilience in the first-degree relatives of patients in a tertiary intensive care unit (ICU) and to investigate the relationship between sleep quality and resilience.

Materials and Methods: The study included 65 voluntary participants who were the first-degree relatives of critical patients. The Pittsburgh sleep quality index (PSQI) and the resilience scale for adults (RSA) were used.

Results: A sleep disorder was found in 34 (52.3%) of the participants in the study. The PSQI values of the participants ranged from 0 to 17, with an average of 6.35 ± 3.586 standard deviation (SD). When the PSQI and the sub-components of the index were compared according to gender, the proximity of the participants to the patient, educational status of the participants and marital status of the participants, no statistically significant relationship was found. The average score for the RSA was 123.93 ± 24.093 SD and it was seen that the participants had a good level of resilience. No statistically significant relationship was found between resilience and sleep in the relatives of the patients treated in the tertiary ICU.

Conclusion: In this study, the relationship between resilience and sleep quality in the relatives of patients was examined, and no correlation was found. However, it was observed that the ICU patients had significantly impaired sleep quality markers compared to healthy individuals in the community.

Keywords: ICU, Pittsburgh sleep quality index, resilience

Öz

Amaç: Çalışmamızda; üçüncü düzey yoğun bakım ünitesindeki (YBÜ) hastaların yakınlarında uyku bozuklukları ve dayanıklılığın araştırılması ve aralarında bir ilişki olup olmadığının incelenmesi amaçlanmıştır.

Gereç ve Yöntem: Çalışmamız, YBÜ hastalarının birinci derece yakını olan 65 katılımcı ile gerçekleştirilmiştir. Pittsburgh uyku kalitesi indeksi (PUKİ) ve erişkinler için dayanıklılık skalası kullanılmıştır.

Bulgular: Katılımcıların %52,3'ünde (34) uyku bozukluğu saptanmıştır. Katılımcıların PUKİ skorları 0-17 arasında değişmekte olup ortalama $6,35 \pm 3,586$ standart sapmadır (SS). Katılımcıların PUKİ toplam skorları ve alt grupları oluşturan sorular değerlendirildiğinde; cinsiyet, hastaya yakınlık derecesi, katılımcıların eğitim durumu, katılımcıların medeni hali değişkenlerinin istatistiksel anlamlı fark göstermediği bulunmuştur. Katılımcıların erişkinler için dayanıklılık skalası skoru ortalama $123,93 \pm 24,093$ bulunmuş olup, katılımcıların dayanıklılığının yüksek olduğunun göstergesi olarak değerlendirilmiştir. Katılımcıların uyku bozuklukları ile dayanıklılıkları arasında korelasyon izlenmemiştir.

Sonuç: Çalışmamızda, YBÜ hasta yakınlarında uyku bozuklukları ve dayanıklılık arasında korelasyon saptanmamıştır. Ancak; toplumdaki sağlıklı kişiler ile yapılan çalışmaların sonuçları ile kıyaslandığında; uyku bozukluklarının artmış olduğu görülmüştür.

Anahtar Kelimeler: YBÜ, Pittsburgh uyku kalitesi indeksi, dayanıklılık

Introduction

Resilience, in its simplest sense, is defined as maintaining one's determination and resolve in the face of an unexpected situation and, beyond its specific medical use, is often employed as meaning the ability to cope with what life brings. When the relatives and loved ones of a patient have to attend the intensive care unit (ICU) as a result of the patient's severe illness,

this may lead to psychological disorders such as anxiety, sleep disorders, fatigue, and burnout in these family members.¹ These conditions can reduce their ability to deal with the patient and make decisions, and lead to undesirable difficulties for the patient and their relatives. In this study, we aimed to evaluate sleep disorders and, psychological resilience levels, and whether there is a correlation between these in the first-degree relatives of patients in a tertiary ICU.

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Materials and Methods

First-degree relatives of patients who were hospitalized for longer than seven days in our tertiary ICU were informed about the planned study and their consent was obtained. Relatives of patients who were not first-degree relatives were not included in the study. The five-page Pittsburgh sleep quality index (PSQI), the resilience scale for adults (RSA), and the personal information form used were explained in detail to the patients' relatives and they were asked to fill them out.

