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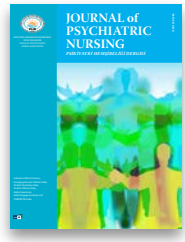

Original Article

Investigation of pre-operative ruminative thought styles and related factors in patients receiving inpatient treatment in the otorhinolaryngology clinic

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Abstract

Objectives: The aim of this study was to investigate the relationship between pre-operative ruminative thought style and anxiety level and sleep quality in patients receiving inpatient treatment in the Otorhinolaryngology Clinic.

Methods: The descriptive, cross-sectional, and correlational study was conducted between May 01 and October 01, 2024, in the otolaryngology clinic of a public hospital. Sociodemographic data form, ruminative thinking style questionnaire (RTSQ), Beck Anxiety Inventory (BAI), and Richard-Campbell Sleep Questionnaire (RCSQ) were administered to the participants.

Results: The mean age of the patients who participated in our study was 40.75±16.26 years. The mean score of the RTSQ was 77.234±1.40, the mean score of BAI was 12.424±0.61 and the mean score of the RCSQ was 52.104±1.44. RTSQ was found to have a positive relationship with the BAI ($r=0.434$, $p<0.05$) and a negative relationship with RCSQ ($r=-0.201$, $p<0.05$). A negative relationship was found between the BAI and RCSQ ($r=-0.304$, $p<0.05$). Among the patients who had negative thoughts about the surgery, 14.7% stated statements related to fear of death.

Conclusion: This study revealed that as ruminative thinking increased, anxiety levels increased and sleep quality decreased in pre-operative patients in a surgical clinic. Future studies can be planned on the effect of rumination on the recovery process, demand for medical treatment for pain, and length of hospitalization of patients hospitalized in a surgical clinic.

Keywords: Anxiety; insomnia; pre-operative period; rumination

Rumination includes passive and repetitive thoughts that arise after the individual experiences negative events.[1] Ruminative thoughts and the resulting anxiety activate the autonomic nervous system and constitute a risk factor for psychological distress.[2] Potential risk factors for anxiety and depression result from repetitive (ruminative) thoughts, which are an intrusive and difficult-to-terminate way of thinking that focuses on one's problems, worries, or negative experiences.[3] Rumination develops and prolongs an existing negative mood and related negative thinking, interferes with effective problem-solving, reduces functionality, and exacerbates psychopathology by lowering sensitivity to changing circumstances and situations.[4]

An oral presentation of this study was made at the 7th International Izmir Congress on Medicine, Nursing, Midwifery, and Health Science congress on January 21–23, 2025.

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Rumination is recognized as a cognitive risk factor in the diagnosis and treatment of mental disorders. Studies report that anxiety and depression cause rumination.[5] In addition, increased ruminative thoughts lead to insomnia.[6] Insomnia was categorized as pre-disposing, triggering, and perpetuating factors. Rumination and anxiety tendency are among the pre-disposing factors of sleep disturbance. Trigger factors include the emotional and physiological stresses of diagnosis and treatment. Perpetuating factors, such as irregular sleep schedules and poor sleep hygiene, cause sleep disturbances to persist.[7] Repetitive thinking observed during the night and before sleep can also occur during the day. The negative emotions caused by insomnia can exacerbate the problem by activating thoughts about the cycle of sleep and fatigue. This intensifies negative mood and psychological distress during the day, further activating the sympathetic nervous system, leading to chronic overstimulation, fatigue, and repetitive thought content, resulting in insomnia.[8] Sleep disturbances in patients undergoing surgery have a complex and multifactorial impact.

