

Access this article online
Quick Response Code:

Website: www.eurasianjpulmonol.com
DOI: 10.4103/ejop.ejop_15_20

Evaluation of the sleep quality of patients admitted to the internal medicine outpatient clinic

İdris Kirhan, Fatih Üzer¹

ORCID:

İdris Kirhan: <http://orcid.org/0000-0001-6606-6078>

Fatih Üzer: <http://orcid.org/0000-0001-9318-0458>

Abstract:

AIM: This study aimed to determine the sleep quality and the factors affecting sleep quality in patients admitted to the internal medicine outpatient clinic.

MATERIALS AND METHODS: The study was conducted between July 1, 2019, and July 15, 2019, with a face-to-face questionnaire administered to the patients who applied to the internal medicine outpatient clinic of Harran University. A descriptive questionnaire, Pittsburgh Sleep Quality Index (PSQI), and Epworth Sleepiness Scale (ESS) were used in the study.

RESULTS: One-hundred and twelve (48.0%) male and 121 (51.9%) female patients with a mean age of 38.5 ± 16.3 years (18–86 years) were included in the study. The total PSQI mean was 4.9 ± 3.0 and the score range was 0–15. The rate of those with poor sleep quality was 48.9%. The mean score of ESS was 5.0 ± 3.6 , and 12 (30%) patients admitted to the outpatient clinic experienced excessive sleepiness during the day. Gender of the participants ($P = 0.800$), income level ($P = 0.113$), the size of the house they were living in ($P = 0.783$), body mass index (BMI) ($P = 0.491$), and comorbid diseases ($P = 0.803$) did not affect the sleep quality; the number of people living in the same house affected the sleep quality ($P < 0.001$). It was found that those with a high BMI (≥ 30) had significantly worse sleep quality than those without. Sleep quality decreased as the number of people living at home decreased.

CONCLUSION: We found that almost half of the patients admitted to the internal medicine outpatient clinic had poor sleep quality. We also found that as the number of people living in the same home decreases, sleep quality deteriorates.

Keywords:

Daytime sleepiness, sleep disturbance, sleep quality

Introduction

Sleep is a resting state in which the activity of most organs decreases and some or almost no external stimuli are detected. Sleeping, eating, drinking, and breathing are the most basic needs of a person.^[1] Sleep allows the organism to rest physically and mentally and regulates brain functions and prepares the person for a new day.^[2] A

change in the quality and quantity of sleep may affect daily living activities.

Sleep affects cognitive functions such as productivity and concentration and contributes to the conservation of energy and physical and psychological repair of the organism. Sleep quality affects feeling energetic and ready for a new day after waking up. If a person feels fit and ready for a new day after waking up, then good quality sleep is achieved.^[3] Sleep quality is

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Kirhan İ, Üzer F. Evaluation of the sleep quality of patients admitted to the internal medicine outpatient clinic. *Eurasian J Pulmonol* 2020;22:163-8.

Department of Internal Medicine, Faculty of Medicine, Harran University, S. Urfa, ¹Department of Chest Diseases, Kastamonu State Hospital, Kastamonu, Turkey

Address for correspondence:

Dr. Fatih Üzer,
Kastamonu State Hospital,
Kastamonu, Turkey.
E-mail: uzerfatih@gmail.com

Received: 21-02-2020

Revised: 30-03-2020

Accepted: 03-04-2020

Published: 31-12-2020

affected by various factors such as lifestyle, social life, occupational conditions, environmental factors, stress, and general health status.^[4] According to some studies, 15%–35% of adults have problems related to sleep quality such as difficulty in falling asleep and maintaining sleep; therefore, sleep quality has importance. In addition, poor sleep quality can be a symptom of various diseases.^[5,6]

It is seen that individuals who have insomnia problems have more problems in their daily lives and overall health such that their life quality decreases gradually, and they tend to seek more help in terms of time/energy.^[7,8] When we look at the literature, sleep quality of individuals with various chronic diseases has been extensively investigated. Internal medicine outpatient clinic is one of the leading clinics in terms of patient diversity. This study aimed to determine the sleep quality and the affecting factors in patients admitted to the internal medicine outpatient clinic. We believe that this study will shed light on the research on sleep problems in various patient groups.

