

Relationship between REM sleep behavior disorder and depression and anxiety and night eating syndrome

Rabia Gamze Yürük Cantürk¹, İtir Tarı Cömert², Seda Uğraş³, Gizem Akcan⁴, Dilek İşlek Salkım³, Erkut Tutkun⁵, E.Hülya Yükseloğlu³

¹ İstanbul Arel University, Institute of Social Sciences, Clinical Psychology, İstanbul, Turkey

² Fatih Sultan Mehmet University, Psychology Department, İstanbul, Turkey

³ İstanbul University- Cerrahpaşa Institute of Forensic Sciences and Legal Medicine, İstanbul, Turkey

⁴ Bartın University, Faculty of Literature, Applied Psychology Department, Bartın, Turkey.

⁵ Bursa Uludağ University, Faculty of Sport Science, Bursa, Turkey.

Abstract

The purpose of this study is to reveal the risk of depression and anxiety disorders and night eating syndrome in individuals with REM sleep behavior disorder and to determine the relationship between them. Intermittent awakening from sleep to sleep or accompanied by physical movements that could injure itself is defined as REM sleep behavior disorder. Ethical committee approval of the study taken from T.R. İstanbul Arel University. The sample of the study was analyzed by 47 people from T.R. Ministry of Health Süreyyapaşa Chest Diseases and Chest Surgery Training and Research Hospital, 39 people from T.R. Ministry of Health Sultan Abdul Hamid Khan Training and Research Hospital, 28 people from the T.R. Ministry of Health, Okmeydanı Training and Research Hospital were included in the study. Total of 108 data randomly selected were included in the study as control group. It can be said that the REM sleep behavior disorder was low (13-0=13/3=4,33; 0-4,33: low; 4,34-8,66: intermediate; 8,67-13,00: high). There was a positive and significant relationship between REM sleep behavior disorder scores and anxiety ($r = .43$; $p < .05$) and depression ($r = .56$; $p < .05$) scores. The participants with high REM sleep behavior disorders have high anxiety and depression symptoms.

Key words: REM sleep behavior disorder, anxiety, depression, sleep, night eating syndrome

Introduction

The transition from an unconscious state to a conscious state as a result of the person's light source, sound or similar stimuli is defined as sleep (1). It is observed that the quality of sleep deteriorates, the pathologies associated with sleep gradually appear, and

the duration of sleep decreases. For this reason, elderly people have more complaints about sleep than others. These complaints include drug use, differentiation of biological clocks, depression, anxiety, restless leg syndrome, snoring and so on. In studies conducted in western countries, the frequency of sleep problems in adult individuals varies between 20% and 50%, while

this rate is much higher in individuals who maintain their lives in the nursing home, and the frequency of sleep problems in elderly individuals living alone is 57% (2).

Rem sleep is a different period sleep than other phases. Rapid eye movements (REM) begin, phasic and tonic are monitored, and an increase in cognitive and physiological activities is observed. 80 percent dreams are seen at this stage (3).

REM sleep behavior disorder is a new definition compared to other parasomnias. It was first described in 1986. When acting under the influence of the dreams seen, the behaviors of kicking, punching are known for self-harm and harm to the bedmate. If the person does not hurt himself, he does not remember these periods (4). It is classified in parasomnias in IC-SD-II, it is defined as "The loss of physiological muscle atony during REM sleep and the behaviors associated with discontent-producing dreams" (5). It is said to affect 5% of the society. It is common in men and people over 50 years old. It is associated with diseases such as Parkinson's disease, Lewy-body dementia, and progressive supranuclear palsy (6).

Violent behavior typically takes less than 10 minutes and occurs every few days or weeks. Rem Sleep Behavior Disorder attacks are seen in the second half of night sleep, where REM sleep is intense. Accompanying narcolepsy, untreated sleep apnea, or sleep deprivation, attacks occur in the first half of night sleep (7). The exact pathophysiology of this disorder is unknown. As a result of decreased serotonergic or noradrenergic activity, the physics department of REM becomes obstructive and Rem Sleep Behavior Disorder occurs (8).

