TJFM&PC Turkish Journal of Family Medicine and Primary Care

Original Research / Özgün Araştırma

The Sleep Quality of Roman and Non-Roman Older People: A Comparative Study

Roman ve Roman Olmayan Yaşlıların Uyku Kalitesi: Karşılaştırmalı Bir Çalışma

Saliha BOZDOĞAN YEŞİLOT[1], Ayşe İNEL MANAV[2]

ABSTRACT

Aim: This study aimed to evaluate and compare sleep quality of Roman and non-Roman older people living in nearby neighborhoods. **Methods:** This research was a comparative descriptive study. The study was completed with 206 older people of which103 were Roman and 103 of non-Roman. Data were collected with Personal Information Form and Pittsburg Sleep Quality Index (PSQI). Ethical permission was obtained to perform this study. **Results:** The mean age of Roman older people was 68.50±3.88, in non-Roman, it was 71.78±6.82. PSQI total score was 9.47±5.50 and 7.27±3.68 in Roman and non-Roman older people, respectively. **Conclusion:** It was determined that Roman older people have poorer sleep quality than non-Roman. These results can be used by primary health care staff to provide appropriate health care for older people.

Key Words: aging, sleep, primary health care

ÖZET

Amaç: Bu çalışmanın amacı Roman ve Roman olmayan yaşlı bireylerin uyku kalitesinin değerlendirilmesi ve karşılaştırılmasıdır**. Yöntem:** Tanımlayıcı ve karşılaştırmalı bir çalışmadır. Çalışma 103 Roman ve 103 Roman olmayan toplam 206 yaşlı bireyle gerçekleştirilmiştir. Veriler Kişisel Bilgi Formu ve Pittsburgh Uyku Kalitesi İndeksi (PUKİ) kullanılarak toplanmıştır.Çalışmanın yapılabilmesi için etik kurul izni alınmıştır. **Bulgular:** Roman yaşlı bireylerin yaş ortalaması 68,50±3,88, Roman olmayan yaşlı bireylerin yaş ortalaması 71,78±6,82'dir. PUKİ toplam puanı Roman yaşlı bireylerde 9,47±5,50, Roman olmayan yaşlı bireylerde 7,27±3,68'dir. **Sonuç:** Roman yaşlıların Roman olmayan yaşlılara göre daha kötü uyku kalitesine sahip olduğu belirlendi. Bu sonuçlar, yaşlılara uygun sağlık bakımı sağlamak için birinci basamak sağlık hizmetleri personeli tarafından kullanılabilir.

Anahtar Kelimeler: yaşlanma, uyku, birinci basamak sağlık hizmeti

Received / Geliş tarihi: 17.12.2020 **Accepted / Kabul tarihi:** 29.03.2021

[1]CukurovaUniversity, Faculty of Health Sciences, Nursing Department, Adana, Turkey
[2] Osmaniye Korkut Ata University, Faculty of Health Sciences, Osmaniye,Turkey
***Address for Correspondence / YazışmaAdresi:**
CukurovaUniversity, Faculty of HealthSciences, Nursing Department, Adana, Turkey
E-mail: saliha81bozdogan@gmail.com
Yeşilot SB, Manav Aİ. The Sleep Quality of Roman and Non-Roman older People: A Comparative Study. TJFMPC, 2021;15(3): 443-450.

DOI: 10.21763/tjfmpc.842433

1.INTRODUCTION

Sleep is not a simple resting time but an active time to regenerate physically and mentally as a vital component of biological rhythm.[1] Although individuals' sleep requirements alter based on developmental stage, 7-8 hours of sleep daily for adults aged 65 and older are recommended.[2] However, there are changes to sleep structure with aging, including decreases in total sleep time, sleep efficiency, slow-wave sleep, and rapid eye movement (REM) sleep, and an increase in awakening time after sleep onset, the number of arousals from sleep, and sleep latency.[3]Furthermore, the prevalence of sleep disturbance sharply increases with age and approximately half of older people suffer from sleep difficulties.[4-6] Studies regarding sleep disorders reported that older adults are affected by different sleep disturbances, including insomnia, obstructive sleep apnea, and REM sleep behavior disorder.[3]