Materials and Methods

This is a cross-sectional study designed to determine sleep quality and excessive daytime sleepiness of patients admitted to an internal medicine outpatient clinic. The research was conducted in Harran University Research and Training Hospital during July 1–15, 2019. Sample selection was not made in the research; patients who accepted to participate were all included in the study. Patients who refused to participate in the study were not included in the sampling. In this study, Personal Information Form, Pittsburgh Sleep Quality Index (PSQI), and Epworth Sleep Scale (ESS) were used to collect data. The Personal Information Form, which was developed based on the literature, consists of questions that include demographic characteristics and individual characteristics that are thought to affect sleep quality. Demographic characteristics (gender, age, weight, height, and body mass index [BMI]) as well as other individual characteristics (working style, economic status, presence of a health problem, etc.) were questioned. The PSQI was developed by Buysee *et al.* in 1938 to evaluate sleep quality. The Turkish validity and reliability study was conducted in 1996 by Ağargün *et al.*^[9] This value shows that the internal consistency of the scale is high. The PSQI contains 24 questions in total. Nineteen of these are self-report questions. The remaining five questions are answered by a spouse or roommate. These last five questions are used for clinical information only and are not included in the scoring. In the self-report questions, Question 19 is about the presence or absence of a roommate or partner and is not taken into account in the calculation of the component scores of the scale. The 18 PSQI questions included in the scoring were

grouped into seven component scores. While some of the components consisted of a single question's score, some are obtained by grouping several questions.

The following seven items are found in the PSQI:

- Component 1: Sleep quality
- Component 2: Sleep latency
- Component 3: Sleep duration
- Component 4: Sleep efficiency
- Component 5: Sleep disturbance
- Component 6: Sleep medication
- Component 7: Daytime sleep dysfunction.

Each component has a score between 0 and 3. The total score of the seven components gives the PSQI score. The total score has a value of 0–21. Those with a total score of <5 are considered to have good sleep quality and those with a score of 5 or more have poor sleep quality.

The ESS was developed by Johns in 1991.^[10] ESS is the most commonly used scale to assess the level of sleepiness in both clinical practice and researches. The scale has been translated into many different languages. It aims to measure the overall daytime sleepiness, rather than evaluating sleepiness for special situations or specific periods. ESS is a 4-point Likert scale. It is scored as 0, 1, 2, and 3, and a total score of 10 and above is accepted as excessive daytime sleepiness.

The Ethics Committee of the Harran University (November 4, 2019;04/10) approved the study.

While evaluating the data, independent variables such as age and gender and the dependent variable of PSQI score were used. The data obtained were coded by the researchers, a database was created, and the data were analyzed using SPSS for Windows (SPSS/IBM, Chicago, IL, USA) 24 package program. A Chi-square test was used for assessing the categorical data compared to other categorical characteristics. The statistical significance level was accepted as 0.05 in all the analyses.

Results

The mean age of the patients was 38.5 ± 16.3 (18–86) years. A total of 112 (48.0%) male and 121 (51.9%) female patients were included in the study. The mean PSQI score of the patients was 4.9 ± 3.0 , ESS score was 5.0 ± 3.6 , and the mean BMI was 26.1 ± 5.4 . It was found that 48.9% (114) of the patients included in the study had poor sleep quality (PSQI ≥ 5) and 14.7% (30) had excessive daytime sleepiness (ESS ≥ 10). Approximately one-third (36.4%) of the participants had normal BMI, whereas 56.6% of the patients had no chronic disease. The general characteristics of the participants are summarized in Table 1, and the PSQI subgroup averages

