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Research Article

INSOMNIA, RELATED FACTORS AND DETERMINATION OF THE STATUS OF COMPLIANCE WITH SLEEP HYGIENE RULES IN ADULT INDIVIDUALS

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ABSTRACT

This study aimed to evaluate insomnia, related factors, and adherence to sleep hygiene rules in adult individuals. The Insomnia Severity Index was administered to 227 adults who applied to the family medicine policlinic of a university hospital, and their adherence to sleep hygiene rules was also examined. Numerical values showing conformity to normal distribution were analysed by 'Pearson Correlation' analysis, 'Mann Whitney U' test and 'Kruskal Wallis' tests were used to compare categorical variables and dependent variables. As a result of the statistical analyses, 44% of the adults reported different levels of insomnia. A positive correlation was found between the mean Insomnia Severity Index scores and the presence of chronic disease (p=0.000), medication use (p=0.000), skipping meals (p=0.007), being stressed (p=0.000), and coffee consumption (p=0.025). According to the results of the analyses, it was found that there was a weak/very weak positive correlation between the adults' non-compliance with the sleep hygiene rules and their experience of insomnia. Considering the long-term effects of poor sleep hygiene habits, especially the potential to lead to chronic diseases, it is recommended that both public awareness be increased on this issue and that this issue is not ignored by health professionals.

INTRODUCTION

Despite the fundamental role of sleep in maintaining and improving physical and mental health, it is reported that many individuals sleep less than the recommended amount or experience sleep disorders (Baranwal, Yu & Siegel, 2023) Insomnia is one of the most common sleep disorders. The prevalence of insomnia in the general population is reported to be 10-15% and approximately 10% in the adult population (Bollu & Kaur, 2019; Morin & Jarrin, 2022). Insomnia can result directly from a disorder in the mechanisms regulating sleep and wakefulness or indirectly from accompanying psychiatric or medical conditions (Yetkin & Aydin, 2014). While insomnia can affect all age groups, factors such as gender and old age increase susceptibility to insomnia. Additionally, job stress, shift work, psychosocial factors, certain personality traits, and some psychiatric diseases can increase the risk of insomnia. Lifestyle behaviors such as alcohol use/addiction and excessive smoking can potentially affect the sleep-wake cycle (Bollu & Kaur, 2019). The consumption of caffeinated beverages such as

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coffee/tea and the intake of cereals (bread, pasta, rice, etc.) can lead to difficulty falling asleep and fragmented sleep (Başpınar & Yeşilkaya, 2021; Uysal, Ayvaz & Oruçoğlu, 2018). In other words, these poor lifestyle habits prevent a quality sleep experience. For this reason, it is important to highlight the importance of sleep hygiene, which refers to healthy habits that can be adjusted for a good night's sleep (Irish, Kline, Gunn, Buysse & Hall, 2015).

Sleep hygiene, a concept closely related to lifestyle behaviors, can be achieved by changing behavior and sleep habits (7-9 hours of sleep, avoiding caffeine, alcohol, and heavy meals later, etc), thereby improving sleep in the long term (Baranwal et al., 2023). Poor sleep hygiene habits (all factors that promote arousal or disrupt the normal balance of the sleep-wake cycle) can significantly impact sleep quality and duration (E. M. Alanazi, A. M. M. Alanazi, Albuhairy, A. H. & A. A. A. Alanazi, 2023; Barros, Lima, Ceolim, Zancanella & Cardoso, 2019). As a matter of fact, it is emphasized that poor sleep quality is associated with a range of mental and physical disorders (Alanazi et al., 2023). Due to insomnia, individuals may experience fatigue and lack of concentration, decreased productivity at work, social life disruptions, life-threatening accidents, and an increase in healthcare visits (Barros et al., 2019; Gottlieb, Ellenbogen, Bianchi & Czeisler, 2018; Matthews, Arnedt, McCarthy, Cuddihy & Aloia, 2013). Thus, insomnia can lead to individual and social costs (Barros et al., 2019; Matthews et al., 2013). The importance of sleep hygiene can be related to the following expressions (Work Health Solutions): (1) Having good sleep hygiene habits can help repair body tissues and the immune system. (2) Adequate sleep plays an important role in maintaining physical health. Inadequate sleep has been linked to various chronic health problems. (3) Good sleep hygiene habits can have a significant impact on mental health, reducing the risk of depression, anxiety, and other mental health problems. Getting enough quality sleep can reduce stress and improve cognitive function, including memory, concentration, and decision-making. 4) Good sleep hygiene habits can increase productivity and overall quality of life, improve energy levels, increase focus, and improve performance at work or school (Work Health Solutions).

