Original Research / Orijinal Araştırma

Sleep Quality And Self-Efficacy For Managing Chronic Disease: A Cross-Sectional Study In The Elderly Population In Edirne Province

Uyku Kalitesi Ve Kronik Hastalık Yönetimi İçin Öz-Etkililik: Edirne İlindeki Yaşlı Popülasyonu Üzerine Kesitsel Bir Çalışma

Kübra İNCİRKUŞ[1]

Abstract

Objective: To examine the relationship between sleep quality and self-efficacy for managing chronic diseases in elderly individuals living at home in Edirne province.

Methods: In this cross-sectional study, the data was collected through simple random sampling and home visits from 244 individuals aged 60 years and older between March and December 2018. The Pittsburgh Sleep Quality Index, the Self-Efficacy for Managing Chronic Disease 6-Item Scale, and the Interview Form were used in the study. The data was collected using descriptive analysis, t-test, one-way ANOVA, Pearson correlation, and linear regression analysis.

Results: Most of the individuals (86.1%) had poor sleep quality and the mean Pittsburgh Sleep Quality Index total score was 7.16±3.04. The mean of Self-Efficacy for Managing Chronic Disease 6-Item Scale total score was 4.82±1.79. Sleep quality was worse in individuals who were women, single, retired, perceiving their health as bad, and with comorbidities ($p<0.05$). There was a negative and significant relationship between the scales in correlation and regression analyses ($p<0.05$).

Conclusions: Self-efficacy in chronic disease management was an important factor in improving sleep quality. Healthcare professionals must be knowledgeable and experienced in practices that increase self-efficacy in primary care.

Keywords: Chronic disease, disease management, elderly, self-efficacy, sleep hygiene

Özet

Amaç: Edirne ilinde evde yaşayan yaşlı bireylerde uyku kalitesi ile kronik hastalıkların yönetimine öz-etkililik arasındaki ilişkiyi incelemektir.

Yöntemler: Kesitsel çalışmanın verileri, Mart-Aralık 2018 tarihleri arasında 60 yaş ve üzeri 244 bireyden basit rastgele örnekleme ve ev ziyaretleriyle toplandı. Pittsburgh Uyku Kalitesi İndeksi, Kronik Hastalık Yönetiminde 6-Maddelik Öz-Etkililik Ölçeği ve Görüşme Formu kullanılmıştır. Veriler tanımlayıcı analizler, t-testi, tek yönlü ANOVA, Pearson korelasyonu ve doğrusal regresyon analizi kullanılarak analiz edildi.

Bulgular: Bireylerin çoğunun (%86,1) uyku kalitesi kötüydü ve Pittsburgh Uyku Kalitesi İndeksi toplam puan ortalaması 7,16±3,04 idi. Kronik Hastalık Yönetiminde 6-Maddelik Öz-Etkililik Ölçeği toplam puan ortalaması 4,82±1,79 idi. Kadın, bekar, emekli, sağlığını kötü algılayan ve ek hastalığı olanlarda uyku kalitesi daha kötüydü ($p<0,05$). Korelasyon ve regresyon analizlerinde ölçekler arasında negatif ve anlamlı bir ilişki bulundu ($p<0,05$).

Sonuç: Kronik hastalık yönetiminde öz-etkililik, uyku kalitesini artırmada önemli bir faktördü. Sağlık çalışanlarının birinci basamakta öz-etkililiği artırıcı uygulamalar konusunda bilgili ve deneyimli olmaları oldukça önemlidir.

Anahtar Kelimeler: Kronik hastalık, hastalık yönetimi, yaşlı, öz-etkililik, uyku hijyeni

Geliş tarihi / Received: 08.11.2023 Kabul tarihi / Accepted: 14.02.2024

[1]İstanbul Kültür University, Faculty of Health Science, Department of Nursing, İstanbul, Turkey

Address for Correspondence / Yazışma Adresi Kübra İNCİRKUŞ. İstanbul Kültür University, Faculty of Health Science, Department of Nursing, Turkey

E-posta: k.incirkus@iku.edu.tr Tel: +90 2124984796

İncirkuş K. ***Sleep Quality And Self-Efficacy For Managing Chronic Disease: A Cross-Sectional Study İn The Elderly Population İn Edirne Province****TJFMPC, 2024; 18 (2):126-132*