are summarized in Table 2. When the participants' sleep time was examined, 58.7% (137) of the patients fall asleep in more than 60 min, 26.1% (61) in 31–60 min, 13.3% (31) in 16–30 min, and 1.7% (4) were found to fall asleep in 15 min or less. It was found that 8.1% (19) of the patients sleep under 6 h, 65.6% (153) of them sleep between 6 and 8 h, and 26.1% (61) of them sleep more than 8 h. Gender of the participants ($P = 0.800$), their income level ($P = 0.113$), size of the house ($P = 0.783$), BMI ($P = 0.491$), and additional diseases ($P = 0.803$) do not have an effect on sleep quality ($P < 0.001$). However, it was concluded that the number of people living in the same house affects sleep quality. Sleep quality deteriorated as the number of people living at home decreased [Table 3]. It was also found that chronic diseases of the patients did not affect sleep quality [Table 4]. In our study, 48.6% of the patients with hypertension, 40.6% of the patients with diabetes mellitus (DM), 53.3% of the patients with thyroid disease, 50% of the patients with renal disease, 70% of the patients with heart failure, and 40% of the patients with chronic pulmonary disease were found to have poor sleep quality. In the evaluation of chronic diseases according to the ESS, there was no statistically significant difference in the ESS score among chronic patients ($P = 0.853$). When the participants with poor sleep quality (PSQI ≥ 5) were evaluated, it was found that those with a high BMI (≥ 30) had statistically significantly worse sleep quality than those without ($P = 0.004$) [Table 5].

In the subgroup analysis of patients with DM, there were 31 (13.3%) patients with a mean age of 58 ± 9.9 years. Their mean BMI was 28.3 ± 4.8 , ESS score was 5.7 ± 3.4 , PSQI score was 5.0 ± 3.6 , and hypertension was the most common comorbid disease in diabetic patients. When patients with DM were compared with other patients, there was no statistically significant difference in their ESS ($P = 0.247$) and PSQI ($P = 0.730$) scores.

Discussion

Internal medicine polyclinic is one of the most diverse clinics in terms of patient diversity. Usually, first application, treatment, and follow-up of patients with hypertensive diseases, endocrinological disorders, renal diseases, and pulmonary disorders, which are commonly seen in the community, are internal medicine polyclinics, which is the reason for this diversity. Treatment and follow-up of such diseases can provide a resource for epidemiological studies. In our study, in which we investigated the sleep quality of these patients, we found that approximately half (48.9%) of the patients admitted to the internal medicine polyclinic had poor sleep quality. In studies of various patient groups in Turkey, it was reported that patients' poor sleep quality ratio was between 67.8% and 77%.^[11-15] This information shows that the majority of people with

Table 1: General characteristics of the participants

	n (%)
Gender	
Male	112 (48.0)
Female	121 (52.0)
BMI	
Underweight (<20)	22 (9.7)
Normal (20-24.9)	85 (37.2)
Overweight (25-29.9)	70 (30.8)
Obese (30 and above)	51 (22.3)
Comorbidities	
Yes	101 (43.3)
No	132 (56.7)
Income rate	
<₺ 1600	109 (47.2)
₺ 1600-2500	64 (27.7)
₺ 2500-4000	21 (9.0)
₺ 4000-6000	23 (10.0)
>₺ 6000	14 (6.1)
House size	
2 rooms	26 (11.2)
3 rooms	84 (36.1)
4 rooms	89 (38.2)
5 rooms	34 (14.5)
Number of persons at home together	
1 person	7 (3.0)
2 people	28 (12.0)
3 people	35 (15.0)
4 people	41 (17.6)
5 people	122 (52.4)

BMI: Body mass index

Table 2: Participants' Pittsburgh Sleep Quality Index subgroup averages

PSQI subgroups	Mean \pm SD
Subjective sleep quality	0.8 \pm 0.7
Sleep latency	1.0 \pm 0.7
Sleep time	0.5 \pm 0.7
Conventional sleep activity	0.5 \pm 1.0
Sleeping disorder	0.9 \pm 0.5
Sleep drug use	0.2 \pm 0.6
Day dysfunction	0.6 \pm 0.8
Total	4.9 \pm 3.0

SD: Standard deviation, PSQI: Pittsburgh sleep quality index

chronic disease, regardless of that chronic disease, have poor sleep quality.

Studies report that sleep quality varies according to gender and that women have worse sleep quality than men.^[16-18] In our study, we found that gender did not affect sleep quality. In literature, the reason for the similarity of sleep quality between genders was attributed to the effective maintenance of the non-rapid eye movement (NREM) stage of sleep until older ages in women and the rapid decrease in this stage after 40 years in men.^[19] In our study, there were more participants under the age of 40, and it may have caused similar sleep quality in both genders.