The literature highlights that poor sleep quality is associated with higher mortality rates and higher prevalence of many chronic health problems. A study found that non-depressed people with insomnia have a twofold risk to develop depression compared to people with no sleep difficulties (Baglioni et al., 2011). As a result of the study conducted by Hublin, Partinen, Koskenvuo & Kaprio (2011), a significant relationship was found between poor quality sleep and mortality risk, especially in those with somatic diseases. A meta-analysis study found that patients with hypertension had significantly worse sleep quality scores (Lo, Woo, Wong &

Tam, 2018). A study by Troxel et al., (2010) found that difficulty falling asleep, non-restful sleep and especially loud snoring predicted the development of metabolic syndrome in adults in the community. The same study concluded that assessing sleep symptoms can help identify people at risk of developing metabolic syndrome. Therefore, it can be said that individuals' physical, psychological, and social performance, as well as their quality of life, are negatively affected. It is thought that the results of this study will provide up-to-date data to the literature on the experience of insomnia in adults living in Turkey. By determining the factors associated with insomnia and compliance with sleep hygiene rules, attention will be drawn to the necessity of planning awareness trainings on the subject.

MATERIAL AND METHOD

Purpose and Type of the Research

This research was planned as a cross-sectional study and aimed to evaluate insomnia, related factors, and adherence to sleep hygiene rules in adult individuals. The research questions of the study are as follows:

- What is the level/severity of insomnia in adults?
- What are the factors associated with insomnia in adults?
- What is the adherence status of adults to sleep hygiene rules?

This research was conducted in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement, which provides guidance on what should be included in the reporting of observational studies.

Sample of the Research

Patients were included in the sample using a non-probability convenience sampling method, and the research data were collected between August 1, 2022- December 1, 2022. The population of the research consisted of adult individuals who applied to the family medicine policlinic of a university hospital. The sample size was calculated using the sample calculation method based on the known incidence of the event in the population. With a 95% confidence interval, a 5% significance level, an incidence rate (the value in the sample study is 21.8%), and a sampling error of d=0.05, the sample size was calculated as 227 using the formula $n=Nt^2pq/d^2(N-1) + t^2pq$ (Demir, 2010). Individuals aged 18 and over, literate, and without verbal communication barriers were included in the study.

Data Collection and Analysis

The data of the study were collected with a structured questionnaire and Insomnia Severity Index (ISI). The structured questionnaire was prepared by the researchers in line with the literature. The form included questions about the socio-demographic and health-related characteristics of the individuals, questions to determine the factors associated with insomnia, and questions to determine their compliance with sleep hygiene rules. ISI was developed to assess the severity of insomnia. ISI is a measurement tool with high validity and reliability (Bastien, Vallières & Morin, 2001; Boysan, Güleç, Beşiroğlu & Kalafat, 2010). This measurement tool consists of 7 questions. Scale items are scored between 0-4. The scores that can be obtained from the scale vary between 0-28 (Boysan et al., 2010). This scale, which was developed to determine the degree of insomnia symptoms, can be used in normal population screening and clinical evaluation of insomnia. The scale assessment is as follows: (1) scores between 0-7 indicate clinically insignificant insomnia, (2) scores between 8-14 indicate mild insomnia, (3) scores between 15-21 indicate clinical insomnia (moderate), and (4) scores between 22-28 indicate clinical insomnia (severe) (Önal & Hisar, 2018). The Turkish validity and reliability study was conducted (Boysan et al., 2010). The scale is both a self-report tool and a tool that can be used by the caregiver or clinician for assessment. The internal consistency coefficient of the scale was found to be 0.79 (Boysan et al., 2010; Önal & Hisar, 2018). As a result of our study, Cronbach Alpha coefficient was found to be 0.89.