DOI: 10.21763/tjfmpc.1387989

Introduction

The population over the age of 60 is increasing all over the world, particularly in developing countries. Reports indicate that this increase will reach 1.5 billion by 2030 and 2.1 billion by 2050.[1] In Turkey, which is a developing country, the proportion of the elderly population is 9.9.[2] Sleep quality is the main indicator of well-being and it's important in public health becoming increasingly. The prevalence of sleep disorder, which is one of the most common health problems, in the elderly ranges from 24% to 77.7%.[3-7] Because of the physiological decrease in sleep duration, quality, and continuity with age, the mental and physical health of individuals are adversely affected, and the risks of cognitive dysfunctions, cardiovascular and coronary heart diseases, type 2 diabetes, obesity, cancer, depression, and their mortality increase.[3-5,8-10] It is reported that identifying the sleep problems co-existing with the disease and treating them simultaneously may improve outcomes in chronic disease management.[3,11]

Since sleep health is accepted not only as a no-sleep disorder but also as a multidimensional and holistic approach, there is a need to consider modifiable factors related to sleep health.[12] It is stated that self-management interventions and self-efficacy, which are strong predictors of the management of chronic diseases, are effective factors in gaining positive sleep behaviors and increasing sleep quality in elderly individuals.[3,6,13,14] When the literature was examined; It has been reported that self-efficacy affects sleep quality positively in elderly individuals,[6] fibromyalgia patients,[15] and healthy adults.[5] Although chronic disease self-management programs have been widely studied, it has been reported that little is known about the relationship between sleep and self-efficacy.[3,12,16] It is stated that the relationship between sleep and self-efficacy is generally studied in young adults and the elderly has not yet been extensively evaluated. In addition, it has been reported that the benefit of domain-specific self-efficacy measures, which are generally indicators of better health outcomes compared to general self-efficacy, in the context of sleep has not been directly examined.[17] In this context, this study aimed to evaluate the relationship between self-efficacy in chronic disease management and sleep quality in elderly individuals living at home.

Research Questions

1. Was there any connection between sociodemographic/health variables and sleep quality?
2. What were the sleep quality and self-efficacy levels of elderly with chronic diseases?
3. Was there any correlation between sleep quality and self-efficacy?

Material and Methods

Study design, setting, and participants

The cross-sectional design using surveys was adopted in the study. The study was conducted through home visits to individuals aged 60 and older living in the center of Edirne/Turkey, and receiving healthcare services at primary care. Since the World Health Organization accepts the beginning of elderly as 60, and the sample in similar studies consists of individuals aged 60 and over, the sample of this study was selected similarly.[1,6,18] The population of the study consists of 9599 individuals 60 years old and older, registered to the primary health care centers (the number of elderly individuals at the time of the study was reached with written permission from the Edirne Public Health Services Presidency). The sample size was calculated with a single group sample formula with a 95% confidence interval (CI), based on the incidence of elderly reporting sleep problems (79.5%) in a previous epidemiological survey in Edirne.[18] Accordingly, data were collected from 244 individuals. The inclusion criteria of the study were: (a) being 60 years old and older; (b) having at least one chronic disease; (c) being literate; (d) living at home; (e) having no visual, auditory, or cognitive problems; (f) getting 24-30 points from the mini-mental test.[19]

Data collection and measures

The data was collected through simple random sampling via home visits between March and December 2018. During the home visits, the forms were applied through face-to-face interviews and each interview lasted an average of 10-15 minutes. The following instruments were used to collect data within the scope of the study:

The Interview Form

The socio-demographic (marital and working status, age, gender, education) and health characteristics (chronic diseases, medications, and comorbidity) data were collected with the Interview Form. This form, which was created by the researcher in line with literature,[6,18,20] provides information based on the self-reports of the participants.