Sleep disturbances are associated with several negative health outcomes in older people, such as depressive disorders, cardiovascular system diseases, cognitive problems like memory loss, and headaches,etc.[7] Older adults who have good sleep have better cognitive levels, physical and mental health, and quality of life compared to those with poor sleep quality.[8-10]Sleep is crucial for older people's well-being. Having good sleep quality may improve their overall health status.[11]

Medical, psychiatric, and psychosocial various features are risk factors for sleep quality in the aging population. Having multiple medical and psychiatric chronic diseases and conditions such as hypertension, heart disease, pain, diabetes, obesity, anxiety, depression are associate factors of poor sleep quality.[12-14]Additionally, lower income and educational accessing, female gender, ethnicity, lower physical activity levels, widowhood, marital quality, loneliness and perceived stress are interrelated with sleep quality.[15,16]Also, it is reported that ethnicity significantly effect sleep quality.[17,18] Johnson et al. determined that in their review study, psychosocial stressors, physical and social neighborhood, urban or inner-city living, socio-economic status, reach to and usage of health services, and acculturation contribute to poor sleep quality among racial/ethnic minorities.[19]

Roman people are the largest ethnic minority in Europe, mainly living in all members of the European Union. The greatest numbers of Roman live in Romania, Slovakia, Bulgaria, Hungary and the former Yugoslavia. A significant number of Roman are living in Turkey, too. It is known that Roman people have extremely low level of education and very high level of unemployment rate. Furthermore, they have worse health status as compared to the general population which is reported in various publications.[20-22] In general, Roman people have a higher prevalence of different chronic diseases including cardiovascular diseases, obesity, high cholesterols level, and diabetes compared with the majority population, and experience more frequent occurrence of health problems.[20,21] This population may be at an increased risk for poor sleep quality because of the health and living condition that they have. As mentioned before, sleep is a vital function that affects the health status of older people and it is also affected by their current health status. Evaluating sleep quality of older Roman people might give some perspectives to primary healthcare staff in determining appropriate health care services. This study aimed to evaluate and compare sleep quality of Roman and non-Roman older people living in nearby neighborhoods.

2. METHODS

2.1 Study Design

This research was a comparative descriptive study. The study was carried out between July-October 2019 in Adana.

2.2 Setting and Sample

The number of Roman individuals living in the city center is approximately 1.200. Most of them living in Akıncılar Neighborhood in Yuregir district. Population of the research consisted of 65 years and older people who live in that neighborhood. It was stated to be200 by the local authority.

In the literature, there is no study to evaluate sleep quality with PSQI for Roman older people. For this reason, the researchers performed a pilot study with 30 older Roman people to evaluate sleep quality with PSQI. As a result of the pilot study, the PSQI mean total score was calculated as 11.47 ± 4.65 for older Roman people. A study, not specifically for Roman people, used PSQI and the mean total score was found to be 9.83 ± 3.67.[23] In this study, sample size was calculated based on mean values of PSQI total scores obtained in that study and pilot study. In order to find a statistically significant difference between the two averages, a total of 206 individuals, 103 in each group, with 80% power and 5% Type I error, were found to be included in the study. G* Power 3.9.1.2 program was used to the sample size was calculation. Individuals who were 65 years and over, understood Turkish language, and volunteered to participate in the study were included in the study.

2.3 Data Collection

Data collection was made in two steps. In the first step, the researcher visited Roman older people in an order of their street and house number. At the time

of data collection, if older people were not at their homes, they were noted and all those houses were visited again at the end of the day. One hundred and three Roman older people volunteered to participate in the study. During data collection, 17 older people did not agree to participate. The first step, collecting data per sample size in Roman neighborhood, was completed and then, as a second step, equal number of data were collected from non-Roman older people living in nearby neighborhood by using the same data collection method. Twenty two non-Roman older people did not volunteer to participate in the study.

Data were collected through face to face interview by the researcher in older people's home or in front of their home. The study was completed with 206 older people of which 103were Roman and 103were non-Roman. Each interview took approximately 15 minutes. Data were collected using by using the Personal Information Form and PSQI.