There are two clinical forms of Rem Sleep Behavior Disorder, acute and chronic (7). It can be seen due to acute and temporary specific treatments, substance abuse or abstinence, toxic and metabolic causes. Chronic type can occur secondary to idiopathic or neurological diseases (7). Polysomnography (PSG) examination should be done to make a diagnosis. If there is no PSG or clinical picture that includes at least one Rem Sleep Behavior Disorder episode that occurs during the REM period of sleep, a clear REM period without atonia or REM with pronounced phasic EOG activity should be determined (5).

REM sleep behavior disorder is characterized by speech, yelling, kicking and falling out of bed during REM sleep. The frequency of REM sleep behavior disorder in the population is not completely clear (9). Research in Hong Kong among different age groups states that the frequency of REM sleep behavior disorder in the population varies between .38% and .50% (10,11). Again, in another study conducted in Hong Kong, the frequency of REM sleep behavior disorder was found as .38% in people aged 70 and over according to polysomnographic tests (12). In 2013 Turkey 65 years and older with REM sleep behavior disorder, according to data obtained from approximately 6 million people are estimated to be approximately 23000 people. This estimate is based on the .38% result of the study in Hong Kong (13).

Many patients who have had a psychiatric diagnosis at all ages and genders with life-changing intervals have sleep complaints (14). Approximately one third of the population with REM sleep behavior disorder was found to be closely related to both depression and anxiety disorder (15,16,17).

The first studies that revealed the relationship between sleep and depression were carried out by Diaz Guerrero in the first half of the 1900s long before today (18). After the discovery of REM sleep, many researchers concentrated their studies this time on the relationship between REM sleep behavior disorder and depression. They performed polysomnographic tests on patients (19,20,21).

While the frequency of occurrence among sleep disorders is insomnia in the first place, REM sleep behavior disorder is in the second place. Considering the frequency of psychiatric diagnosis of people with REM sleep behavior disorder, it is revealed that approximately 50% of them suffer from major depression (22).

Night eating syndrome (NES) was first described by Stunkard (1955) in treatment-resistant obesity patients. When the diagnostic criteria are examined, anorexia that occurs in the morning; skipping breakfast or eating a small amount (eg coffee or juice), evening hyperphagia; It is observed that at least 25% of the total daily calories are taken after dinner and insomnia or insomnia is 3 or more times a week (23).

There is an excessive morbidity of overweight syndrome, weight gain, sleep disturbance, and loss of control over food intake. Each individual reacts differently to the difficulties it faces. It is worth noting that many people resort to eating to relieve when they are sad or feel unhappy. Many people with eating disorders show depressive symptoms. Efforts to deal with the unhappiness felt and reduce the level of stress are among the reasons to start eating uncontrollably and excessively (24).

The purpose of this study is to reveal the risk of individuals with REM sleep behavior disorder who have depression and anxiety disorders and night eating syndrome and to determine the relationship between them. Thus, individuals with REM sleep behavior disorder will be determined to experience lifelong depression disorders and anxiety disorders. In this case, it is very important for early diagnosis. In addition to diagnosis, it is aimed to play a dominant role in determining treatment methods. The importance of early diagnosis in all kinds of psychological disorders has also been proven by studies. Looking at the REM sleep behavior disorder, anxiety disorder and depression trilogy, the presence of others will be examined with the determination of the relationship, and it is aimed to create a road map for mental health workers and those working with sleep disorders.

Method

Universe Sample

The sample of the study was analyzed, 47 people from the TR Ministry of Health Süreyyapaşa Chest Diseases and Thoracic Surgery Training and Research Hospital, 39 people from the TR Ministry of Health Sultan Abdülhamid Han Training and Research Hospital, 28 people from the TR Ministry of Health Okmeydanı Training and Research Hospital and, 114 people in total. Since these people were diagnosed with sleep disorders, they were included in the sample. The sample consists of 62 women, 50 men and 2 LGBT individuals. In the sample selection, attention was paid to the proportion of women and men, and care was taken to have an approximate number of each other.