The Pittsburgh Sleep Quality Index (PSQI)

The sleep quality was assessed using the PSQI developed by Buysse et al. (1989)[21] The PSQI was translated into Turkish by Agargun et al. (1996), and Cronbach's alpha value for original version was 0.83, for the Turkish version was 0.80.[22] The index consisted of nineteen subjective questions and seven components (sleep duration, sleep disturbances, subjective sleep quality, use of sleep medications, sleep latency, daytime dysfunction and sleep efficiency). The total and component scores of PSQI were calculated according to the scoring in the article of Buysse et al (1989)[21]. Accordingly, each item is scored as 0-3 points, total of the 7 components scores gives the

total index score (between 0-21). Getting 5 or fewer points is considered "good", getting points above 5 is considered "poor" sleep quality.[21]

The Self-Efficacy for Managing Chronic Disease 6-Item Scale (SEMCD-6)

The self-efficacy was evaluated with the SEMCD-6. The Turkish validity and reliability study of the scale, which was developed by Lorig et al. (2001),[23] was carried out by Incirkus and Nahcivan (2020).[13] It was reported that the alpha value of the scale in Turkish was 0.90 and in the original version was 0.91. Higher scores on the scale indicate a higher level of self-efficacy in chronic disease management.[13]

Statistical analysis

Data analysis was conducted using the SPSS program (Version 21.0, Armonk, NY: IBM Corp). Descriptive data were evaluated with frequency, percentage, mean, and standard deviation (SD). Histogram, variation coefficient, skewness/kurtosis, Q-Q plot, and Kolmogorov-Smirnov tests were used to evaluate the normality of the data. Accordingly, Pearson correlation analysis, one-way ANOVA, and t-test were used to evaluate the relationship between the variables and the scale scores. The interpretation of correlation analysis results followed Akoglu's guide.[24] Scheffe test was used to determine the source of the significant difference in one-way ANOVA. Linear regression was used to evaluate the predictiveness of self-efficacy on sleep quality scores. The significance level was regarded as $p<0.05$.

Ethical approval

The study was carried out in compliance with the ethical principles outlined in the Declaration of Helsinki, and it was approved by the scientific research ethics committee (approval number: TÜTF-BAEK 05/14). Before data collection, each participant was informed about the study and written informed consent was obtained from all of them.

Results

Most of the sample were males (66.4%), between 60-75 years old (82.8%), graduated from primary school (56.6%), married (79.5%), retired (84.8%), and describing their income (76.6%) and health status (59.4%) as "moderate". Most of the sample consisted of hypertensive individuals (67.1%) and 57.2% of them reported that they had no comorbidities. The mean PSQI scale score was significantly higher in females who were between 70-87 years old, single, retired, who perceived their health and income status as bad, with asthma/COPD, and with comorbidities (Table 1).

Table 1. *Comparisons of the mean PSQI scores according to sociodemographic and health characteristics of the sample*

Variables		**n**	**%**	**Mean±SD**	**p***
Gender	Male	162	66.4	6.09±2.39	**<0.001**
	Female	82	33.6	7.71±3.19	
Age	60-69	163	66.8	7.08±2.79	**<0.001**
	70-87	81	33.2	7.32±3.50	
Education	Literate	37	15.2	6.30±2.33	0.079
	Primary school	138	56.6	7.30±3.27	
	Middle school	18	7.4	7.78±2.84	
	High school /university	21	8.6	6.14±2.65	
Marital status	Married	194	79.5	6.82±2.97	**<0.001**
	Single	50	2.5	8.50±2.96	
Working status	Retired	207	84.8	7.27±3.14	**<0.001**
	Employed	37	15.2	6.40±2.14	
Perceived income	Bad	21	8.6	9.43±2.94	**<0.001**
	Moderate	187	76.6	6.97±3.15	
	Good	36	14.8	6.83±1.75	
Difference: 1>2, p=0.001, 1>3, p=0.005					
Perceived health	Bad	39	16.0	1.08±3.80	**<0.001**
	Moderate	145	59.4	6.72±2.35	
	Good	60	24.6	6.33±2.94	
Difference: 1>2, p<0.001, 1>3, p<0.001					
Chronic disease	Hypertension	165	67.1	6.78±2.88	**0.003**
	Diabetes	36	14.6	8.08±2.97	
	Heart disease	9	3.7	6.00±0.87	
	Asthma/COPD	19	7.7	9.21±4.42	
	Other conditions**	15	6.1	7.33±2.26	
Difference: 4>1, p<0.007					
Comorbidity	No	140	57.2	6.71±2.97	**<0.001**
	Yes	104	42.6	7.77±3.04	

* t-test and one-way ANOVA and Scheffe test were used, ** hyperlipidemia, osteoporosis, chronic kidney failure, hypothyroidism, etc, PSQI: Pittsburgh Sleep Quality Index, SD: Standard deviation.