Patients hospitalized in surgical clinics have a low tendency to seek psychiatric help because they think that their mental deterioration is associated with their physical problems. As a result, patients with mental illness require more time for diagnosis and treatment.[9] Approximately 25% of patients admitted to Otorhinolaryngology/Ear, Nose, and Throat (ENT) clinics have mental health disorders.[10] Men and women experience mental illnesses equally. Within the 1st year of the procedure, 6% of all laryngectomy patients undergo surgery.[10,11] The rate of depression is higher in patients hospitalized in the ENT clinic compared to those hospitalized in the general surgery clinic.[12] Patients undergoing surgical operations for obstructive sleep apnea have symptoms such as depression, paranoid thinking, psychoticism, easy sadness, excitement, checking repeatedly while doing a task, and difficulty falling asleep compared with those who do not have nasal obstruction symptoms.[13] Negative emotions may increase patients' perception of pain and increase the severity of post-operative acute pain.[14] Thus, as rumination increases, the distress associated with the illness becomes greater, contributing to the deterioration of pain and physical functioning.

Anxiety, depression, and catastrophizing of pain in the pre-operative period lead to increased use of analgesics in the post-operative period and prolonged hospital stays among patients undergoing surgical operations in the ENT clinic.[15] According to Goebel et al.[16] surgical anxiety is significantly associated with increased rumination and decreased optimism. Menger et al.[17] found that patients with head-and-neck cancer had ruminative thoughts, leading to increased fear and anxiety in patients and decreased problem-solving experiences.[16] Tian et al.[12] examined the mental status of adult patients hospitalized in the ENT clinics of three hospitals in different cities in China. Among the patients diagnosed with laryngopharyngeal diseases, otological diseases, benign tumors, malignant tumor-diagnosed diseases, and obstructive sleep apnea syndrome, those with head-and-neck cancer had more paranoid thoughts.[12]

What is presently known on this subject?

- People's ruminative thinking affects their reactions to the events they experience, their evaluation of these events, and their ability to cope with stressful situations.

What does this article add to the existing knowledge?

- It was concluded that ruminative thinking of patients hospitalized in a surgical clinic was associated with increased anxiety level and deterioration of sleep quality.

What are the implications for practice?

- Ruminative thinking may increase the anxiety level of patients and may cause delays in the diagnosis of diseases and difficulties in adapting to treatment.

Anxiety and rumination boost emotional intensity and prolong stressful situations. This high emotional intensity resulting from rumination prolongs physiological reactivity to stress.[4] Rumination increases stress and anxiety in sick individuals, leading to a delayed diagnosis of diseases and difficulties in adapting to treatment.[1,4] Rumination exacerbates negative thought patterns and reduces problem-solving skills and social support.[1,3] Psychiatric nurses should support patients to express their feelings, offer systematic problem-solving methods, and play an important role in the evaluation of the individual's present coping status.[18] Pre-operative identification of patients with ruminative thinking style may contribute to the reduction of surgical anxiety by providing education about the expected clinical course of this surgery, pain, and rehabilitation. It should facilitate communication between patients who are similar in terms of demographic characteristics, help individuals to use social support resources effectively, and improve communication between patients and their families so that family members can actively participate in the process. It has been found that individuals receiving inpatient treatment in surgical clinics have a rumination thinking style, which leads to negative effects on anxiety, depression, symptomatology, pain, sleep disturbance, and problem-solving skills. The review of the existing literature revealed that rumination is mostly studied in the field of psychiatry. The present study aimed to examine ruminative thoughts and related factors before surgery in patients receiving inpatient treatment in the ENT clinic.

Research Questions

The research questions of this study are as follows:

What are the levels of ruminative thinking style, anxiety level, and sleep quality of patients receiving inpatient treatment at the Ear, Nose, and Throat clinic?

Is there any difference in ruminative thinking style, anxiety level, and sleep quality according to sociodemographic characteristics?

Is there any relationship between ruminative thinking style, anxiety level, and sleep quality scores of patients receiving inpatient treatment in the Ear, Nose, and Throat clinic?

Materials and Method

Design

This descriptive, cross-sectional, and correlational study was conducted to examine the relationship between pre-operative ruminative thinking style and anxiety level and sleep quality in patients receiving inpatient treatment in the Otorhinolaryngology Clinic of a hospital.