The PSQI consists of a total of 24 items. Of these, 19 items are answered by the main individual taking part, while five are answered by their partner or roommate, if any. The questions focus on seven components of sleep: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbance, use of sleeping pills, and daytime dysfunction. The sum of these seven components gives the total score for the index, which ranges from 0 to 21. The higher the total score, the worse the sleep quality, although the PSQI does not indicate whether there is a sleep disorder or the prevalence of any such disorder.² In the present study, the PSQI was the first form given to the participants and the questions were scored according to the usual scoring criteria.

The RSA was developed by Friberg et al.³ and includes the dimensions of "personal strength", "structural style", "social competence", "family cohesion", and "social resources". In Friberg et al.'s⁴ study, the "personal power" dimension was divided into "self-perception" and "perception of the future", and a total of six dimensions emerged. This scale was validated in Turkish by Basim and Çetin⁵ in 2011. In the present study, the RSA was the second form given to the participants and it was scored according to the usual scoring criteria.⁵

The personal information form was created to collect data about the participants' demographic characteristics, as well as their proximity to the patient, their daily activities and their sleep status, in order to allow the results obtained from the other instruments to be evaluated.

Written consent was obtained from all the participants in the study. Permission to conduct the study was obtained from the University of Health Sciences Turkey, Başakşehir Çam and Sakura City Hospital Clinical Research Ethics Committee with the decision number 292 (date: 29.12.2021)

Statistical Analysis

In evaluating the data obtained, descriptive variables (mean, percentile, and standard deviation) and analytical tests (chi-square and Pearson correlation coefficient) were used with the SPSS 22.0 (SPSS, Inc., Chicago, IL) program. A value of $p < 0.05$ was considered statistically significant.

Results

The study was carried out with the participation of 65 first-degree relatives of patients hospitalized in tertiary adult ICU between 01/03/2022 and 01/11/2022. Of the participants, 35 (53.8%) were women and 30 (46.2%) were men. The demographic data of the participants are presented in Table 1. A sleep disorder was found in 34 (52.3%) of the participants in the study. The PSQI values of the participants ranged from 0 to

17, with a mean score of 6.35 ± 3.586 standard deviation (SD). The first component of the PSQI assesses subjective sleep quality. The score for this ranges from 0 to 3 (0= "very good", 3= "very bad"). The mean score of the participants in the present study was 1.18 ± 0.827 SD was found. Four participants rated their sleep quality as "very bad" and 17 participants as "bad", while 31 participants rated it as "good", and 13 participants as "very good".

Table 1. Participants' demographic characteristics and factors that may affect sleep quality

Age of participants (mean \pm SD)	
Participants' gender	n (%)
Female	35 (53.8%)
Male	30 (46.2%)
Proximity of participants to the patient	n (%)
Patient's mother	3 (4.6%)
Patient's father	3 (4.6%)
Patient's child	38 (58.5%)
Patient's spouse	12 (13.8%)
Patient's sibling	9 (13.8%)
Educational status of the participants	n (%)
Primary school	25 (38.5%)
Middle school	15 (23.1%)
High school	6 (9.2%)
Higher education	19 (29.2%)
Marital status of the participants	n (%)
Single	17 (26.2%)
Married	48 (73.8%)
Employment status of the participants	n (%)
Unemployed	34 (52.3%)
Employed	31 (41.7%)
City where participants live	n (%)
Lives in the same city	54 (83.1%)
Lives elsewhere	11 (16.9%)
Where the participants stay while the patient is in the ICU?	n (%)
Home	46 (70.8%)
Hospital	7 (10.8%)
Hotel	8 (12.3%)
Other	4 (6.2%)
From where was the patient admitted to the ICU?	n (%)
From services	17 (26.2%)
From emergency department	48 (73.8%)
How many days has the patient been in the ICU?	n (%)
4-6 days	21 (32.3%)
7-10 days	14 (21.5%)
10 days and more	30 (46.2%)

ICU: Intensive care unit, SD: Standard deviation

The second component of the PSQI measures sleep latency, that is, the time it takes to fall asleep. According to the data obtained by asking the participants how long it took them to fall asleep and the days in which it took them more than 30 minutes to fall asleep in the last month, only 15 of the participants had not experienced a delay in falling asleep. In contrast, a delay in sleep latency was observed in 50 participants (mean: 1.23±0.965 SD).

The third component of the PSQI is sleep duration. Of the 65 participants in the study, 39 had fewer than seven hours of sleep per day. The mean score for sleep duration was found to be 0.94±0.950 SD.