Data collection forms were administered by researchers using a face-to-face interview technique at the family medicine policlinic within the hospital. The forms were administered to patients meeting the sampling selection criteria in approximately 15-20 minutes. The family medicine policlinic was visited three days a week during working hours for data collection. After providing information about the data collection process, written consent was obtained from patients who agreed to participate in the study.

The research data were analysed with 'Statistical Package for the Social Sciences (SPSS) 22' software. In descriptive statistics; number and percentage distributions and mean±standard deviation (SD) values were given. Whether the data showed normal distribution or not (Kolmogorov-Simirnov or Shapiro-Wilk) was evaluated and numerical values showing conformity to normal distribution were analysed by 'Pearson Correlation' analysis, 'Mann Whitney U' test and 'Kruskal Wallis' tests were used to compare categorical variables and dependent variables. The results are presented at 95% confidence interval and $p<0.05$ significance level. The strength of the correlation coefficient was evaluated as very weak (0.00-

0.25), weak (0.26-0.49), medium (0.50-0.69), high (0.70-0.89), very high (0.90-1.00) (Akgül, 2005).

Limitations

This research has some limitations. The research was carried out single-center because of the limited amount of manpower, time, and funding. This may restrict the generalisability of results. We suggest that further cross-sectional, multi-centre and larger sample size studies are needed to improve generalizability.

Ethical Aspects of the Research

Ethical approval of the study was obtained from the ethics committee of the nursing faculty of a university. (Protocol No: 2022/299- Approval Date: July 4, 2022 – Number: E-76261397-050.99-195430). The necessary institutional permission to conduct the study between August, 2022 and December, 2022 was obtained from the institution where the study was conducted.

RESULTS

Characteristics of Adult Individuals and Their Insomnia Levels

A total of 394 individuals were assessed for eligibility, of whom 167 refused to participate in the study, stating that they did not have time. The mean age of the individuals in the study was 45.42±17.74, 60.8% were women and 65.6% were married. 33.5% of the participants were primary/secondary school graduates and 64.8% were not working. Of those who were employed, 15 per cent were working in a shift job. 52.4% of the participants had at least one chronic disease, 14.5% were obese and 48% were taking medication. Table 1 shows the mean ISI score and insomnia levels of the adults, and Table 2 shows the characteristics of the individuals (socio-demographic and health-related characteristics) and their experience of insomnia according to these characteristics. Accordingly, 55.9% of the individuals defined insomnia at a clinically insignificant level, while 44.1% of the total defined insomnia of different severity. When the characteristics of adult individuals were analysed, only the presence of chronic disease, medication use, skipping meals and being stressed were positively correlated with the mean ISI scores (Table 2).

Table 1. Insomnia Severity Index Scoring and Insomnia Levels

	Mean (x̄)	**SD**
ISI Scores	7.19	4.96
	N	**%**
0-7 (“no clinically signifi cant insomnia)	127	55.9
8-14 (subthreshold insomnia)	82	36.1
15-21 (clinical insomnia/moderate severity)	15	6.6
22-28 (clinical insomnia/severe)	3	1.3

*ISI: Insomnia Severity Index

Table 2. The Characteristics of the İndividuals and Their Experience of İnsomnia According to These Characteristics

	N	**%**	**ISI Scores**
Age (Years) Groups			
18-24	35	15.4	106.16
24-34	37	16.3	106.95
35-44	39	17.2	104.74
45-54	38	16.7	117.76
55-64	40	17.6	117.91
65 and over	38	16.7	129.71
Test and p value			KW = 5602.00; p = 0.347
Gender			
Female	138	60.8	116.01
Male	89	39.2	110.89
Test and p value			MWU= 5864.00; p = 0.565
Marital Status			
Married	149	65.6	117.48
Single	78	34.4	107.36
Test and p value			MWU= 5293.00; p = 0.268
Education Levels			
Literate	18	7.9	133.36
Primary School	76	33.5	127.56
Secondary School	65	28.6	111.15
High School and Postgraduate	68	30	104.06
Test and p value			KW = 7600.00; p = 0.107
Working Status			
Working	80	35.2	107.98
Non working	147	64.8	117.28
Test and p value			MWU= 5398.50; p = 0.236
Shift Working Status			
Shift Working	12	15	111.29
Shift Non working	68	85	107.40
Test and p value			MWU= 1452.00; p = 0.484
Chronic Diseases			
No	108	47.6	132.31
Yes	119	52.4	97.38
Test and p value			MWU= 4448.50; **p = 0.000**
Using Drug			
Yes	109	48	128.56
No	118	52	100.55
Test and p value			MWU= 4844.00; **p = 0.000**
Body Mass Index			
Underweight	5	2.2	64.00
Normal weight	111	48.9	107.97
Overweight	78	34.4	122.21
Obese	33	14.5	122.47