Table 3: Comparison of the mean score of patients' Pittsburgh Sleep Quality Scale according to sociodemographic characteristics

	<i>n</i>	Mean±SD	Minimum	Maximum	<i>P</i>
Comorbidities					
Yes	101	4.9±3.2	0	15	0.803
No	132	4.8±2.9	0	14	
BMI					
Underweight (<20)	22	4.4±2.7	0	11	0.491
Normal (20-24.9)	85	5.0±2.7	0	14	
Overweight (25-29.9)	70	4.5±2.8	1	14	
Obese (30 and above)	51	5.2±3.6	0	15	
Income rate					
<₺ 1600	109	4.9±2.8	0	15	0.113
₺ 1600-2500	64	4.8±3.2	0	14	
₺ 2500-4000	21	6.1±3.5	0	14	
₺ 4000-6000	23	4.2±3.1	0	11	
>₺ 6000	14	4.5±2.6	1	12	
House size					
2 rooms	26	5.4±3.4	0	14	0.783
3 rooms	84	4.7±2.8	0	14	
4 rooms	89	4.8±3.3	0	15	
5 rooms	34	5.0±2.7	0	12	
Number of people living at home					
1 person	7	8.4±4.7	3	14	<0.001
2 people	28	4.6±2.8	1	15	
3 people	35	6.0±3.2	2	14	
4 people	41	4.1±2.8	0	12	
>4 people	122	4.6±2.8	0	14	

SD: Standard deviation

Table 4: Comparison of chronic diseases according to Pittsburgh Sleep Quality Index levels

	<i>n</i>	Mean±SD	Minimum	Maximum	<i>P</i>
Hypertension	37	5.2±3.8	0	14	0.804
Diabetes mellitus	31	4.9±3.5	0	14	
Thyroid disease (hyper-hypo)	15	5.2±3.5	1	15	
Renal diseases	21	5.1±3.3	1	13	
Heart failure	10	5.0±2.4	2	9	
Chronic pulmonary disease (asthma-COPD)	15	3.7±2.9	1	12	

COPD: Chronic obstructive pulmonary disease. SD: Standard deviation

After thirties, the rate of deep sleep decreases compared to younger ages. The decrease in deep sleep may cause a decrease in sleep efficiency and quality.^[20] In our study, we found that sleep quality did not change depending on age. Although there are publications in literature stating that sleep quality does not change with age, which is similar to our study, there are also studies indicating that sleep quality changes with age and sleep quality decreases as people get older, as in Chan's study.^[6,16,21,22]

It is reported that income status of a person is directly proportional to sleep and that the quality of sleep may deteriorate with lower income levels.^[12] In our study, we found that both sleep quality and excessive

daytime sleepiness were not related with income level.

Approximately 75% of patients fall asleep within 30 min or more, making it clear that the majority of patients have problems with delay in falling asleep. However, this does not affect patients' sleep duration. Only 8.1% of the participants stated that they slept for < 6 h. In general, the recommended sleep time for adults is 6–8 h, and that the healthy duration for falling asleep is within 15 min.^[23,24] In our study, it was found that most of the patients slept in accordance with the recommended sleep time, but only a few of them fell asleep within the recommended duration.

Studies report a relationship between increased BMI or visceral fat tissue and poor sleep quality.^[25,26] In a study from Turkey, conducted by Algul *et al.*^[27] on 57 obese and 53 normal weighted individuals, it was reported that there was a significant relationship between poor sleep quality and obesity. In our study, although no statistically significant difference was found between BMI and PSQI scores, it was found that individuals with poor sleep quality tended to have higher BMI.

Excessive daytime sleepiness may occur in people suffering from insomnia. This may affect a person's daily functions.