The mean age was 65.80±1.81 (minimum 60, maximum 87). The mean number of medications used per day was 2.24±1.48 (minimum 1, maximum 5). The mean PSQI total score was 7.16±3.04. When all the participants were

examined, 86.1% (n=210) had poor sleep quality, while 13.9% (n=34) had good sleep quality. The highest-scoring subscale was *sleeping efficiency* while the lowest-scoring subscale was the *use of sleep medications*. The mean SEMCD-6 total score was 4.82±1.79 (Table 2).

Table 2. *The means of SEMCD-6, PSQI total score, and the seven components' scores*

Variables	Mean	SD
PSQI total	7.16	3.04
Subjective sleep quality	1.23	0.59
Sleep latency	1.09	0.98
Sleep duration	0.56	0.86
Sleep efficiency	2.05	1.26
Sleep disturbances	1.45	0.68
Use of sleep medications	0.22	0.70
Daytime dysfunction	0.56	0.76
SEMCD-6 total	4.82	1.79

SD: Standard deviation, PSQI: Pittsburgh Sleep Quality Index, SEMCD-6: Self-Efficacy for Managing Chronic Disease 6-Item Scale

When the correlations between the scales were examined, a negative ($p<0.05$) and weak correlation was found between the *SEMCD-6 total score* and the *PSQI total score.* There was a significant ($p<0.05$) and negative correlation between the *SEMCD-6 total score* and *sleep latency, use of sleep medicine, and daytime dysfunction* (Table 3).

Table 3. *Pearson correlation r values between SEMCD-6 and the PSQI*

	SSQ	SL	SDu	SE	SDi	UM	DD	PSQI total
SEMCD-6	-0.112	-0.152*	-0.072	0.031	-0.051	-0.279*	-0.208*	-0.206*
SSQ	-	0.450*	0.328*	-0.222*	0.364*	0.293*	0.528*	0.619*
SL		-	0.328*	-0.235*	0.489*	0.365*	0.398*	0.698*
SDu			-	-0.089	-0.304	0.203*	0.390*	0.551*
SE				-	-0.186*	0.014	-0.271*	0.166*
SDi					-	0.229*	0.276*	0.487*
UM						-	0.577*	0.664*
DD							-	0.673*

*p<0.05, PSQI: Pittsburgh Sleep Quality Index, SEMCD-6: Self-Efficacy for Managing Chronic Disease 6-Item Scale, SSQ: Subjective sleep quality, SL: Sleep latency, SDu: Sleep duration SE: Sleep efficiency, SDi: Sleep disturbances, UM: Use of medications, DD: Daytime dysfunction.

In the Linear regression analysis, 4% (R^2=0.042, $p<0.05$) of the variance in the total score of the PSQI variable was explained by the *SEMCD-6* variable (Table 4).

Table 4. *Regression results of SEMCD-6 variable in predicting PSQI total scores*

	Unstandardized coefficients		95% Confidence interval for B		Standardized coefficients			
Variable	**B**	**St error**	**Lower limit**	**Upper limit**	**β**	**t**	**R^2**	**$F_{(1-242)}$**
(Constant)	8.85	0.55	7.77	9.93	-0.21	16.10*	0.042	1.70*
SEMCD-6	-0.35	0.11	-0.56	-0.14		-3.27*		

*p<0.05, PSQI: Pittsburgh Sleep Quality Index, SEMCD-6: Self-Efficacy for Managing Chronic Disease 6-Item Scale.

Correlation and regression results showed that as self-efficacy scores increased, sleep quality also improved.