Sample

The study was conducted in the ENT clinic of a state hospital in Turkey between May 01 and October 01, 2024. The patient population was based on those who underwent surgery with general and/or local anesthesia in the clinic between January 01 and December 31, 2023 (n=5591). The sample size was calculated using the G* Power software version 3.1.9 (Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany) for correlation analysis. The Ruminative Thought Style Questionnaire, one of the measurement criteria in the study, was used to calculate the sample size.[19] In addition, a significance level of 0.05, a power of 0.80, and a two-tailed test were selected. As a result, the minimum sample size was determined as 272 people. Considering the duration of the study and the possibility of data loss, 360 patients participated in the study. The power of the retrospectively calculated study was 99.0% (Type-1 error=0.05, d=0.48).

Data Collection Process

Inclusion criteria were determined as being 18 years of age or older, having no cognitive (dementia, psychosis, mental retardation) or physical disability in the process of communication, and agreeing to participate in the study. The exclusion criteria for the study were determined as an inability to communicate verbally. Approval was obtained from the ethics committee before starting the study. After ethical committee approval was obtained, institutional permission was obtained from the hospital where the study data would be collected on April 24, 2024. Patients receiving inpatient treatment in the ENT clinic were informed about the purpose of the study after the end of their treatment hours and invited to participate in the study. After the patients were informed about the purpose of the study, informed consent was obtained from those who agreed to participate and data collection forms were given. It took participants between 15 and 20 min to complete the questionnaires.

Data Collection Tools

The participants were administered a sociodemographic data form, Ruminative Thinking Style Questionnaire (RTSQ), Beck Anxiety Inventory (BAI), and Richard-Campbell Sleep Questionnaire (RCSQ).

Sociodemographic Characteristics Data Form

This form included 14 questions about sociodemographic characteristics, such as age, sex, education level, employment status, smoking status, alcohol consumption status, history of chronic diseases, history of surgery, having negative thoughts about surgery, and changes in sleep patterns.

RTSQ

Ruminative thinking is a repetitive, uncontrollable, reflexive way of thinking. The RTSQ was developed by Brinker and Dozois.[20] It is a 20-item, 7-point Likert-type measurement tool; its Turkish adaptation study was conducted by Karatepe.[21] The scale does not have a cut-off point in the scoring. An increase in the total score obtained from the scale indicates an increase in ruminative thinking. In the reliability analysis, Cronbach's alpha internal consistency coefficient was r=0.907.[21] The Cronbach's alpha coefficient was 0.91 in the present study.

BAI

The Turkish validity and reliability of the scale developed by Beck et al. in 1988 to measure the severity of anxiety symptoms experienced by the person was performed by Ulusoy et al.[22] in 1998. This scale consists of 21 items and is a 4-point Likert scale. Each item in the scale receives a score between 0 and 3 points and the total anxiety score can vary between 0 and 63. The Cronbach alpha internal consistency coefficient of the scale was 0.93.

As the score on the BAI increases, the severity of anxiety also increases.[22] The Cronbach's alpha coefficient of this study was calculated as 0.92.

RCSQ

The RCSQ was developed by Richards,[23] and its Turkish validity and reliability study was conducted by Özlü and Özer.[24] The scale includes six items and it is evaluated between 0 and 100. The sixth item in the scale is not included in the scoring. A high score on the scale indicates that sleep quality is good. The Cronbach's alpha value of the scale was reported as 0.91 in the Turkish adaptation study.[24] It was 0.91 in the present study.

Statistical Analyses

All analyses were carried out using the Statistical Package for the Social Sciences for Windows, version 22 (IBM Corp., Armonk, NY, USA). The normality distribution was tested with histograms and the Shapiro–Wilk test. Descriptive statistics including frequencies and percentages, as well as measures of

mean and standard deviation were used to describe the data. Due to the non-normal distribution of the data, we analyzed relationships between all variables using bivariate Spearman rank correlation. The Kruskal–Wallis H and Mann–Whitney U tests were used to examine the difference between the groups in ruminative thinking style, anxiety level, and sleep quality. Statistical significance was set at $p<0.05$.