Table 5: Comparison of poor sleep quality (Pittsburgh Sleep Quality Index 5) according to sociodemographic characteristics and clinical characteristics

	Number of samples (n)	PSQI ≥5 (n,%)	χ^2	P
Age				
<25	42	17	0.634	0.889
25-40	111	55		
41-64	55	29		
≥65	24	13		
Gender				
Female	121	58	0.034	0.854
Male	112	56		
BMI				
Underweight (<20)	22	8	13.089	0.004
Normal (20-24.9)	85	42		
Overweight (25-29.9)	70	11		
Obese (30 and above)	51	30		
Income rate				
<₺ 1600	109	54	1.454	0.835
₺1600-2500	64	27		
₺2500-4000	21	14		
₺4000-6000	23	10		
>₺ 6000	14	8		
House size				
2 rooms	26	14	0.235	0.972
3 rooms	84	39		
4 rooms	89	43		
5 rooms	34	18		
Number of people living at home				
1 person	7	4	1.211	0.876
2 people	28	14		
3 people	35	21		
4 people	41	16		
>4 people	122	59		
Comorbidities				
Yes	101	50	0.008	0.928
No	132	64		

PSQI: Pittsburgh Sleep Quality Index, BMI: Body mass index

In a study comparing the life quality of healthy sleepers and those with sleep problems, it was stated that the life quality of the people with sleep problems was worse than the healthy sleepers, and the quality of life was affected by the increase in sleep problems.^[28] Patients may experience excessive sleep the next day due to interruption of sleep resulting from frequent episodes of apnea during sleep. Excessive daytime sleepiness may occur not only in sleep apnea syndrome but also in many other chronic diseases. In our study, it was found that only 12.3% of the patients experienced excessive daytime sleepiness, and there was no statistically significant difference between daytime sleepiness and chronic diseases.

It can be expected that the sleep quality of the patients with chronic diseases will be impaired and impaired

sleep quality will affect overall health. According to the DSM-5, this condition is included in the scope of "Sleep Disorders Due to Medical Disorders."^[29] However, according to the results of our study, there is no difference between the sleep quality of those with chronic diseases.

Limitations of our study include that sleep quality was evaluated by the PSQI, excessive daytime sleepiness was assessed by the ESS, and the measurement methods in which sleep was evaluated objectively were not used. Furthermore, the fact that social habits, working status, and work conditions may affect the sleep quality of the person is not questioned in our study.

Conclusion

As a result, we found that approximately half of the patients admitted to the internal medicine outpatient clinic had poor sleep quality and almost one in every ten patients experienced excessive daytime sleepiness. In addition, patients with poor sleep quality tend to have an increase in BMI. Sleep disorders may be present in patients admitted to the internal medicine outpatient clinic for various reasons. Referral of these patients to sleep policlinics would be appropriate for public health.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Peuhkuri K, Sihvola N, Korpela R. Diet promotes sleep duration and quality. *Nutr Res* 2012;32:309-19.
2. Saraç S, Çetintaş GA, Oruç Ö. The Relationship of Obesity and Concomitant Diseases in the Patients with Obstructive Sleep Apnea Syndrome. *Van Tıp Derg* 2015;22:246-51.
3. Nasermoaddeli A, Sekine M, Kumari M, Chandola T, Marmot M, Kagamimori S. Association of sleep quality and free time leisure activities in Japanese and British civil servants. *J Occup Health* 2005;47:384-90.
4. Kacan CY, Orsal O, Koşgeroğlu N. The sleep quality among nurses. *Journal of Anatolia Nursing and Health Sciences* 2016; 19:145-151.
5. Günaydın N. The Quality of Sleep and Effects on General Mental Health of Nurses Who Works in a State Hospital. *J Psychiatr Nurs* 2014;5:33-40.
6. Selvi Y, Özdemir PG, Özdemir O, Aydın A, Beşiroğlu L. Influence of night shift work on psychologic state and quality of life in health workers. *Dusunen Adam. The Journal of Psychiatry and Neurological Sciences* 2010;23:238-43.
7. Treharne GJ, Lyons AC, Hale ED, Douglas KM, Goodchild CE, Booth DA, *et al.* Sleep disruption frequency in rheumatoid arthritis: Perceived stress predicts poor outcome over one year. *Musculoskeletal Care* 2007;5:51-64.
8. Drewes AM. Pain and sleep disturbances with special reference to fibromyalgia and rheumatoid arthritis. *Rheumatology (Oxford)*