Scales were distributed and administered to individuals who were not diagnosed with sleep disorders for the control group, and data from 108 individuals were retrieved. Of these data, 49 men and 59 women are participants. In the sample selection, attention was paid to the proportion of women and men, and care was taken to have an approximate number of each other. All of the participants in the sample were selected from 50 years old and above.

Procedure

Informed consent form was taken from the participants before the scales were applied. Before starting the study, the ethical committee report numbered 69396709-300 was issued from the ethical committee of TC Istanbul Arel University on the date of 14/11/2018 and numbered 2018/15. With this report, Istanbul Provincial Health Directorate Health Promotion Branch Directorate has been re-applied for the implementation of the scales in the hospitals that are eligible to work, and from Sultan Abdülhamid Han Training and Research Hospital, Süreyyapaşa Chest Diseases and Thoracic Surgery Training and Research Hospital 11/07/2018 dated and 16867222-799-2172 numbered permission was obtained. Okmeydanı Training and Research Hospital, permission no 16867222-604.01.01-E.2172 dated 11/07/2018 was obtained.

Data Collection Tools

Demographic Data Form:

In the research, a questionnaire form consisting of five parts was used as a data collection tool. In the first part of the data collection tool, there is a personal information form consisting of the participants' gender, age, marital status, education level, economic status, working status, place of residence, type of residence, diagnosis of sleep disorder.

REM Sleep Behavior Disorder Scale-RBDSQ-T:

"REM Sleep Behavior Disorder Scale-RBDSQ-T" in the second part of the data collection tool was developed by Stiasny-Kolster et al. (2007) to determine the

individual's sleep behavior disorder. Later, Cömert et al. (2016) adapted to Turkish and made reliability and validity studies. It consists of 10 (13 expressions) items that express sleep problems and are asked to be marked as "yes" and "no". The answer to the given statement (for example: "I wake up due to the movements I do asleep") is the answer 1; no is scored as 0, and the height of the total score (between 0 and 13) indicates the high REM sleep behavior disorder. In this study, the Kuder-Richardson (KR-21) coefficient of the scale was determined as .73.

Beck Anxiety Scale

Beck Anxiety Inventory, which is in the third part of the data collection tool, was developed by Beck et al. (1988) to measure the frequency of anxiety symptoms experienced by the person. It was adapted to Turkish by Ulusoy, ahin, and Erkmen (1998), and its reliability and validity studies were performed. The scale contains 21 items in the 4-point Likert type (0: none, 3: severely) that express the discomfort level of the anxiety symptoms listed in the last week. The range of points that can be obtained from the scale is between 0 and 63, and the high score indicates the high level of anxiety. In this study, the Cronbach Alpha coefficient of the scale was determined as .94.

Beck Depression Scale

The fourth part of the data collection tool includes the Beck Depression Scale, developed by Beck (1961) and adapted to Turkish by Hisli (1989). The aim of the scale is to objectively break down the degree of depression symptoms. Each item identifies a depression-specific behavioral pattern and includes 21 self-assessment sentences with 4 options (0-3) that go from less to more. The scores that can be obtained from the scale vary between 0-63, and the subjects who give results over 17 points are considered at risk of depression. The items in the scale are related to the symptoms of depression and do not reflect any theory of the etiology of depression. In this study, the Cronbach Alpha coefficient of the scale was determined as .87.

Data Analysis

The model of this research was created by relational screening method. The data were analyzed using SPSS (Statistical Package Program for Social Science) 21.0 program. Demographic information of those with REM sleep behavior disorder is shown as frequency and percentage table. Skewness coefficient was used in normality test of scale scores. It can be interpreted that the scores obtained from a continuous variable remain within ± 1 limits of the skewness coefficient (Skewness) used in the normal distribution feature (25). In the normality test, it was determined that the scale scores showed normal distribution. In comparing the scores by gender, age, marital status, working status, type of residence and sleep disorder diagnosis, two independent sample t tests; ANOVA was used for comparison according to education level, economic situation and location variables. When one-way ANOVA analysis shows differences between groups, LSD Hoc test was applied to determine which two groups the difference is between. Pearson correlation analysis was used to analyze the relationship between variables. Confidence interval was 95% (significance level .05).