Ethical Considerations

The study was approved by the Ethics Committee (Date: March 14, 2024; No: 02–586) and conducted following the Declaration of Helsinki. Informed consent was obtained from all participants through the signing of consent forms. The principles of "Confidentiality and Protection of Privacy" and "Respect for Autonomy" were adopted. Participants were informed that they could withdraw from the study at any stage if they chose to do so. Participation in the study was voluntary-based and no incentives were offered.

Results

A total of 360 patients with a mean age of 40.75±16.26 years participated in the study. Most participants were male (61.1%) and 60.3% were married. Of the participants, 36.7% were high school graduates, 54.2% were not employed, 61.4% did not smoke, and 85.8% did not drink alcohol. Of them, 75.3% had no chronic diseases and 56.4% had not undergone surgery before. Regarding surgery, 16.1% had previously undergone head-and-neck surgery. Before the surgery, 92.8% of the participants stated that they received information about the surgery, 36.9% had negative thoughts about the surgery, and 47.8% reported a change in sleep patterns. Among the patients who had negative thoughts about the surgery, 14.7% expressed statements related to fear of death. Among those with changes in sleep patterns, 41.4% did not sleep enough due to pain (Table 1).

Table 2 shows the level of ruminative thinking, anxiety, and sleep quality of the patients with various sociodemographic variables. There is no significant difference between the levels of ruminative thinking, anxiety, and sleep quality of patients according to variables, such as marital status, education level, smoking, alcohol use, history of surgery, history of head-and-neck surgery, and receiving information about surgery ($p>0.05$). The ruminative thinking style was significantly higher in women and in those who had negative thoughts about surgery ($p<0.05$). The anxiety level was significantly higher in women, those who were not employed, those with a chronic disease, those who had negative thoughts about the surgery, and those who experienced changes in sleep patterns ($p<0.05$). Sleep quality was significantly higher in men, patients without a chronic disease, who did not have negative thoughts about the surgery, and who did not experience a change in sleep patterns ($p<0.05$).

Descriptive statistics and correlations between all variables are presented in Tables 3 and 4. The mean score of RTSQ was 77.234±1.40, the mean score of BAI was 12.424±0.61 and the mean score of RCSQ was 52.104±1.44. The RTSQ was found to have a moderate positive correlation with the BAI ($r=0.434$, $p<0.05$) and a low negative correlation with the RCSQ ($r=-0.201$, $p<0.05$). BAI and RCSQ were negatively correlated at a low level ($r=-0.304$, $p<0.05$).

Discussion

This study was conducted to examine the relationship between pre-operative ruminative thought patterns, anxiety level, and sleep quality in patients receiving inpatient treatment in the ENT clinic. The ruminative thought patterns were significantly higher in women and in those who had negative thoughts about surgery; the patients had thoughts about death, surgery, pain, and not recovering. In addition, as ruminative thinking increased, anxiety increased and sleep quality decreased. These results are consistent with the evidence on the role of rumination in the onset and maintenance of psychopathology.[8,10,25]