2.4 Measurements

2.4.1 Personal Information Form

The form was developed by the researcher based on literature. It consists of questions in regards to socio-demographic characteristics and factors that may affect sleep quality (age, gender, marital status, educational status, chronic diseases, body mass index [BMI] etc.).

2.4.2 The Pittsburg Sleep Quality Index

The index was developed by Buysse et al. in 1989. The index has sufficient internal consistency, test-retest reliability and validity. Cronbach α was 0.83.[24] PSQI is a generally preferred, 19 item self-report measure of sleep quality over the previous month. It contains 7 component scores (from 0 to 3), measuring subjective sleep quality, and sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. The global PSQI score was distinguished as good (PSQI ≤5) or poor (PSQI >5) sleep quality. Agargun et al. was made Turkish validity and reliability study in 1996.Cronbach α was determined to be 0.80.[25]Cronbach α was calculated 0.805 for this current study.

2.5 Ethical Considerations

Ethical permission was obtained from the Cukurova University Non-interventional Clinical Research Ethics Committee to conduct the research. All participants were informed about confidentiality and privacy and that they could leave the study at any time before obtaining written informed consent.

2.6 Data Analysis

Analysis of the data was made in the SPSS 21 package program. Shapiro Wilk test was used for normality control of continuous variables. Independent t test was used for comparing the groups as the variables were suitable for normal distribution. Chi-square test and Fisher Exact test were used for analysis of categorical variables. The effects of variables on good and poor sleep PSQI scores were examined by univariate analyzes, separately for Roman and non-Roman, and multiple logistic regression analysis was applied to those found to be significant. The statistical significance level was taken as 0.05.

3. RESULTS

This study was completed with a total of 206 older people. The mean age of Roman people was 68.50±3.88 (min=64-max=84), in non-Roman, it was 71.78±6.82 (88 (min=65-max=90) ($p<0.001$). The mean BMI was 31.57±8.51 (min=17.5-max=57.8) for Roman older people, 27.86±6.16 (min=18.7-max=54.7) for non-Roman older people ($p<0.001$).

There were significant differences between marital status, education level, and income level of both groups ($p<0.05$) (Table 1). Sleep latency, sleep efficiency, daytime dysfunction and PSQI total score of Roman older people were higher than those of non-Roman older people ($p<0.05$). Roman older people have poorer sleep quality than non-Roman older people (Table 2).

Distribution of mean scores of PSQI of Roman and non-Roman older people by descriptive characteristics are shown in Table 3.

The effects of age, gender, BMI, and the presence of chronic disease on sleep quality were examined. Accordingly, the presence of chronic disease reduces sleep quality by 4.351 times ($p = 0.009$) (Table 4). Logistic regression analysis was not made as there were no variables affecting PSQI in non-Roman older people.

Table 1. Socio-demographic characteristics of Roman and non-Roman older people

Characteristics		Roman		Non-Roman		Total		p
		n	%	n	%	n	%	
Gender	Female	54	52.4	65	63.1	119	57.8	0.121
	Male	49	47.6	38	36.9	87	42.2	
Marital status	Single	39	37.9*	21	20.4	60	29.1	**0.006**
	Married	64	62.1	82	79.6*	146	70.9	
Having children	Yes	98	95.1	96	93.2	194	94.2	0.552
	No	5	4.9	7	6.8	12	5.8	
Education level	Illiterate	70	68.0*	34	33.0	104	50.5	**<0.001**
	Literate	21	20.4	18	17.5	39	18.9	
	Primary school	12	11.7	36	35.0*	48	23.3	
	High school	0	0.0	4	3.9*	4	1.9	
	College	0	0.0	11	10.7*	11	5.3	
Employment	Employed	93	90.3*	80	77.7	173	84.0	**<0.001**
	Non-employed	9	8.7	5	4.9	14	6.8	
	Retired	1	1.0	18	17.5*	19	9.2	
Income level	Income less than expenses	103	100.0*	45	43.7	148	71.8	**<0.001**
	Income equal to expenses	0	0.0	49	47.6*	49	23.8	
	Income more than expenses	0	0.0	9	8.7*	9	4.4	
Having physical chronic diseases	Yes	80	77.7	81	78.6	161	78.2	0.866
	No	23	22.3	22	21.4	45	21.8	
Having psychiatric diseases	Yes	0	0.0	0	0.0	0	0.0	1.00^{F}
	No	103	100.0	103	100.0	206	100.0	
Smoking	Yes	27	26.2*	12	11.7	39	18.9	**0.008**
	No	76	73.8	91	88.3*	167	81.1	