- 1999;38:1035-8.
9. Ağargün MY, Kara H, Anlar Ö. The Validity and Reliability of the Pittsburgh Sleep Quality Index. *Turkish Journal of Psychiatry* 1996;7:107-15.
10. Johns MW. A new method for measuring daytime sleepiness: The Epworth sleepiness scale. *Sleep* 1991;14:540-5.
11. Örsal Ö, Kök Eren H, Duru P. Examination of factors affecting the sleep quality of psychiatry patients using structural equation model. *J Psychiatric Nurs* 2019;10:55-64.
12. Kiper S, Sunal N. Evaluation of Sleep Quality in Rheumatoid Arthritis Patients. *The Medical Journal of Kocatepe* 2009;10:33-9.
13. Çölbay M, Yüksel Ş, Fidan F, Acartürk G, Karaman Ö, Ünlü M. Evaluation of the hemodialysis patient with Pittsburgh sleep quality index. *Tuberculosis and thorax* 2007;55:167-73.
14. Eren F, Öztürk Ş. Evaluation of concealment of illness and sleep disorder in epilepsy. *Epilepsi* 2019;25:76-80.
15. Demir K, Kaya Z, Kayrak M, Bacaksız A, Duman Ç. An Analysis of the relation between blood pressure regulation and sleep quality in middle aged hypertensive subjects. *Selçuk Üniv Tıp Derg* 2011;27:83-7.
16. Karagozoglu S, Bingöl N. Sleep quality and job satisfaction of Turkish nurses. *Nurs Outlook* 2008;56:298-307.
17. Çoban S, Yılmaz H, Ok G, Erbüyün K, Aydın D. Investigation Of Sleep Disorders In Intensive Care Nurses. *Journal of the Turkish Society of Intensive Care* 2011;9:59-63.
18. da Rocha MC, De Martino MM. Stress and sleep quality of nurses working different hospital shifts. *Rev Esc Enferm USP* 2010;44:280-6.
19. Vitiello MV, Larsen LH, Moe KE. Age-related sleep change: Gender and estrogen effects on the subjective-objective sleep quality relationships of healthy, non-complaining older men and women. *J Psychosom Res* 2004;56:503.
20. Yüksel C. Examination of the Relationship between Sleep Quality, Job Satisfaction and Burnout in Nurses. Ph.D. thesis, Eskişehir Osmangazi University. Eskişehir; 2013.
21. Chien PL, Su HF, Hsieh PC, Siao RY, Ling PY, Jou HJ. Sleep quality among female hospital staff nurses. *Sleep Disord* 2013;2013:283490.
22. Chan MF. Factors associated with perceived sleep quality of nurses working on rotating shifts. *J Clin Nurs* 2008;18:285-93.
23. Evans JC, French DG. Sleep and healing in intensive care settings. *Dimens Crit Care Nurs* 1995;14:189-99.
24. Meiner SE, Lueckenotte AG. Sleep and activity. In: Ferebee L, editor. *Gerontologic Nursing*. 3rd ed. USA: Elseiver; 2006. p. 106-20.
25. Hung HC, Yang YC, Ou HY, Wu JS, Lu FH, Chang CJ. The association between self-reported sleep quality and metabolic syndrome. *PLoS One* 2013;8:e54304.
26. Hung HC, Yang YC, Ou HY, Wu JS, Lu FH, Chang CJ. The association between self-reported sleep quality and overweight in a Chinese population. *Obesity (Silver Spring)* 2013;21:486-92.
27. Algul A, Semiz UB, Ates MA, Önem Y, Ebrinc S, Basoglu C, *et al.* Association between psychological distress, subjective sleep quality and health-related quality of life in patients with obesity: A preliminary study. Abstracts for Poster session III. *Eur Psychiatry* 2008;23:362-3.
28. Suzuki K, Ohida T, Kaneita Y, Yokoyama E, Uchiyama M. Daytime sleepiness, sleep habits and occupational accidents among hospital nurses. *J Adv Nurs* 2005;52:445-53.
29. American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders*: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. Arlington, VA: American Psychiatric Association, 2013.