In our study, the level of ruminative thinking, anxiety, and sleep quality differed in women and those who had negative thoughts about surgery. A meta-analysis study that examined rumination in adults based on gender found that women had higher rumination scores than men.[26] Volberg et al.[27] reported that ruminative thinking and anxiety about surgery were higher in women. This may be explained by the high prevalence of depression and anxiety in women.[28] In the study conducted by Ricarte Trives et al.[29] women used rumination more than men in response to sadness and depressed mood and reported higher depression scores than men. Rumination mediates sex differences in depression as a passive coping approach adopted by women to face stressful events.[30] In addition, rumination has been found to have a mediating role between sleep quality and mental health.[31] It is reported that women experience more difficulties due to stress in the pre-operative period.[32] In stressful situations, female reproductive hormones can alter sleep patterns; an increase in estrogen can increase REM sleep duration and decrease REM latency.[33] In addition, male patients may have difficulty in expressing their anxiety due to social and cultural pressure. The pre-operative period is one of the most stressful events for surgical patients scheduled for surgery. The combination of stress and anxiety, which represent psychological distress, may result in rumination. Rumination, which consists of repetitive negative thoughts, may lead to emotional arousal of the individual and cause a decrease in sleep quality.

Table 1. Distribution of psychiatric emergencies according to sociodemographic characteristics

Variable	Group	n=360	%
Gender	Male	220	61.1
	Female	140	38.9
Marital status	Married	217	60.3
	Single	143	39.7
Education level	Primary education	90	25.0
	High school	132	36.7
	University	130	36.1
	Master's graduate	8	2.2
Occupation	Employed	165	45.8
	Unemployed	195	54.2
Chronic disease status	Yes	89	24.7
	No	271	75.3
Smoking cigarettes	Yes	139	38.6
	No	221	61.4
Alcohol use	Yes	51	14.2
	No	309	85.8
History of head-and-neck surgery	Yes	58	16.1
	No	302	83.9
History of surgery	Yes	157	43.6
	No	203	56.4
Receiving information about the surgery	Yes	334	92.8
	No	26	7.2
Negative thoughts about the surgery	Yes	133	36.9
	No	227	63.1
Negative thoughts about the surgery	Fear of death	53	14.7
	Fear that the pain will be severe	33	9.2
	Fear about the surgery itself	19	5.3
	Fear of not getting better	8	2.2
	Fear of paralysis	6	1.7
	Unspecified	14	3.9
	No ruminative thoughts	227	63.1
Change in sleep pattern	Yes	172	47.8
	No	188	52.2
Reasons for the change in sleep pattern	Reasons for the change in sleep pattern	136	37.8
	Anxieties about the disease	73	20.3
	Inability to lie in a comfortable position	101	28.1
	Pain	149	41.4

In our study, it was found that the level of anxiety increased as the ruminative thinking style of the patients increased. Rumination is a series of persistent and repetitive thoughts that revolve around a common theme, involuntarily enter the consciousness, and divert the individual's attention from the intended subject and goals. These passive thoughts prevent problem-solving and lead to an increase in negative affect.[34] Rumination affects the cognitive structure of individuals and causes the intensification and prolongation of negative emotions and feelings.[35] The act of having surgery itself can result in distress and anxiety, and patients who adopt emotional coping strategies may have better emotional responses than those who exhibit excessive rumination.[36] Rumination is strongly and consistently associated with surgery-related anxiety and psychological distress.[1,12,37] Wondmieneh[38] found that fear of death was a factor that increased pre-operative anxiety. Goebel et al.[16] reported that ruminative thinking was associated with pre-operative anxiety and that patients with high levels of anxiety used rumination as a coping strategy. The patient's response depends on the subjective assessment of the stressor and the effectiveness of coping efforts aimed at adapting to the situation. As a stressful situation, the pre-operative process can trigger physiological, psychological, and emotional reactions of pa-

Table 2. Comparison of the scores of RTSQ, BAI, and RCSQ scales according to certain variables