Test and p value			KW = 7575.00; p = 0.056
Skipping Meals			
No	138	60.8	122.75
Yes	89	39.2	102.89
Test and p value			MWU= 5238.50; **p = 0.007**
Stressful			
No	179	78.9	125.49
Yes	48	21.1	99.41
Test and p value			MWU= 4891.00; **p = 0.000**

*MWU= Mann Whitney U test; KW=Kruskal Wallis test; ISI: Insomnia Severity Index

Adherence to Sleep Hygiene Rules Among Adults

The compliance of adult individuals with sleep hygiene rules was analysed. Most of the participants turned off the lights at bedtime (94.3%), avoided overeating before going to sleep (75.8%), avoided going to bed when very hungry (86.8%), and stopped snacking two hours before bedtime (70.9%), completed their exercises at least 6 hours before bedtime (76.7%), avoided heavy exercise shortly before bedtime (88.1%), got out of bed when they woke up in the morning (80.2%), and took care to get sunlight during the day (93.8%). More than half of the participants stated that they do not do activities such as reading, eating, watching TV in bed (53.7%) and go to bed only when they are tired/sleepy enough to sleep (55.8%).

Less than half of the participants made the following statements about other sleep hygiene rules: ‘I don't sleep even if I feel sleepy during the day’ (35.2%), “I get up at the same time every morning, no matter what time I go to sleep” (29.5%), “When I feel that I can't sleep in bed, I don't force myself to sleep, I get out of bed and clear my mind in a quiet room, I go back to bed” (37.9%), “I go to bed at the same time every day and get up at the same time” (22.5%), ’I stop drinking coffee-tobacco-alcohol-acidic drinks at least 6 hours before going to bed (44, 1%)’, “I avoid situations that may stress me before sleep (41,0%)”, “I stop using electronic devices at least 1 hour before bedtime (39,6%)”, “I make plans for the next day before sleep and in another room (34,4%)”, “I exercise at least 30 minutes 3 times a week (44,9%)”, “If I have difficulty falling asleep at night, I avoid daytime sleep (43,2%)”, ’If necessary, I sleep for a maximum of 20 minutes before 15. 00 (27,3%)‘, I avoid napping in front of the TV in the evening (42,3%)’, I do one of the activities such as relaxation exercises, taking a warm shower, reading a book in a different room, listening to classical music at least 1 hour before sleep (41,9%)‘, I pay attention to go to bed at the same time and get up at the same time even on weekends and holidays (26,4%)’.

Adult Individuals' Experience of Insomnia According to Compliance With Sleep Hygiene Rules

In our study, insomnia experience status of adult individuals according to their non-compliance with sleep hygiene rules was analysed (Table 3). According to the results of the analyses, it was found that there was a weak/very weak positive correlation between the adults' non-compliance with the sleep hygiene rules in Table 3 and their experience of insomnia (Table 3). Accordingly, those who did not comply with the sleep hygiene rules in Table 3 had higher insomnia scores.