The fourth component of the PSQI covers effective sleep habits. Of the participants, 39 slept for more than 85% of the time they spent in bed, while four of them were asleep for less than 65% of the time they spent in bed (mean: 0.58±0.864 SD).

The fifth component of the PSQI is concerned with sleep disturbances. Of the participants 60 described having least one sleep disorder (mean: 1.35±0.717 SD).

The sixth component of the PSQI asks whether any medication been used to aid sleep in the previous month. Of the participants 56, did not use any medication, eight had used medication once or twice a week, and one participant stated that they used sleeping pills regularly (mean: 0.18±0.527 SD).

The seventh component of the PSQI questions daily dysfunction. Of the participants 27, stated that they did not experience any daily dysfunction, 19 had mild daily dysfunction and 17 had moderate daily dysfunction. Three participants stated that their daily functions were severely affected due to sleep disturbance (mean: 0.91±0.897 SD).

When the participants were asked how their relatives who were patients had felt when they were taken to the ICU, 69.2% of the participants stated that they had felt fear and anxiety, while 56.9% stated that they had felt sadness and grief. A sense of guilt was felt by 3.1%, while 32.3% believed that the disease was fate and should be accepted.

No statistically significant difference was found when the age of the participants was compared to their gender ($p=0.716$; $t=0.366$).

No statistically significant difference was found when the RSA scores of the participants were compared according to their gender ($p=0.128$; $t=1.543$).

When the scores for the PSQI and its sub-components were compared according to the gender of the participants, no statistically significant difference was found (Table 2).

When the RSA scores of the participants were compared according to their degree of closeness to the patient, no statistically significant difference was observed between the groups ($p=0.48$; $t=0.711$).

When the scores for the PSQI and its sub-components were compared according to their degree of closeness to the patient, no statistically significant difference was found (Table 3).

No statistically significant difference was found when the scores for the PSQI ($p=0.266$; $p>0.05$) and its sub-components and the scores for the RSA ($p=0.692$; $p>0.05$) were compared,

Table 2. Distribution of PSQI and its sub-components by gender (Mann-Whitney U and Wilcoxon W tests)

	p	z
PSQI total score	0.041	-2.040
Subjective sleep quality	0.475	-0.714
Sleep latency	0.376	-0.886
Sleep duration	0.354	-0.927
Habitual sleep activity	0.175	-1.356
Sleeping disorder	0.022	-2.287
Use of sleeping pills	0.141	-1.471
Daytime dysfunction	0.263	-1.119

PSQI: Pittsburgh sleep quality index

Table 3. Distribution of PSQI and its sub-components according to patient proximity (by Mann-Whitney U and Wilcoxon W tests)

	p	z
PSQI total score	0.108	-1.608
Subjective sleep quality	0.170	-1.374
Sleep latency	0.481	-0.705
Sleep duration	0.021	-2.306
Habitual sleep activity	0.056	-1.913
Sleeping disorder	0.532	-0.625
Use of sleeping pills	0.318	-0.999
Daytime dysfunction	0.322	-0.990

PSQI: Pittsburgh sleep quality index

depending on whether the patient was hospitalized in the service or emergency room.

The relatives of the patients were asked where they were staying while their family member was in the ICU in order to examine whether there was a statistically significant difference in sleep disorders and resilience according to this variable. When the scores for the PSQI ($p=0.135$; $p>0.05$) and its sub-components and the scores for the RSA ($p=0.624$; $p>0.05$) were compared in terms of where the participants were staying, no statistically significant difference was found.

The patients were divided into two groups according to the length of their stay in the ICU: "fewer than 10 days" and "10 days or more". It was examined whether there was a statistically significant difference in the sleep disorders and resilience of the patients' relatives between the two groups. When the scores for the PSQI ($p=0.411$; $p>0.05$) and its sub-components and the scores for the RSA ($p=0.485$; $p>0.05$) were compared according to the patient's length of hospitalization, no statistically significant difference was found.

Discussion

In the present study, no statistically significant relationship was found between resilience and sleep in the relatives of the patients treated in the tertiary ICU. However, as a result of the evaluation with the PSQI, it was seen that the relatives of the

patients experienced high levels of anxiety, depression, and even burnout, and this affected their overall sleep.