Discussion

In this cross-sectional study, the aim was to examine the relationship between self-efficacy in chronic disease management and sleep quality in elderly individuals residing at home in Edirne province. Most of the sample were males, between 60-69 years old, graduated from primary school, married, retired, hypertensive, having no comorbidities, and describing their income and health status as "moderate". Sociodemographic data were similar to Turkey's elderly statistics in 2022, but in the report 55.6% of the elderly population was female.[2] The data obtained were similar to other studies examining sleep quality in the elderly.[6,18,20]

Females exhibited poorer sleep quality in the study. When the literature was examined, it was reported that sleep quality is worse in males,[6,25] females,[26] or there is no gender difference.[18,20] In the study of Thichumpa et al. (2018),[26] it is reported that the low education level of females may be effective in the results and the gender factor alone cannot explain the sleep quality.[26] In the study, PSQI scores increased with age. It has been pointed out that the reason for this situation is that the use of medications increases with age and that the use of multiple medications negatively affects sleep.[27] It is stated that the PSQI score is significantly higher in those who have used medications for more than 10 years.[24] Although it is stated in the literature that low education level negatively affects sleep quality,[6,20,25] no significant difference was observed in this study. In the study, the sleep quality of individuals who were single, retired, and had bad income perception was worse. Similarly, it has been reported in the literature that sleep quality is poor in individuals who are single, retired, have a low income, and have poor family relationships.[6,20,26,28] The stress caused by the bad economic situation and the loneliness and depression caused by the lack of family support may be the reason for this result.[26] Sleep quality was worse in individuals with asthma/COPD and with comorbidities. Similarly, it is stated that chronic diseases worsen sleep quality.[6,18,20] In the Fidanci and Iscan study (2016),[25] it was also reported that the highest PSQI mean score has been seen in the elderly with lung disease. The reason for this situation may be the use of multiple medications; It has been reported that factors such as night-time symptoms seen in asthma and COPD, poor management of diseases, and the group of diseases may adversely affect sleep quality.[29]

The mean SEMCD-6 total score was 4.82±1.79 in the study. Although the scale is not the cut-off point, a result of 4.8 out of 10 can be considered as a medium value. This result aligns with the scale mean observed in the Turkish validity and reliability study.[13] This study's results showed that most of the individuals (86.1%) had poor sleep quality (getting>5 points) and the mean PSQI total score was 7.16±3.04 in the study. Similarly, 69% of the participants had poor sleep quality (7.91±4.99) in the study of Nazari et al. (2014),[6] 5.5% of the elderly had poor sleep quality (6.21±3.33) in the study of Bilgili et al. (2012),[20] 79.5% of the sample had poor sleep quality (9.88±5.63) in the Esenyel's study (2012).[18] It is also reported that 44% and 50% of elderly individuals have PSQI scores above 5.[12,26] All these results support the result of the study showing that the elderly population has serious problems with sleep quality and emphasize the importance of the issue once again. In the study of Nazari et al. (2014),[6] the highest PSQI component mean was *sleep duration* (1.66±1.09), while the lowest was the *use of sleep medications* (0.30±0.88). Otherwise, in Esenyel's study (2012),[18] the highest scoring subscale was reported to be *sleep disturbances* (1.93 ± 0.80) and the lowest scoring subscale was the *use of sleep medications* (0.74±1.04). In this study, while the lowest was the *use of sleep medications* (0.22±0.70), similar to other studies, the highest was *sleep efficiency* (2.05±1.26).

There was a negative and weak correlation[24] between the PSQI total score, *sleep latency, use of sleeping medication, daytime dysfunction* components, and the SEMCD-6 total score. In addition, the SEMCD-6 variable also explained 4% of the variance in the total score of the PSQI variable according to the regression result. It shows that an increase in self-efficacy in chronic disease management decreases PSQI total scores, thus sleep quality increases. Although there is no study examining the relationship between self-efficacy on chronic disease management and sleep quality in the elderly, studies have reported that an increase in self-efficacy improves sleep quality.[5,6,12] In the study of Byun et al. (2020)[16] on adults with subarachnoid hemorrhage, where most of the sample was under 65 years of age, it was reported that SEMCD-6 total scores were associated with PSQI total scores. In the study, self-efficacy was negatively correlated with *sleep latency* and *daytime sleepiness*. However, it was stated that the reason for this situation was that most of the sample consisted of young working adults.[16] Studies have confirmed the effectiveness of chronic illness self-management practices in increasing self-efficacy and improving sleep and health results.[3,30] It has also been reported that there is an increase in self-efficacy and improvement in sleep quality after nursing interventions are applied to cancer patients.[31] Interventions increasing self-efficacy and lifestyle changes on chronic disease management may be helpful to improve sleep quality as well as general health.