Variable	RTSQ Median	BAI Median	RCSQ Median
Gender			
Male	83 (25–140)	14 (0–59)	47 (0–100)
Female	74 (20–140)	7 (0–55)	53 (0–100)
z; p*	-2.918; 0.004	-4.986; 0.000	-2.121; 0.034
Marital status			
Married	77 (20–140)	9 (0–51)	52 (0–100)
Single	81 (25–140)	9 (0–59)	48 (0–100)
z; p*	-1.048; 0.295	-0.670; 0.503	-1.299; 0.194
Education level			
Primary education	81 (20–140)	11 (0–59)	50 (0–100)
High School	75 (20–140)	9 (0–55)	48 (0–100)
University	76 (29–140)	8 (0–47)	55 (0–100)
Master's Graduate	83 (36–119)	4 (1–24)	61 (16–94)
z2; p**	3.535; 0.316	5.258; 0.154	4.674; 0.197
Occupation			
Employed	76 (20–140)	8 (0–51)	53 (0–100)
Unemployed	80 (20–140)	10 (0–59)	49 (0–100)
z; p*	-0.969; 0.333	-2.416; 0.016	-1.838; 0.066
Smoking cigarettes			
Yes	77 (20–140)	9 (0–59)	49 (0–100)
No	79 (20–140)	9 (0–55)	52 (0–100)
z; p*	-0.476; 0.634	-0.523; 0.601	-0.971; 0.331
Alcohol use			
Yes	76 (35–116)	10 (0–39)	53 (0–100)
No	79 (20–140)	9 (0–59)	51 (0–100)
z; p*	-0.741; 0.458	-1.515; 0.130	-0.415; 0.678
Chronic disease status			
Yes	78 (20–122)	12 (0–59)	46 (0–100)
No	78 (20–140)	8 (0–55)	53 (0–100)
z; p*	-0.057; 0.955	-2.321; 0.020	-2.294; 0.022
History of surgery			
Yes	77 (20–140)	9 (0–42)	50 (0–100)
No	79 (20–140)	9 (0–59)	52 (0–100)
z; p*	-0.056; 0.955	-0.034; 0.973	-0.110; 0.913
History of head-and-neck surgery			
Yes	73 (25–123)	8 (0–39)	52 (7–100)
No	79 (20–140)	9 (0–59)	50 (0–100)
z; p*	-1.050; 0.294	-0.808; 0.419	-1.035; 0.301
Thinking about the surgery			
Yes	89 (20–140)	15 (0–59)	47 (0–100)
No	72 (20–140)	7 (0–53)	53 (0–100)
z; p*	-5.712; 0.000	-6.299; 0.000	-2.278; 0.023
Receiving information about the surgery			
Yes	78 (20–140)	9 (0–59)	51 (0–100)
No	71 (23–122)	10 (0–40)	52 (0–100)
z; p*	-0.374; 0.503	-0.364; 0.657	-0.245; 0.959
Change in sleep pattern			
Yes	79 (20–140)	12 (0–59)	42 (0–100)
No	78 (20–140)	7 (0–55)	61 (0–100)
z; p*	-0.946; 0.344	-4.616; 0.000	-5.900; 0.000

*: Mann-Whitney test; **: Kruskal-Wallis H. p<0.05. RTSQ: Ruminative thought style questionnaire; BAI: Beck anxiety inventory; RCSQ: Richard-campbell sleep questionnaire.

Table 3. Mean and standard deviation table of RTSQ, BAI, and RCSQ scales

Variable	Mean±SD	Median	Min-max	Skewness	Kurtosis	Shapiro–Wilk test	Cronbach's α
RTSQ	77.23±1.40	78.06	20.00–140.00	0.109	-0.447	0.007	0.91
BAI	12.42±0.61	9.00	0.00–59.00	1.353	1.651	0.000	0.92
RCSQ	52.10±1.44	51.00	0.00–100.00	-0.034	-0.903	0.000	0.91

RTSQ: Ruminative thought style questionnaire; BAI: Beck anxiety inventory; RCSQ: Richard-campbell sleep questionnaire; SD: Standard deviation; Min: Minimum; Max: Maximum.

Table 4. Correlation table of RTSQ, BAI, and RCSQ scales

Variable	RTSQ	BAI	RCSQ
RTSQ	–		
BAI	0.434**	–	
RCSQ	-0.201**	-0.304**	–

**: p<0.01. RTSQ: Ruminative thought style questionnaire; BAI: Beck anxiety inventory; RCSQ: Richard-campbell sleep questionnaire.

tients. The negative thoughts of the patient about the surgery influence the maintenance of anxiety.