Table 3. Adult İndividuals' Experience of İnsomnia According to Non-Compliance with Sleep Hygiene Rules

	ISI Scores
Not sleeping even if sleepy during the day	r = 0.147 p = 0.027*
Going to bed only when tired/sleepy enough to fall asleep	r = 0.140 p = 0.035*
Going to bed and getting up at the same time every day	r = 0.159 p = 0.017 *
Avoiding overeating before sleep	r = 0.244 p = 0.000*
Stop eating snacks 2 hours before bedtime	r = 0.174 p = 0.008*
Avoiding situations that may cause stress before sleep	r = 0.252 p = 0.000*
Avoiding daytime sleep when there is difficulty falling asleep at night	r = 0.164 p = 0.013*
Making plans for the next day before sleep and in another room	r = 0.231 p = 0.000*
Avoiding naps in front of the TV in the evening	r = 0.329 p = 0.000*
Performing one of the activities such as relaxation exercises, taking a warm shower, reading a book in a different room, listening to classical music at least 1 hour before sleep	r = 0.159 p = 0.016 *
To go to bed and get up at the same time even on weekends and holidays	r = 0.190 p = 0.004*
Getting out of bed when you wake up in the morning	r = 0.226 p = 0.001*

*Pearson korelasyon; ISI: Insomnia Severity Index

Adult Individuals' Experience of Insomnia According to Their Dietary Habits

When the sleep-related dietary habits of adults were analysed, it was found that individuals consumed tea (499.47±513.89 ml) and coffee (113.53±142.37 ml) as daily beverages. It was found that the individuals consumed 83.47±131.33 ml cola/acidic beverage, 55.32±95.84 ml fruit juice and 45.54±97.20 ml herbal tea daily, smoked 3.63±6.84 cigarettes daily and consumed 30.39±153.16 ml alcohol weekly. Individuals consumed 3.87±4.16 slices of white bread, 26.80±52.79 grams of chocolate and 130.46±109.38 ml of yoghurt daily. It was

stated that 2.08±1.90 servings of potatoes, 2.06±2.41 servings of white rice and 1.62±2.08 servings of desserts were consumed weekly.

Adult individuals were analysed according to their dietary habits that may affect their sleep status (Table 4). Only a weak positive correlation was found between coffee consumption and insomnia (r=0.148; p=0.025).

Table 4. Adult İndividuals Experience İnsomnia According to Dietary Habits that may Affect Their Sleep

	ISI Scores
Coffee	r = 0.148 **p = 0.025***
Tea	r = 0.099 p = 0.137*
Cola/Acidic Beverage	r = 0.080 p = 0.229*
Herbal Tea	r = -0.045 p = 0.505*
Fruit Juice	r = 0.015 p = 0.823*
Smoking	r = -0.064 p = 0.334*
Alcohol	r = 0.024 p = 0.716*
Chocolate	r = 0.017 p = 0.794*
Yoghurt	r = -0.014 p = 0.828*
Dessert	r = 0.090 p = 0.176*
White Bread	r = 0.032 p = 0.630*
Potato	r = -0.053 p = 0.423*
White Rice	r = -0.094 p = 0.157*

* Pearson korelasyon; ISI: Insomnia Severity Index

DISCUSSION

Characteristics of Adult Individuals and Their Insomnia Level

In the literature, it has been reported that the frequency of insomnia increases with age, and it has been emphasised that reasons such as increase in life expectancy, increase in chronic disease burden, changing lifestyle and uncertainty of urban life contribute to the spread of insomnia (Roy, Bhattacharjee, Chakraborti & Singh, 2015). The fact that no relationship was found between age and insomnia in our study can be explained by the fact that the mean age of the participants in the study (45.42±17.74) was not high. In a similar study, the mean age of adults was found to be 46.5±11.08, and it was found that occupation and socioeconomic status were important determinants of insomnia, but similar to our study results, no statistically

significant relationship was found between age and insomnia (Kumari et al., 2018). It was emphasised that 1/3 or 2/3 of adults reported insomnia symptoms of any severity in outpatients (Bonnet & Arand, 2024). In our study, 36.1% of the individuals had mild insomnia and 7.9% had moderate or severe insomnia. In similar studies, the prevalence of insomnia was found to be 12.8%, and 15.4% (Kumari et al., 2018; Roy et al., 2015). In a study conducted with women with insomnia, the mean age of the individuals was 40.5±10.2 years and 34.3% of the individuals had an ISI mean score above 21. In the same study, age, marital status, education level, depression/anxiety, psychological flexibility and beliefs about sleep were evaluated as potential factors associated with severe insomnia (El Rafihi-Ferreira et al., 2022). In our study, only 1.3% had severe insomnia. However, no relationship was found between socio-demographic characteristics and insomnia severity in our study. This may be related to the fact that many people in all segments of the society today, regardless of age, marital status, educational status and employment status, inadequately comply with sleep hygiene rules. In our study, it was observed that 14 out of 24 sleep hygiene rules were not followed by the majority.

