ARAŞTIRMA

DOES THE FEAR OF SURGERY PREVENT PATIENTS FROM SLEEPING?

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ABSTRACT

Aim: This study intended to determine the correlation between elective surgery patients' degree of surgical fear and their states of night sleep.

Method: The population of the study included 146 patients who underwent elective surgeries in the surgery clinics of a university hospital in Turkey between October 2016 and July 2017. The study data were collected using a personal information form, the Richard-Campbell Sleep Questionnaire (RCSQ), and the Surgical Fear Questionnaire (SFQ).

Result: The patients' mean score on the Surgical Fear Questionnaire was 42.57±25.40, and on the RCSQ was 46.90±32.50. There was a strong negative correlation between the subdimension mean scores and the total mean score on the Surgical Fear Questionnaire (Long Term and Short Term) and the total mean score on RCSQ (p<0.01).

Conclusion: The researcher suggests that these results should be used to determine an individual's level of fear related to upcoming surgery; effective methods for coping with fear should be included in pre-surgery preparation and training programs.

Keywords: Elective surgery; fear of surgery; sleep

ÖZET

Ameliyat Korkusu Hastaları Uyutmuyor mu?

Amaç: Bu araştırma elektif cerrahi hastalarının yaşadıkları cerrahi korku düzeyi ile gece uyku durumları arasındaki ilişkiyi belirlemek amacıyla yürütüldü.

Yöntem: Araştırmanın evrenini; Türkiye'de bulunan bir üniversite hastanesindeki cerrahi kliniklerde Ekim 2016- Temmuz 2017 tarihleri arasında elektif cerrahi geçiren 146 hasta oluşturdu. Verilerinin toplanmasında "Kişisel Bilgi Formu", "Richard-Campbell Uyku Ölçeği (RCUÖ)" ve "Cerrahi Korku Ölçeği (CKÖ)" kullanıldı.

Bulgular: Bu çalışmada hastaların Cerrahi Korku Ölçeği puan ortalaması 42.57±25.40 olarak belirlendi. Richard-Campbell Uyku Ölçeği puan ortalaması ise 46.90±32.50 bulundu. CKÖ-K, CKÖ-U alt boyut puan ortalamaları ve toplam puan ortalaması ile Richard-Campbell Uyku Ölçeği'nin toplam puan ortalaması arasında negatif yönde anlamlı bir ilişki olduğu belirlendi. (p<0.01).

Sonuçlar: Araştırma bulguları doğrultusunda elektif cerrahi bekleyen hastaların cerrahi korku düzeyinin, gece uyku durumları üzerinde etkili olduğu görüldü.

Anahtar Kelimeler: Elektif cerrahi; cerrahi korku; uyku

INTRODUCTION

Surgical intervention can be a negative experience for both patients and their families. Patients who have an upcoming surgery can feel an immense fear and worry related to their lives and future. Fear of surgery is an emotional reaction that is observed in most patients who have had a previous elective surgery (Theunissen, Peters, Schouten, Fiddelers, Willemsen, Pinto et al. 2014). Most of the patients awaiting surgery describe fear, which is accepted as normal.

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However, increasing fear and anxiety create some negative situations (Gürsoy, Candaş, Güner and Yılmaz 2016). When patients experience increasing fear and anxiety, the risk factors related to the operation (e.g., an increase in the rates of morbidity and mortality; delayed recovery of surgical sites; extended hospitalization; further use of analgesics after the surgery; being given a higher amount of anesthetic) are further increased (Christian, Graham, Padgett, Glaser and Kiecolt-Glaser 2006; Pierantognetti, Covelli and Vario 2002; Stirling, Raab, Alder and Robertson 2007; Maranets and Kain 1999).

This increase in the degree of fear, accompanied by other emotional problems, also affect patients' sleep, expressed as changes in sleep and other habits. The state of being asleep and being awake is a process that involves biological rhythm and repetitive periods. When individuals fail to maintain the sleep-wake cycle, overall entire health is affected negatively (Weinhouse and Schwab 2008; Yılmaz, Kutlu and Çeçen 2008). Emotional reactions such as fear, sadness, suspicion, and happiness influence individuals' relaxation and sleep. When persons are afraid, they sleep less than they need, and their REM sleep is also shortened. Similarly, an increasing fear can cause difficulty falling asleep and waking up for brief intervals at night (Özkaya, Yüce, Gönenç and Gül 2013; Yılmaz, Kutlu and Çeçen 2008). Yılmaz, Kutlu and Çeçen (2008) examined patients' sleep habits and determined that disease- and surgery-related worry was an important factor affecting their sleep.