The present study found that sleep quality decreased as the ruminative thinking style of the patients increased. In addition, men and patients without chronic diseases were found to have higher sleep quality. Having a disease was associated with more anxiety, rumination, and sleep complaints.[39] The factors that increase the risk of pre-operative sleep disturbance include advanced age, female gender, pain, different disease criteria, type of surgery and follow-up period, mental illness, and hospital environment.[40] A meta-analysis revealed that there were small to medium effect size relationships between high levels of rumination and lower levels of sleep quality, shorter total sleep duration, and longer sleep onset delay.[41] Studies have found that rumination has a direct effect on sleep disturbance[42] and predicts poor sleep.[43] Wright et al.[44] found that patients' thoughts about the upcoming surgery were associated with low sleep duration and sleep efficiency. Sleep is an important health behavior closely linked to stress and stress responses.[45] Similarly, worry and rumination are closely related to mental and physical health, and sleep can be a critical factor that mitigates or increases the risks in these connections.[46] Rumination can subsequently lead to a disruption in sleep rhythms at night and a decline in mental sleep quality, resulting in impairments in daily functioning, delayed sleep onset, and ultimately sleep disorders.[47] According to the cognitive model developed by Harvey,[2] the anxiety following ruminative thoughts activates the autonomic nervous system causing psychological distress, which manifests itself as insomnia. Anxiety associated with surgery is an independent psychological construct of high clinical significance. Numerous surgery-specific stressors, such as potential physical risks of anesthesia and surgery, limited behavioral control over important aspects of the situation, and uncertainty about the outcome of surgery, can lead to surgery-specific anxiety. Pre-operative anxiety levels of patients and the way they cope with stressful situations may increase the risk of sleep disorders.

Limitations

Using standard and validated assessment tools minimized some measurement biases for exposure and outcome variables. Several limitations of the present study should be acknowledged. The study was conducted in a single center and the sample consisted of patients admitted to this center. The sample of the study included patients who were inpatients in the surgery clinic and no grouping was made for the type of surgery. All instruments were self-reported questionnaires, resulting in the possibility of response bias. The cross-sectional design of the study limited the establishment of any causal relationship between sociodemographic characteristics, anxiety, ruminative thinking, and sleep quality.

Conclusion

This study revealed the results of the relationship between anxiety levels, ruminative thinking styles, and sleep quality of pre-operative patients in an ENT surgical clinic. It was determined that patients hospitalized in the surgical clinic used ruminative thinking to cope with their anxiety, and as a result, ruminative thinking played a role in increasing the anxiety levels of patients and deteriorating sleep quality. Ruminative thinking affects people's reactions to the events they experience, their evaluation of these events, and their ability to cope with stressful situations. Individuals with ruminative thinking have negative thoughts about themselves and can catastrophize negative events. This can lead to elevated cognitive arousal and subsequent worsening of sleep difficulties. Psychological interventions to treat this problem should pay particular attention to the important role of rumination and use techniques to develop coping mechanisms to reduce rumination. Future studies should be conducted on the effect of ruminative thinking on the recovery process, the demand for medical treatment for pain, and the duration of hospitalization of patients hospitalized in the surgical clinic.

Ethics Committee Approval: The study was approved by the Ankara Yıldırım Beyazıt University Health Sciences Ethics Committee (No: 02–586, Date: 14/03/2024).

Authorship Contributions: Concept – R.E.; Design – R.E.; Supervision – R.E., Y.F.Y.; Data collection &/or processing – İ.D., Y.F.Y.; Analysis and/or interpretation – R.E.; Literature search – R.E., İ.D., Y.F.Y.; Writing – R.E., İ.D., Y.F.Y.; Critical review – R.E., Y.F.Y.

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