Study Limitations

The results of the study should be considered within the scope of some limitations. First, the sample of the study consisted of elderly receiving services from primary healthcare in Edirne between the specified dates. The generalization of results is limited. Second, the data on sleep quality were collected based on self-reports of individuals, objective measurements were not made.

Conclusion

The results showed that most of the elderly population had poor sleep quality and that increasing self-efficacy in chronic disease management was an important factor in improving sleep quality. In addition, it was observed that sleep quality worsened as age, comorbidities and deterioration in socio-economic status increased. It is important to increase self-efficacy by supporting practices that increase both effective chronic disease management and sleep quality and include them in routine healthcare programs. It is recommended that all healthcare professionals, especially nurses working in primary care, where elderly individuals with chronic diseases receive service most frequently, should be knowledgeable and experienced in self-efficacy-enhancing practices. In this regard, the outcomes of this study, which reveal the effect of self-efficacy in chronic disease management on sleep quality, will guide health professionals in their practices and research. It is recommended for further studies to include objective measurements in larger sample groups examining affecting factors of sleep quality.

Acknowledgments

The author thanks all participants for their support of the study.

Funding Information

There was no financial support for this research.

Conflict of Interest

The author declares no conflict of interest for the study.

References

1. World Health Organization. Decade of healthy aging 2020-2030. 2020. Accessed from: https://www.who.int/docs/default-source/decade-of-healthy-ageing/final-decade-proposal/decade-proposal-final-apr2020-fr.pdf. Accessed: 05 January 2023.
2. Turkish Statistical Institute. Elderly by statistics, 2022. 2023. Accessed from: https://data.tuik.gov.tr/Bulten/Index?p=Istatistiklerle-Yaslilar-2022-49667&dil=1. Accessed: 26 July 2023.
3. Ahn SN, Jiang L, Smith ML, Ory MG. Improvements in sleep problems among the chronic disease self-management program participants. Family&Community Health 2014;37(4):327-335. https://doi.org/1.1097/FCH.0000000000000045
4. Baser G, Hisar F. Nonpharmacological interventions towards the sleep problems in the elderly: a systematic review. Journal of Hacettepe University Faculty of Nursing 2021;8(2):178-185. https://doi.org/1.31125/hunhemsire.966442
5. Khan S, Totuka N. Self-efficacy in sleep disorder patients. Asian J Home Sci 2018;13(2):528-531. https://doi.org/1.15740/HAS/AJHS/13.2/528-531
6. Nazari M, Taher M, Keshavarzi, S, Javadpour A. The relationship between sleep quality, self-efficacy, and stages of change among the elderly: a pilot study. J Health Sci Surveillance Sys 2014;2(2):72-77.
7. Wu CY, Su TP, Fang CL, Chang MY. Sleep quality among community-dwelling elderly people and its demographic, mental, and physical correlates. Journal of the Chinese Medical Assoc 2012;75(2012):75-78. https://doi.org/1.1016/j.jcma.2011.12.011
8. Amarnath R, et al. Improving sleep quality through heartfulness meditation technical aspects and benefits. International Journal of Health Sciences and Research 2017;7(5):368-381.
9. Vézina-Im LA, Moreno JP, Nicklas TA, Baranowski T. Behavioral interventions to promote adequate sleep among women: protocol for a systematic review and meta-analysis. Systematic Reviews 2017;6:95. https://doi.org/1.1186/s13643-017-0490-y
10. Kaynak SU, Peker S, Cankurtaran ES, Soygur AH. Sleep problem in the geriatric population. The Journal of Academic Geriatrics 2010;2:61-67.
11. Koyanagi A, et al. Chronic conditions and sleep problems among adults aged 50 years or over in nine countries: a multi-country study. PLoS One 2014;9(12):e114742. https://doi.org/1.1371/journal.pone.0114742
12. Ghose SM, Dzierzewski JM, Dautovich ND. Sleep and self-efficacy: The role of domain specificity in predicting sleep health. Sleep Health 2023;9(2):190-195. https://doi.org/1.1016/j.sleh.2022.09.008
13. Incirkus K, Nahcivan NO. Validity and reliability study of the Turkish version of the self-efficacy for managing chronic disease 6-item scale. Turk J Med Sci 2020;50:1254-1261. https://doi.org/1.3906/sag-1910-13
14. Rutledge CM, Guardia ACL, Bluestein D. Predictors of self-efficacy for sleep in primary care. Journal of Clinical Nursing 2012;22:1254-1261.
15. Miro E, et al. When is pain related to emotional distress and daily functioning in fibromyalgia syndrome? The mediating roles of self-efficacy and sleep quality. Br J Health Psychol 2011;16(4):799-814.
16. Byun E, et al. Self-efficacy is associated with better sleep quality and sleep efficiency in adults with subarachnoid hemorrhage. J Clin Neurosci 2020;73:173-178. https://doi.org/1.1016/j.jocn.2019.12.010
17. Grah SC, et al. General and domain-specific self-efficacy and sleep in older adults. Sleep 2017;40:A315.
18. Esenyel C. Determination of the life and sleep quality of the elderly living in Edirne nursing home. (Unpublished master thesis). Trakya University; 2012.