A poor management of surgical stress is an important factor that affects the sleep-wake cycle, technically called the circadian rhythm. Circadian rhythms are physical, mental, and behavioral changes that follow a daily cycle. They respond primarily to light and darkness in an organism's environment. Sleeping at night and being awake during the day is an example of a light-related circadian rhythm. Feeling fear activates a neuroendocrine response, resulting in a response in both the sympathetic nervous system and the hypothalamic–pituitary–adrenal axis (HPA) and an increase in stress hormones. The circadian rhythm is an important indication of the sufficiency of stress reaction mechanisms: the neuroendocrine response that is created by stress may also cause a deterioration in circadian rhythm (Yılmaz, Kutlu and Çeçen 2008; Diaz-Morales, Francisco and Sánchez-Lopez 2008; Sandra and Spiegel 2003).

There are no studies conducted in Turkey of the correlation between the fear experienced by the individuals facing an upcoming surgery and their states of getting sleep at night. The patients who have sleeping problems in relation to pre-operative fear have a slower recovery in physical and emotional terms after the operation, and they are also more sensitive toward pain (Poole, Kidd, Leigh, Ronaldson, Jahangiri and Steptoe 2014). Hence, it is exceptionally important to determine patients' pre-operative sleep quality. The present study was conducted to detect the correlation between surgical patients' degree of fear before the operation and their night sleep.

MATERIAL and METHODS

The Design, Population and Sample of the Study: This is a descriptive and correlational study. The study population consisted of 192 patients who were to be operated in the surgical clinics of Atatürk University Yakutiye Research Hospital between October 2016 and July 2017. No specific sample was selected because the aim was to include the entire population; 146 patients who met the inclusion criteria constituted the sample.

The inclusion criteria:

I. Being older than 18,

II. Being conscious,

III. Having no cognitive or mental disorders,

IV. Volunteering for communication and cooperation, and agreeing to participate in the study,

V. Being included in categories I and II in ASA (American Society of Anesthesiologists) categorization,

VI. Being evaluated as an elective surgery case to be given general anesthesia.

Data Collection Tools: The study data were collected using a personal information form, Surgical Fear Questionnaire, and Richard-Campbell Sleep Questionnaire.

Personal Information Form: This form was created by the present researcher based on the relevant literature (Koivula, Paunonen- Ilmonen, Tarkka, Tarkka and Laippala 2002; Caumo, Schmidt, Schneider, Bergmann, Iwamoto, Bandeira et al. 2001; Theunissen, Peters, Schouten, Fiddelers, Willemsen, Pinto et al. 2014). it includes questions about patients' sociodemographic characteristics (e.g., age, sex,

prospective surgery, scale of the surgery, marital status, education level, residence, employment status, income level, pre-operative pain, ASA score, sleeping problems).

Surgical Fear Questionnaire: This questionnaire was created by Theunissen, Peters, Schouten, Fiddelers, Willemsen, Pinto et al. (2014) with the purpose of estimating the degree of fear in patients with a prospective elective surgery caused by the short- and long-term results of the operation. The validity and reliability studies of the questionnaire were conducted in Turkey by Bağdigen and Karaman Özlü (2016). It is a 11-point Likert-type scale with eight items scored from 0 to 10. The options range between "I have no fear at all" (0) and "I have a very great fear" (10). The scale includes two subdimensions, each including four items about the source of fear which is related to the short term and long term results of the surgery. Items 1 to 4 inquire the fear from the short-term results of the surgery, whereas items 5 to 8 inquire the long-term results. In this study, the subdimensional score was calculated by adding the scores of the four items in each subdimension; the total score on the scale was calculated by adding the scores of the two subdimensions. The minimum score on each subdimension is 0, and the maximum score is 40. The minimum scale score is 0, and the maximum scale score is 80. The higher scores on the scale indicate a higher degree of perceived fear. Cronbach's Alpha internal consistency coefficient of SFQ was found to be 0.95. (Bağdigen and Karaman Özlü 2016).

Richard-Campbell Sleep Questionnaire (RCSQ): Richard-Campbell Sleep Questionnaire (RCSQ) was created by Richards (1987). The validity and reliability studies of the scale in Turkey were conducted by Karaman Özlü and Özer (2015). It includes six items that inquire about the depth of night sleep, the time passing before falling asleep, the frequency of waking up, the length of time staying awake after waking up, the quality of sleep, and the level of noise in the environment. Each item in the scale is evaluated on a table from 0 to 100 points using visual analogue scale technique. Scores between 0 and 25 indicate very poor sleep, whereas 76–

100 indicate a very good sleep. Thus, higher scores on RCSQ scale indicate a better sleep quality Cronbach's Alpha internal consistency coefficient of RCSQ was found to be 0.94. (Karaman Özlü and Özer 2015).