*p:Chi-square test, F:Fisher Exact test, * indicates the higher rate.*

Table 2. Distribution of scores of Roman and non-Roman older people

		Roman (n=103)		Non-Roman (n=103)		
		M±SD	**Min-Max**	**M±SD**	**Min-Max**	**p**
PSQI	Subjective sleep quality	1.64±1.03	0-3	1.47±0.85	0-3	0.185
	Sleep latency	1.65±1.05	0-3	1.18±0.80	0-3	**<0.001**
	Sleep duration	1.46±1.17	0-3	0.92±0.99	0-3	**<0.001**
	Sleep efficiency	1.40±1.35	0-3	0.84±1.10	0-3	**0.001**
	Sleep disturbances	1.74±0.74	0-3	1.64±0.71	0-3	0.339
	Use of sleeping medication	0.35±0.93	0-3	0.33±0.86	0-3	0.876
	Daytime dysfunction	1.23±1.22	0-3	0.88±0.90	0-3	**0.021**
	PSQI total score	9.47±5.50	0-21	7.27±3.68	0-17	**0.001**

p:Student's t Test, SD: Standard deviation, PSQI: Pittsburgh Sleep Quality Index

Table 3. Distribution of mean scores of PSQI of Roman and Non-Roman older people by descriptive characteristics

Characteristics	PSQI																
	Roman (n=103)							Non-Roman (n=103)									
	Good sleep quality (n:31)		Poor sleep quality (n:72)			Total		Good sleep quality (n:37)		Poor sleep quality (n:66)			Total				
	M±SD	Min-Max	M±SD	Min-Max	p^1	M±SD	Min-Max	M±SD	Min-Max	M±SD	Min-Max	p^1	M±SD	Min-Max	p^1_{good}	p^1_{poor}	p^1_{total}
Age	69.74±4.92	65-84	67.96±3.23	64-79	0.032	68.49±3.88	64-84	71.62±6.53	65-90	71.88±7.02	65-90	0.855	71.79±6.82	65-90	**<0.001**	0.192	**<0.001**
BMI	27.32±6.68	18.7-53.3	33.4±8.59	17.5-57.8	0.001	31.57±8.51	17.5-57.8	26.9±5.06	18.7-39	28.4±6.67	18.8-54.7	0.239	27.86±6.16	18.8-54.7	**<0.001**	0.769	**<0.001**
	n	%	n	%	p^2	n	%	n	%	n	%	p^2	n	%	p^2_{good}	p^2_{poor}	p^2_{total}
Gender																	
Female	9	29.0	45	62.5	0.002	54	52.4	20	54.1	45	68.2	0.154	65	63.1	0.484	**0.038**	0.121
Male	22	71.0	27	37.5		49	47.6	17	45.9	21	31.8		38	36.9			
Having Chronic Disease																	
Yes	17	54.8	63	87.5	<0.001	80	77.7	26	70.3	55	83.3	0.121	81	78.6	0.487	0.189	0,866
No	14	45.2	9	12.5		23	22.3	11	29.7	11	16.7		22	21.4			

p^1:Student's t test, p^2:Chi-Squared test; p_{good}: Comparison of Roman and non-Roman in those with good sleep quality, p_{poor}: Comparison of Roman and non-Roman in those with poor sleep quality, p_{total}: Comparison of Roman and non-Roman, SD: Standard deviation, PSQI: Pittsburgh Sleep Quality Index

Table 4. Determinants of PSQI in Roman older people according to multiple logistic regression analysis

	B	S.E.	Wald	Exp(B)	95% CI.for EXP(B)		p
					Lower	Upper	
Age	-0.107	0.065	2.703	0.899	0.791	1.021	0.100
Gender (Female)	0.857	0.557	2.370	2.356	0.791	7.013	0.124
BMI	0.075	0.044	2.903	1.078	0.989	1.174	0.088
Chronic Disease (Yes)	1.470	0.560	6.905	4.351	1.453	13.028	**0.009**
Constant	4.484	4.810	0.869	88.625			0.351

BMI: Body mass index

4. DISCUSSION

This current study evaluated and compared the sleep quality of Roman and non-Roman older people living in nearby neighborhoods.