Results

In present study, 54.8% of the participants were women and 45.2% were men, 81.7% of the participants were 50-64 years old, 18.3% of them were 65 years old and above. 69.9% of the participants were married and 30.1% were single. 62.6% of the participants studied at high school and below, 8.2% at two years degree, 19.2% at undergraduate level and 10% at graduate level. Economic status of 14.2% of the participants were low, 65.8% were medium, and 20.1% were high. 44.3% of the participants were still working. 58.9% of the participants live in the city center, 32% in the town center, 9.1% in the village / town. 71.7% of the participants resided in their own homes, 28.3% were in rents or other means. 47.5% of the participants had a diagnosis of sleep disorder.

Table 1. Descriptive Statistics of Scales

Scale	n	\bar{X}	SS	Skewness
REM Sleep Behavior Disorder	219	3,45	2,53	.97
Beck Anxiety	219	14,44	12,50	1,05
Beck Depression	219	12,37	8,83	.84

The mean score of REM sleep behavior disorder was found to be 3.45 ± 2.53 , and considering the lowest (0) and highest (13) scores that can be obtained from the scale, it can be said that the participants' REM sleep behavior disorder is at the "low" level ($13-0 = 13 / 3 = 4.33$; 0-4.33: low; 4.34-8.66: medium; 8.67-13.00: high). Beck anxiety scale mean score was determined to be 14.44 ± 12.50 , and when the lowest (0) and highest (63) scores that can be obtained from the scale are taken into account, the anxiety symptoms of the participants can be said to be "low" ($63-0 = 63/3 = 21$; 0-21.0: low; 21.1-42: medium; 42.1-63.0: high).

Beck depression scale mean score was determined as 12.37 ± 8.83 , and considering the lowest (0) and highest (63) scores that can be obtained from the scale, it can be said that the depression symptoms of the participants are at the "low" level ($63-0 = 63/3 = 21$; 0-21.0: low; 21.1-42: medium; 42.1-63.0: high).

It was found that anxiety scores differ significantly according to the diagnosis of sleep disorder ($t = 2.66$; $p < .05$). The anxiety scores of the participants with a sleep disorder were significantly higher than the anxiety score of the participants without a sleep disorder.

Depression scores were found to differ significantly according to the diagnosis of sleep disorder ($t = 4.42$; $p < .05$). Depression scores of the participants with a sleep disorder were significantly higher than the depression scores of the participants without a sleep disorder.

A positive and significant relationship was found between REM sleep behavior disorder scores and anxiety ($r = .43$; $p < .05$) and depression ($r = .56$; $p < .05$) scores. Anxiety and depression symptoms of the participants with high REM sleep behavior disorder are also high.

Table 2. T Test Results of Anxiety and Depression Scores According to the Diagnosis of Sleep Disorder

Sub Dimensions	Diagnosis of Sleep Disorder	n	\bar{X}	SS	t	p
Beck Anxiety	exist	104	16,76	12,25	2,66	.008
	absent	115	12,34	12,29		
Beck Depression	exist	104	15,02	9,43	4,42	.000
	absent	115	9,98	7,42		

Table 3. Correlation Analysis Results Related to the Relationship Between REM Sleep Behavior Disorder and Anxiety and Depression

Variables	2	3
1- REM Sleep Behavior Disorder	.43**	.20**
2-Beck Anxiety	1	.56**
3- Beck Depression		1

Discussion

The purpose of this study is to reveal the risk of individuals with REM sleep behavior disorder who have depression and anxiety disorders and night eating syndrome and to determine the relationship between them. After reviewing the literature, it has been observed that the relationship between depression and anxiety disorders of individuals with REM sleep behavior disorder in our country has not been examined before. Considering the studies conducted in the world, seriously, there is a lack of studies on REM sleep behavior disorder. This research is aimed to fill the gap in the literature.

Polysomnographic tests were taken in the treatment center where the diagnosed persons were staying, and their illnesses were found to be caused by sleep disorders.