In our study, only a weak relationship was found between insomnia and the presence of chronic disease, medication use, being stressed and skipping meals in terms of health-related characteristics of adult individuals. In studies with a similar theme, a significant relationship was found between insomnia and the presence of chronic disease (Kumari et al., 2018; Roy et al., 2015). The effect of stress on sleep was emphasised in the literature, and similar to our study results, a significant relationship was found between the presence of any type of stress and insomnia (Kumari et al., 2018). In a study with a similar theme, a moderate positive correlation was found between insomnia and stress level (Zulfakar et al., 2022). The literature generally reveals a dynamic and complex relationship between stress and sleep (Kalmbach, Anderson & Drake, 2018). Stress and sleep have been reported to be tightly linked. Various biological pathways of sleep disturbances can profoundly affect stress responses and ultimately quality of life. It is emphasized that even a few days of sleep deprivation or circadian mismatch can be enough to increase appetite, calorie intake, blood pressure, insulin and blood glucose. Sleep deprivation can alter the physiological neuroendocrine stress response by increasing sympathetic tone and cortisol levels (McEwen & Karatsoreos, 2015). It has been reported that chronic circadian disruption and reduced sleep duration can significantly increase the risk of developing cardiovascular and metabolic disorders (diabetes and obesity) (Lo Martire, Caruso, Palagini, Zoccoli & Bastianini, 2020; McEwen & Karatsoreos, 2015). For this reason, we think that it would be useful to plan training programs for the public about the short- and long-term problems that may be caused by the relationship between insomnia and stress.

Adult Compliance With Sleep Hygiene Rules

It was emphasised in the literature that it is difficult to objectively measure behaviours related to stimulus control, sleep hygiene and cognitive interventions (Matthews et al., 2013). In our study, the compliance status of individuals with sleep hygiene rules was determined by answering 'yes or no' to the questions about the realisation of sleep hygiene. It was observed that the participants complied with 14 of the 24-item sleep hygiene rules to a lesser extent.

In our study, the majority of the participants stated that they turn off the lights when going to bed, take care to get daylight during the day and avoid going to bed when they are very hungry. However, no correlation was found between following these rules and experiencing insomnia. Avoiding overeating before going to bed, stopping snacking two hours before going to bed and getting out of bed when waking up in the morning were found to be positively correlated with insomnia, albeit weakly. The relationship between skipping meals, meal content and sleep disorders is emphasised in the literature (Kim, DeRoo & Sandler, 2011). It has been reported that individuals with shorter sleep duration are more likely to skip meals (skipping breakfast) compared to those with optimum sleep duration (Kim et al., 2011). In another study, unlike our study findings, it was found that there was no statistically significant relationship between skipping meals and insomnia (Anderson, 2020). A study conducted with adult women revealed that increased snack consumption was associated with shorter sleep duration (Kim et al., 2011). These results are in parallel with our study results. While the literature suggests that consuming a meal just before bedtime may disrupt sleep parameters, it has been emphasized that the time between bedtime and meal consumption may increase certain sleep parameters depending on dietary content (Keser & Yüksel, 2024). Individuals with shorter sleep duration may be more likely to skip breakfast compared to those with optimal sleep duration (Kim et al., 2011). It is emphasized that more research is needed to fully explain the effect of various nutrients on sleep parameters (Keser & Yüksel, 2024). We also support this view.

A study found that the most common sleep hygiene habit practised by participants was to organise the bedroom environment to be suitable for sleep, while the least common practice was avoiding light as bedtime approached. According to the results of the same study, it was found that shift workers who had previously heard about the concept of sleep hygiene were more likely to participate in sleep hygiene practices and had better sleep quality (Rampling et al., 2022). In our study, no relationship was found between shift work and insomnia. It may be useful to share the positive results of compliance with sleep hygiene rules with individuals living in the community, to provide educational content on these rules through various methods in health centers and to add them to official health-related web pages.