Critical illness is a source of stress for the patient's family members as well as placing a physical and psychological burden on the patient. It can also lead to psychosocial issues such as burnout, detachment from social life, and disruption of employment. Although these effects vary according to the ability of specific individuals to cope with stress, disease and illness may result in sleep disorders and inability to concentrate, and accidents related to these conditions, in the relatives of some patients.

Another important issue is that some of the patients treated in the ICU are not competent to decide on the procedures related to their treatment due to the nature of their disease and/or due to being intubated or under sedation. This can lead to situations where physicians have to make decisions about treatments and interventions jointly with the patient's relatives. These relatives, however, may not feel able to make the right decision due to the burden of their family member's critical illness, and its physical and psychosocial effects. In such cases, patients' relatives may begin to blame themselves and healthcare professionals in the event of any complications arising from treatment.

The resilience of family members is a positive factor in the management of the stress associated with a critical illness. As the family's resilience increases, the patient's resilience also increases, and the stress level of caregivers decreases.⁶ Evaluations of resilience in the relatives of ICU patients were first made by Sottile et al.⁷ In their 2016 study, they used a different resilience measurement than in the present study, finding the resilience rate of relatives of ICU patients to be 49%.⁷ We used the RSA (minimum score 33, maximum score 165), in which the resilience of the participant increases as the score for this scale increases.⁸ In the present study, the average score for the RSA was 123.93, and the participants thus demonstrated good resilience. In their study evaluating anxiety, acute stress symptoms and resilience in relatives of ICU patients within 48 hours of hospitalization, Komachi and Kamibepu⁹ emphasized that these relatives had low resilience and identified the need to develop support systems to help them cope better with the process.

In the present study, the relationship between resilience and sleep quality in the relatives of the patient was examined, and no correlation was found between them. However, it has been observed that ICU patients have significantly impaired sleep quality markers compared to healthy individuals in the community. In the United States, it has been reported that 35.2% of the population has less than seven hours of sleep per day, and that 10-30% of otherwise healthy individuals have to cope with chronic insomnia.¹⁰ In the study of Panda et al.¹¹ in Indian society, the percentage of individuals with a PSQI score of 5 and above, that is, those considered to have a sleep disorder, was determined as 6.2%. In the present study, the mean PSQI score was found to be 6.35 ± 3.586 , and sleep quality was found to be impaired in 69% of the participants. The data show that the relatives of ICU patients experienced more sleep disorders than healthy individuals. Again, 32% of the participants stated

that they slept poorly or very badly in their subjective sleep assessment, and 92% described the reasons that they woke up. Comparing the participants in the present study with prior research on caregivers, we found a number of studies on sleep disorders conducted on the relatives of cancer patients and people with chronic diseases. In the study of Karabulutlu et al.,¹² in which they investigated the sleep and quality of life in caregivers of cancer patients, it was determined that 88.7% of the caregivers had poor sleep quality and the average score for total sleep quality (PSQI) was 9.87 ± 3.95 . Lee et al.¹³ also found that the relatives of dementia caregivers had a much higher rate of sleep disorders than those who did not provide care.

Study Limitations

The greatest limitation of the present study is the small number of patients' relatives who volunteered to participate. Most of the relatives were simply trying to deal with the difficult situation of their family member's illness, and did not want to spend their time answering the questions or to take part in the study.

Conclusion

To the best of our knowledge, no sleep and resilience studies have previously been conducted with the relatives of tertiary ICU patients in Turkey. In line with our initial expectations, bringing a patient's loved ones onto the ICU may cause serious sleep problems, disrupting parameters such as the total duration of sleep, sleep latency and sleep content, all of which can have an impact on daily activities. Providing better psychological and social support to patients and their relatives will improve their ability to cope with these problems.

Ethics

Ethics Committee Approval: Permission to conduct the study was obtained from the University of Health Sciences Turkey, Başakşehir Çam and Sakura City Hospital Clinical Research Ethics Committee with the decision number 292 (date: 29.12.2021).

Informed Consent: Written consent was obtained from all the participants in the study.

Authorship Contributions

Surgical and Medical Practices: B.İ.F., D.T., Concept: B.İ.F., G.T., Design: B.İ.F., D.T., G.T., Data Collection or Processing: B.İ.F., D.T., Analysis or Interpretation: B.İ.F., D.T., G.T., Literature Search: B.İ.F., D.T., G.T., Writing: B.İ.F., D.T., G.T.

Conflict of Interest: No conflict of interest was declared by the authors.

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