When the demographic data of the participants were evaluated, it was seen that REM sleep behavior disorder did not show a significant difference when compared with the gender variable. When the literature is examined, the studies conducted by Williams et al in 1974 and Reynolds et al in 1990 to determine the relationship between REM sleep behavior disorder and gender are in line with the findings in this thesis. There was no relationship between having REM sleep behavior disorder and being a man or a woman (26,27).

When the demographic data of the participants were evaluated, anxiety levels were not significantly different when compared to the gender variable. Contrary to the results, Bal and his friends conducted a study with 141 female and 60 male participants in 2014, and the frequency of anxiety in women was higher than that of men (28).

When the demographic data of the participants were evaluated, it was seen that depression levels did not differ significantly compared to the gender variable. Contrary to the results, Bal and colleagues conducted a study with 141 female and 60 male participants in 2014, and the frequency of depression in women was higher than that of men (28). Again, according to the study that Nyberg et al. Examined 907 women and 806 men with depression in Sweden according to

many demographic data in 2018, the frequency of depression in women was higher than the frequency of depression in men (29).

In this study, both anxiety and depression rates were found not to make a significant difference in women and men. However, when the literature is examined, it is seen that both anxiety and depression are more common in men than in this study. We can explain the contradiction by the fact that the people participating in this study are over the age of 50, and social pressure is now reduced in women, the elimination of difficult tasks such as raising children, and some relief in women.

When the demographic data of the participants were evaluated, there was a significant difference when the depression levels were compared with the age groups. Depression scores of participants aged 65 and over are significantly higher than those of the 50-64 age group. In parallel with the results obtained in this study, in a study conducted by Bulloch et al. In 2017, it was stated that the level of depression increases as the age increases in the old age called advanced adulthood (30).

When the demographic data of the participants were evaluated, a significant difference was observed when anxiety levels were compared with the marital status variable. The anxiety levels of married participants in the study are higher than the anxiety levels of single participants. Contrary to the data of this study, in the study of Clout and Brown, anxiety levels of single participants increased more than the anxiety levels of married participants (31). The contradiction that emerged here was thought to stem from the cultural difference between western societies and Turkish society. Consequently, this study was applied to the Turkish population.

When the demographic data of the participants were evaluated, it was seen that there was a significant difference when the anxiety levels were compared with the education level variable. Therefore, the source of the difference was investigated, and as a result of the analysis, the anxiety levels of the students who studied at high school and two years degree levels were higher than those of those studying at the undergraduate and graduate levels. When the literature is examined, the studies carried out also support the result. In the

study conducted by Hu et al. With 117 people, it was observed that the level of anxiety increased in both women and men as the education level decreased (32).

When the demographic data of the participants were evaluated, it was seen that there was a significant difference when the depression levels were compared with the education level variable. Afterwards, the source of the difference was investigated, and as a result of the analysis, the depression levels of the students studying at high school or below were higher than the depression levels of those studying at the undergraduate and graduate levels. When the literature is examined, the studies carried out also support the result. In a study conducted by Hu et al. With 117 people, it was observed that the level of depression in both women and men increased as the level of education decreased (30). When the demographic data of the participants were evaluated, a significant difference was observed when anxiety levels were compared with the income status variable. Afterwards, the source of the difference between which groups was investigated and as a result of the analysis, the anxiety level of the participants with low income status was found to be significantly higher than the anxiety levels of the participants with medium and high income status. In the comprehensive study of Hieronymus on social class motivation, the relation between the economic situation and anxiety was also included, and it was found that the level of anxiety increased as the income level decreased (33).

When the demographic data of the participants were evaluated, a significant difference was observed when the depression levels were compared with the income status variable. Afterwards, the source of the difference between which groups was investigated and as a result of the analysis, the depression level of the participants with low income status was found to be significantly higher than the depression levels of the participants with medium and high income status. The study of Everson et al., which aimed to measure the relationship between socio-economic status and anxiety and depression in 2002, was similar to this study, and it was revealed that depression increased as the income status decreased (33).