Data Analysis: SPSS (Statistical Package for Social Sciences) for Windows 18.0 was used for statistical analysis of the study data. Descriptive statistical data (numbers, means, standard deviation, percentage distribution) were used for data analysis (demographic characteristics of the patients and to determine scale, subdimension scores, and mean scores). Pearson's Correlation analysis was used to analyze associations between the scales and the subdimensions. The results were interpreted using a confidence interval of 95% and significance level set at $p < 0.05$. Cronbach's alpha was used to assess the internal consistency of the scales.

Ethical Considerations: The study protocol was approved by the Ethics Committee of Atatürk University in accordance with the Declaration of Helsinki. Before initializing the study, written approvals were received from the hospitals where the study was to be conducted, and an informed consent form was obtained from each patient. The participants were informed about the aim and methods of the study and the time they would be asked to allocate for participation. The patients were informed that the data obtained from this study would be kept confidential, that their participation in the present study did not pose any risk to them, that they could leave the study whenever they wanted to, and that participation in the study was totally voluntary. The three questionnaires were completed by each participant in one session that lasted approximately 25 minutes.

RESULTS AND DISCUSSION

The patients who undergo elective surgeries have hopes and expectations of recovering from their disease, and at the same time, the fear of losing the control of their bodies and lives as well as organs and tissues. The degree of this fear in patients may have an important effect on their pre-operative sleep.

Table 1. Distribution of the Patients' Sociodemographic Characteristics (n=146)

Characteristics	Number	Percentage
Sex		
Female	79	54.1
Male	67	45.9
Marital Status		
Single	16	11.0
Married	130	89.0
Residence		
City	84	57.5
Town-	35	24.0
County	27	18.5
Village		
Occupation		
Housewife	63	43.2
Civil Servant	11	7.5
Worker	27	18.6
Retired	24	16.4
Unemployed	14	9.6
Other	7	4.7
Income Level		
Low	42	28.8
Moderate	86	58.9
High	18	12.3
	Min–Max	**X**	**SD**
Age	19–89	50.44	15.98

The mean age of participants was 50.44±15.98 years; 43.2% were housewife; 89.0% were married and 58.9% had a medium income level (Table 1). 36.3% of the patients were in general surgery clinics, 66.4% were in minor surgery, 34.9% were in hospital more than twice, and 38.4% had undergone more than one operation (Table 2).

The total RCSQ score of patients was found as 46.90±32.50 (Table 3). The items of the scale inquired about patients' depth of sleep, the period before falling into sleep, the frequency of waking up, and the quality of sleep, thus sleep-related problems were included in these questions. In this study, the patients had an average of 7.4 hours of sleep the night before they came to the hospital, whereas they slept 5.3 hours on average during the night before the surgery. Considering the total mean score on the scale, the study determined that the patients had a moderate level of sleeping problems, and that their sleep duration was reduced to below their normal level. It is likely that the patients' circadian sleeping rhythm was affected by their unproductive night sleep and reduced sleep duration. Wright, Schnur, Montgomery and Bovbjerg (2010) in a study of patients about to have breast surgery found that these patients did not have enough sleep the day before the surgery, and that their sleeping duration was reduced below their normal level. Costa and Ceolim (2013) evaluated patients' quality of sleep before surgery and determined that 52.1% of the patients had difficulty falling into sleep, and 55.6% woke up early in the morning of the surgery. Maher, Maher and Mahmoud (2015) worked with the patients who would undergo open cholecystectomy and determined that the patients' quality of sleep deteriorated the night before the surgery. Sheizaf, Almog, Salamah, Shehata, Takefman and Tulandi (2011) stated that patients had difficulty sleeping especially the night before the surgery, and it was common that their quality of sleep became poor. Cash, Sephton, Chagpar, Spiegel, Rebholz, Zimmaro et al. (2015) also found that the circadian sleep rhythm of breast cancer patients was disrupted before their surgery. Based on these results, the present study has concluded that the patients who are facing surgery have sleeping problems at night, and that their circadian rhythm is deteriorated.