19. Gungen C, et al. Reliability and validity of the standardized mini mental state examination in the diagnosis of mild dementia in Turkish population. Turkish Journal of Psychiatry 2002;13(4):273-281.
20. Bilgili, N, Kitis Y, Ayaz S. Assessment of loneliness, quality of sleep and affecting factors in elders. Turkish Journal of Geriatrics 2012;15(1):81-88.
21. Buysse DJ, et al. The Pittsburgh sleep quality index: a new instrument for psychiatric practice and research. Psychiatry Research 1989;28:193-213.
22. Agargun MY, Kara H, Anlar O. The validity and reliability of the Pittsburgh sleep quality index. Turkish Journal of Psychiatry 1996;7(2):107-115.
23. Lorig KR, et al. Effect of a self-management program for patients with chronic disease. Effective Clinical Practice 2001;4:256-262.
24. Akoglu H. User's guide to correlation coefficients. Turkish Journal of Emergency Medicine 2018;18:91-93. https://doi.org/10.1016/j.tjem.2018.08.001
25. Fidanci I, Iscan G. The assessment of relationship between sleep quality and chronical illnesses and drug usage in elders who applied to family health center. Medical Journal of Ankara Training and Research Hospital 2016;49(3):142-147.
26. Thichumpa W, Howteerakul N, Suwannapong N, Tantrakul V. Sleep quality and associated factors among the elderly living in rural Chiang Rai, northern Thailand. Epidemiol Health 2018;40:e2018018. https://doi.org/1.4178/epih.e2018018
27. Wolkove N, Elkholy O, Baltzan M, Palayew M. Sleep and aging: 1. sleep disorders commonly found in older people. CMAJ 2007;176(9):1299-304. https://doi.org/1.1503/cmaj.060792
28. Pehlivan S, Karadakovan A, Pehlivan Y, Onat AM. Sleep quality and factors affecting sleep in elderly patients with rheumatoid arthritis in Turkey. Turk J Med Sci 2016;46(4):1114-1121. https://doi.org/1.3906/sag-1506-82
29. Vukoja M, et al. Sleep quality and daytime sleepiness in patients with COPD and asthma. Clin Respir J 2018;12(2):398-403. https://doi.org/1.1111/crj.12528
30. Schmutte T, Davidson L, O'Connell M. Improved sleep, diet, and exercise in adults with serious mental illness: results from a pilot self-management intervention. The Psychiatric quarter 2018;89(1):61–71. https://doi.org/1.1016/j.jocn.2019.12.010
31. Liu,Y, et al. Analysis of primary nursing intervention for elderly patients with cancer pain on the improvement of potential risk and pain degree. Am J Transl Res 2021;13(10):11890-11898.