When the demographic data of the participants were evaluated, it was seen that there was a significant

difference when the depression levels were compared with the study status variable. Depression level of retired participants was found significantly higher than working participants.

When the demographic data of the participants were evaluated, a significant difference was observed when REM sleep behavior disorder was compared with the living place variable. Afterwards, the source of the difference between which groups were investigated, and as a result of the analysis, the REM sleep behavior disorder levels of the participants living in the village / town were found to be significantly higher than the levels of the REM sleep behavior disorder of the participants living in the city center and town centers. No data were available in the literature regarding this result. However, the resulting difference was thought to be the fact that individuals living in city center / town centers benefit more from health services and that their number is less because they are treated even if they experience REM sleep behavior disorder.

When the demographic data of the participants were evaluated, it was seen that there was a significant difference when the anxiety levels were compared with the living place variable. Afterwards, the source of the difference between which groups were investigated and as a result of the analysis, the anxiety level of the participants living in the town center and the village / town was found significantly higher than the anxiety levels of the participants living in the city center. No data were available in the literature regarding this result. However, the difference is thought to be less in number, since individuals living in the city center can benefit more from healthcare services and can be treated even if they experience anxiety disorders.

When the demographic data of the participants were evaluated, it was seen that there was a significant difference when the depression levels were compared with the living place variable. Afterwards, the source of the difference between which groups were investigated and as a result of the analysis, the depression level of the participants living in the town center and the village / town was found significantly higher than the depression levels of the participants living in the city center. No data were available in the literature regarding this result. However, the difference is thought

to be less in number, since individuals living in the city center can benefit more from healthcare services and can be treated even if they experience depression disorders.

After the analyzes, it was determined that the anxiety levels of the individuals differed significantly according to whether they were diagnosed with REM sleep behavior disorder or not. The anxiety levels of the participants who were diagnosed with REM sleep behavior disorder were significantly higher than the anxiety level of the participants who were not diagnosed with REM sleep behavior disorder. In 2016, researchers named Cox and Olatunji examined the relationship between all sub-dimensions of anxiety and REM sleep behavior disorders, and as a result, they supported this study (34).

After the analyzes, it was determined that the depression levels of the participants differed significantly according to whether they were diagnosed with REM sleep behavior disorder or not. The depression levels of the participants who were diagnosed with REM sleep behavior disorder were significantly higher than the depression level of the participants who were not diagnosed with REM sleep behavior disorder. According to the study conducted by Tsuno et al., 90% of people with sleep disorders also complain of depression (35).

In the study conducted by Vetrugno et al. In a sleep disorders clinic in Italy, there were 35 patients diagnosed with Night Eating Syndrome. These people consist of young and overweight women who wake up from their sleep many times in order to eat at night and thus complain of sleep disorders. Looking at the polysomnographies, sleep efficiency is very low and periodic limb index of 2/3 is higher than 5 (36).

A positive and significant relationship was determined between REM sleep behavior disorder and depression level. Anxiety and depression symptoms of the participants with high REM sleep behavior disorder were also high after the analysis of the data. In another study on depression and REM sleep behavioral disorder, people with ongoing depression were followed up during the night sleep for five weeks, and the researchers stated that the majority of the study also showed REM sleep behavior disorder (37). It is also stated in the literature that striking results of another study do not show that REM sleep does not

show behavioral disorders in people with sleep disorders but no depression (38). Comorbid definition of sleep disorders and eating disorders goes back to old times. Comorbid progression of these two with anxiety and depression is also an inevitable end. The results of the study of Sassaroli et al. Support this situation (39). Despite the limited number of studies, the results of the available studies show that there is a positive relationship between REM sleep behavior disorder and anxiety disorder and many other psychiatric diagnoses (40).