Table 2. Distribution of the Patients' Surgery-related Characteristics (n=146)

Characteristics		Number	Percentage
Surgical Clinic			
Brain surgery		30	20.5
Gynecology		15	9.4
Urology		37	25.3
General surgery		53	36.3
Cardiovascular surgery		11	7.5
Type of Surgery			
Minor risk		97	66.4
Major risk		49	33.6
Previous Hospitalization			
No		40	27.4
Once		33	22.6
Twice		22	15.1
More Than Twice		51	34.9
Previous Surgical Operations			
No		51	34.9
Once		39	26.7
More Than Once		56	38.4
Any Sleeping Problems at the Hospital			
Yes		61	41.8
Partially		45	30.8
No		40	27.4
Any Interruptions into Sleep			
Yes		94	64.4
No		52	35.6
ASA Score			
1. class		97	66.4
2. class		49	33.6
	Min–Max	**X**	**SD**
Period of Remaining in Pre-op	2–19	4.6	3.0
Pain Score	0–10	3.1	3.3
Sleep Before Arriving	3–12	7.4	1.8
Sleep Last Night	1–10	5.3	2.1

Table 3. The Distribution of the Mean Scores on RCSQ (n=146)

Subdimensions of the Scale	Minimum and Maximum Scores On the Scale		Mean Scores On the Scales X±SD
Sleep depth	0–100	0–100	43.96±33.49
Falling asleep	0–100	0–100	45.78±34.68
Frequency of awakening	0–100	0–100	47.19±35.66
Percentage of time awake	0–100	0–100	48.82±34.08
Quality of sleep	0–100	0–100	48.29±33.74
Total	0–100	2–99	46.90±32.50

Table 4. The Distribution of the Mean Scores on SFQ (n=146)

SFQ-S	0–40	19.61±12.98
SFQ-L	0–40	22.95±13.88
Total Score	0–80	42.57±25.40

The distribution of the total mean scores of the SFQ subscales was as follows: SFQ-S (19.61±12.98); SFQ-L (22.95±13.88). The patients' mean score on the Surgical Fear Questionnaire (SFQ) was 42.57±25.40 (Table 4). The total mean score on that scale indicated that the patients who were awaiting a surgery had a moderate level of fear related to the peri-operative and post-operative periods. Shahmansouri et al. conducted a study in Iran to examine the fear and anxiety in patients awaiting a coroner artery bypass graft: 38% of those patients had a moderate level of fear. Bagdigen and Karaman Özlü (2016) analyzed the correlation between the degree of fear and social support perceptions of the patients awaiting surgery, and found that the patients had a moderate level of fear in the pre-operative stage. Gürsoy (2001) also examined the levels of pre-operative anxiety and its affecting factors, and found that the patients had a moderate level of anxiety. These afore-mentioned results are consistent with the results of this study.

Table 5. The Correlation Between the Mean Scores on SFQ and RCSQ (n=146)

Subdimensions of the Scale		RCSQ
SFQ-S	r	-0.440
	p	**0.000****
SFQ-L	r	-0.499
	p	**0.000****
Total SFQ	r	-0.498
	p	**0.000****

A negative and significant relationship was found between the mean total and sub-scale scores of the SFQ and RCSQ scales (p<0.01) (Table 5). Considering this result, it was determined that the patients' quality of sleep had deteriorated and their cycle of being awake and asleep was disrupted as their degree of pre-operative fear was increased. Wright, Schnur, Montgomery and Bovbjerg (2010) conducted a surgery with 39 patients awaiting breast surgery and found that their sleeping duration was reduced as their anxiety level increased the day before the surgery. Sheizaf, Almog, Salamah, Shehata, Takefman and Tulandi (2011) conducted a study with the patients about to have gynecological operations and determined that stress and anxiety levels triggered pre-operative sleep disorders. That study also found that sleep disorders and stress levels peaked the day before the surgery. Ito, Iida, Yamamura, Teramura, Nakagami, Kawai et al. (2013) determined that anxiety level was an important factor affecting the quality of sleep and circadian sleep rhythm. Dedert, Lush, Chagpar, Dhabhar, Segerstrom, Spiegel et al. (2012) also determined that the stress level experienced by breast cancer patients before the operation triggered circadian sleep disorders.

CONCLUSION

This study concluded that patients who were expecting elective surgeries had moderate levels of sleep problems the night before the surgery, and their surgical fear levels negatively affected their night sleep. It was determined that as the level of fear increased for the patients, night sleep levels decreased. The present study suggests that the fear levels of the patients should be determined before their surgical operations, the factors causing surgical fear should be discovered, and counseling services should be provided to reduce these factors.

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