In a study conducted with adolescents, it was found that there was a moderate relationship between sleep hygiene and sleep quality, and sleep hygiene components could be associated with sleep quality (Chehri, Shetabi, Khazaie & Zakiei, 2023). One study found that a significant relationship between the frequency of sleep problems and poor sleep hygiene practices. According to the results of the same study, the rate of sleep problems in the last 3 months was significantly higher in individuals with poor sleep hygiene interventions. The frequency of excessive/severe daytime sleepiness was significantly higher in adults with poor sleep hygiene habits (Alanazi et al., 2023). One of the behaviors associated with sleep quality is the use of electronic devices (Pham, Chuang, Kuo, Yeh & Liao, 2021). In a study with a similar theme, it was found that one of the risk factors associated with insomnia was the use of mobile devices before going to sleep (Metwally et al., 2023). Although there was no association between the use of electronic devices before going to sleep and insomnia in our study, most adults (60.4%) stated that they did not follow this rule. The use of electronic devices at inappropriate times may cause melatonin suppression due to short-wavelength light emitted from the screens of these devices, which may prolong the time for individuals to fall asleep and reduce total sleep time (Pham et al., 2021). Since this may affect sleep quality, we believe that restricting the use of electronic devices close to bedtime should be emphasized.

Nutritional Habits of Adults That May Affect Sleep

There are different views on the effect of nutrition on sleep in the literature. As a result of a recent study, it was emphasised that there is no evidence that specific diet or food intake has a direct effect on sleep (Netzer, Strohl & Pramsohler, 2024). In another study, it was emphasised that nutrition can have a significant impact on sleep health, and that nutrition can profoundly affect hormones and inflammation that contribute directly or indirectly to insomnia (M. Zhao, Tuo, Wang and L. Zhao, 2020). It has been reported that caffeine causes sleep delay, sleep efficiency and decreased time spent in deep sleep (Clark & Landolt, 2017). In our study, only coffee consumption (113.53±142.37 ml daily) was correlated with insomnia. One study found that moderate doses of caffeine taken at least 6 hours before sleep had a significant effect on sleep disturbance (Drake, Roehrs, Shambroom & Roth, 2013). The result of a study showed that high caffeine consumption more than 2 days a week, especially before sleep, was highly associated with an increased risk of developing insomnia. Mean caffeine consumption was 176.6±201 mg/day in the study on caffeine consumption and insomnia. It was found that sleep duration was inversely correlated with insomnia symptoms (Chaudhary, Grandner, Jackson & Chakravorty, 2016). According to the results of the same study, non-restorative sleep was

associated with the interaction between increased caffeine consumption and sleep duration (Chaudhary et al., 2016). A study with young adults found a statistically significant association between afternoon coffee consumption and sleep disturbance (Gianfredi et al., 2018). Our study results are in parallel with the literature. Since insomnia symptoms seen after caffeine consumption in healthy individuals may lead to a decrease in total sleep time, difficulty falling asleep, increased nocturnal awakenings and daytime sleepiness, it is important to conduct awareness studies to inform the public about the relationship between coffee consumption and insomnia.

CONCLUSION

According to our study results, 44% of adults scored 8 points or more on the ISI. Presence of chronic disease, medication use, skipping meals, stressful state and coffee consumption were found to be factors associated with insomnia. It was observed that adults' compliance with sleep hygiene rules was not at an adequate level. It is very important to increase the level of awareness of health professionals to evaluate both patients living in the community and hospitalised patients in terms of insomnia. Considering the relationship between insomnia and chronic diseases, it is important to support individuals to comply with sleep hygiene rules. The help of sleep hygiene should not be ignored in mild cases of insomnia and thus, progression of insomnia to severe levels should be prevented.

Note: This study was presented as an abstract-oral at the "I. Ulusal Nöroloji Hemşirelik Sempozyumu" on September 13-15, 2024 (in Ankara).

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