References

1. Şahin, L. ve Aşçıoğlu, M. "Uyku ve uykunun düzenlenmesi." Sağlık bilimleri dergisi (Journal of health sciences), 2013; 22(1): 93–98.
2. Akkuş, Y. and Kapucu, S. "Yaşlı bireylerde uyku sorunları." İç hastalıkları dergisi, 2008; 15(3): 131–135.
3. Aydın H, Özgen F. "Uyku, yapısı ve işlevi." Türkiye klinikleri psikiyatri dergisi, 2001; 2(2): 79–88.
4. Kaynak, H. "Uyku, Uyuyamamak mı, Uyanamamak mı." İstanbul: Doğan kitapçılık, 1998.
5. Parlakoğlu, A.B. and Bilici, M. "REM Uykusuyla ilişkili uyku bozuklukları." Türkiye klinikleri psikiyatri özel konular uyku bozuklukları özel sayısı, 2013; 6(3): 8–18.
6. Boeve, B. F. "REM sleep behavior disorder: updated review of the core features, the REM sleep behavior disorder-neurodegenerative disease association, evolving concepts, controversies and future directions." Ann NY acad sci. 2010; 1184: 15–54.
7. Orhan, F.Ö. and Akıncı, E. "Parasomniler." Türkiye psikiyatri derneği sürekli eğitim/sürekli mesleki gelişim dergisi, 2016; 6(2): 116–127.
8. Yetkin, S. "Uyku ve Uyku Bozuklukları." Ruhsal Hastalıklar 4. Baskı, Yüksel N. (Ed). Ankara: Akademisyen Tıp Kitabevi, 2014.
9. Cömert, I.T., Pelin, Z., Arıca, T. and Yapan, S. "Validation of the Turkish version of the rapid eye movement sleep behavior disorder questionnaire." Hindawi publishing corporation behavioural neurology, 2016; 6.
10. Ohayon, M.M., Caulet, M. and Priest, R.G. "Violent behavior during sleep." Journal of clinical psychiatry, 1997; 58(8): 369–376.
11. Chiu, H.F.K., Wing, Y.K., Lam, L. C. W., Lum, C.M., Leung, T. and Ho, C.K. "Sleep-related injury in the elderly"-an epidemiological study in Hong Kong. Sleep, 2000; 23(4): 513–517.
12. Li, S. X., Wing, Y.K., Lam, S.P., Zhang, J., Yu, M.W.M., Ho, C.K.W., Tsoh, J. and Mok, V. "Validation of a new REM sleep behavior disorder questionnaire (RBDQ-HK)." Sleep medicine. 2010; 11(1): 43–48.

13. Türkiye İstatistik Kurumu (TÜİK). 2015.
14. Monti, J.M. and Monti, D. "Sleep disturbance in generalized anxiety disorder and its treatment." *Sleep medicine reviews*, 2000; 4(3): 263–276.
15. Mellinger, G.D., Balter, M.B., and Uhlenhuth E.H. "Insomnia and its treatment. Prevalence and correlates." *Archives of general psychiatry*, 1985; 42: 225–232.
16. Ohayon, M.M. "Epidemiological study on insomnia in a general population." *Sleep*, 1996; 19(3): 7–15.
17. Soldatos, C.R. "Insomnia in relation to depression and anxiety: Epidemiologic considerations." *Journal of psychosomatic research*, 1994; 38(1): 3–8.
18. Rogelio, D.G., Gottlieb, J.S., Knott, J.R. "Psychosomatic medicine." 1946; 8(6): 399.
19. Gresham, S.C., Agnew, H.W. and Williams, R. L. "The sleep of depressed patients." *Arch. gen. psychiatry*, 1965; 13: 503–507.
20. Hartmann, E. "Longitudinal studies of sleep and dream patterns in manic-depressive patients." *Arch. gen. psychiatry*, 1968; 19: 312–329.
21. Hawkins, D.R. and Mendels, J. "Sleep disturbance in depressive syndromes." *Am. j. Psychiatry*, 1966; 123: 682–690.
22. Coleman, R.M., Roffwarg, H. P., Kennedy, S. J., Guilleminaut, C. and Cinque, C. "Sleep-wake disorders based on a polysomnographic diagnosis": a national cooperative study. 1982; 247: 997–1103.
23. Allison, K.C. "Cognitive-behavioral therapy manuel for night eating syndrome". *Night eating syndrome: research, assessment, and treatment*, 2012; 246–265. New York.
24. Evers, C., Adriaanse, M., de Ridder, D.T. & de Witt Huberts, J.C. "Good Mood Food. Positive Emotion as a Neglected Trigger for Food Intake". *Appetite*, 2013; 68: 1–7.
25. Büyükköztürk Ş. "Sosyal bilimler için veri analizi el kitabı" (14. Baskı). Ankara: PEGEM Akademi. 2011.
26. Williams, K.C. and O'Rourke, P.K. "Decorticated safflower meal as a protein supplement in diets fed either restrictively or ad libitum to barrow and gilt pigs over 45 kg live weight." *Aust. j. exp. agric. anim. Husb*, 1974; 14(66): 12–16.
27. Reynolds, P., Koken, M.H., Hoeijmakers, J.H., Prakash, S. and Prakash, L. "The rhp6+ gene of *Schizosaccharomyces pombe*: a structural and functional homolog of the RAD6 gene from the distantly related yeast *Saccharomyces cerevisiae*." *EMBO j.*, 1990; 9(5): 1423–30.
28. Bal, U., Çakmak, S., Uğuz, Ş. and Akpınar, E. "The symptom differences in anxiety disorders according to gender." *The journal of macro trends in health and medicine*, 2014; 2(1): 36–43.
29. Nyberg, A., Peristera, P., Hanson, L.L.M. and Westerlund, H. "Socio-economic predictors of depressive symptoms around old age retirement in Swedish women and men." *Aging&mental health*, 2018; 25: 1–8.
30. Bulloch, A.G.M., Williams, J.V.A. "Lavorato D. H. and Patten S. B. The depression and marital status relationship is modified by both age and gender." *Journal of affective disorders*, 2017; 223: 65–68.
31. Clout, D. and Brown, R. "Marital relationship and attachment predictors of postpartum stress, anxiety and depression symptoms." *Journal of social and clinical psychology*. 2016; 35(4): 322–341.
32. Hieronymus, A.N. "A study of social class motivation: relationships between anxiety for education and certain socioeconomic and intellectual variables." *The journal of educational psychology*. 1951; 42(4): 193–205.
33. Everson, S.A., Maty, S.C., Lynch, J.W. and Kaplan, G.A. "Epidemiologic evidence for the relation between socioeconomic status and depression, obesity, and diabetes." *Journal of psychosomatic research*, 2002; 53: 891–895.
34. Cox, R.C., Olatunji B.O. "A systematic review of sleep disturbance in anxiety and related disorders." *Journal of anxiety disorders*. 2015; 37: 104–29.
35. Tsuno N, Besset A, Ritchie, K. "Sleep and depression." *J clin psyhiatry*, 2005; 66(10): 1254–1269.
36. Vetrugno, R., Manconi, M. and Ferini-Strambi, L. "Nocturnal eating: sleep-related eating disorder or night eating syndrome?" *A videopolysomnographic study*. *Sleep*, 2006; 29(7): 949–954.
37. Coble, P.A., Kupfer, D. J., Spiker, D.G., Neil, J. F. and McPartland, R.J. "EEG sleep in primary depression: A longitudinal placebo study." *J. affect. Dis*, 1979; 1: 131–138.
38. Gillin, J.C, Duncan WC, Pettigrew KD, Frankel, B.L., and Snyder, F. "Successful separation of depressed, normal and insomniac subjects by EEG sleep data." *Arch. gen. psychiatry*, 1979; 36: 85–90.
39. Sassaroli S, Ruggiero GM, Vinai P Cardetti S, Carpegna, G, Ferrato, N, Vallauri, P, Masante, D, Scarone, S, Bertelli, S., Bidone, R., Busetto, L. and Sampietro, S. "Daily and nightly anxiety among patients affected by night eating syndrome and binge eating disorder". *Eat disord*, 2009; 17: 140–145.
40. Ohayon, M.M. and Roth, T. "Place of chronic insomnia in the course of depressive and anxiety disorders." *Journal of psychiatry research*, 2003; 37: 9–15.