The results show that both groups of participants have poor sleep quality but Roman older people (9.47±5.50) have poorer sleep quality than non-Roman older people (7.27±3.68) (p=0.001). Roman older people have more sleep latency, sleep duration, sleep efficiency, daytime dysfunction than non-Roman older people. There is no study specifically assessed Roman older people's sleep quality. In most of the studies using PSQI, total score have changed from 6.76 ±2.91 to 9.83±3.67 which is similar to the current study.[4, 23, 26] In terms of the sleep quality, for both of the groups, results are similar to those of other studies. However, in the literature, age, gender, having chronic diseases, obesity was associated with a low quality of sleep.[27, 28] In this present study, age, BMI, being female, and having chronic diseases have significant relationship between poor sleep quality in Roman older people. On the other hand, no significant relationship was found out for those variables in non-Roman older people. According to regression analysis, having chronic diseases reduces sleep quality four times in Roman older people. Johnson et al. in their review study indicated that racial/ethnic minorities have the worst sleep quality.[19] Similarly, Chen et al. showed that sleep disturbances are prevalent among older adults, and differ by race/ethnicity, gender, and obesity status.[29] The researcher stated that there are obviously racial/ethnic disparities in sleep health and the high prevalence of sleep disturbances among racial/ethnic minorities may contribute to health disparities like demographic, behavioral, clinical, and socioeconomic factors. In this current study, it is found out that compared to non-Roman older people, there are more singles in Roman older people, their educational level is lower, income level is lower, unemployment rate is higher, BMI is higher and smoking habit is higher. Although both groups are living in the same district, Roman older people have more factors that affect negatively their sleep quality than non-Roman older people.

CONCLUSION

This study was conducted to compare the sleep quality of Roman and non-Roman older people living in nearby neighborhoods.
It was determined that Roman older people have poorer sleep quality than non-Roman older people. Older Roman people have more factors affecting their sleep quality negatively. Especially, having chronic diseases reduces sleep quality in Roman older people. These results can be used by primary health care staff to provide appropriate health care for older people. New larger researches with in-group and inter-group comparisons should be made to determine all the factors that affect older people's sleep quality.

Conflict of Interest

The authors declare no conflict of interest.

REFERENCES

1. Daylan A, Akbaş S. Yaşlıda uyku bozuklukları el kitabı. Şahin S, Akçiçek SF. Editörler, İzmir, ISBN 978-605-67238-7-2, 2019: 5-7.

2. Hirshkowitz M, Whiton K, Albert SM, Alessi C, Bruni O, DonCarlos L, et al. National Sleep Foundation's sleep time duration recommendations: methodology and results summary. Sleep Health 2015 Mar;1(1):40-43. doi: 10.1016/j.sleh.2014.12.010. Epub 2015 Jan 8. PMID: 29073412

3. Miner B, Kryger MH. Sleep in the aging population. Sleep medicine clinics, 2017; 12(1): 31–38

4. Daglar G, Pinar SF, Sabanciogullari S, Kav S. Sleep quality in the elderly either living at home or in a nursing home. Aust JAdv Nurs 2014; 31:6–13.

5. Zhu X, Hu Z, Nie Y, Zhu T, Chiwanda Kaminga A, Yu Y, et al. The prevalence of poor sleep quality and associated risk factors among Chinese elderly adults in nursing homes: A cross-sectional study. PLoS ONE 2020;15(5):e0232834.

6. Dalmases M, BenõÂtez ID, Mas A, Garcia-Codina O, Medina-Bustos A, Escarrabill J, et al. Assessing sleep health in a European population: Results of the Catalan Health Survey 2015. PLoS ONE 2018; 13(4): e0194495.

7. Gulia KK, Kumar VM. Sleep disorders in the elderly: a growing challenge. Psychogeriatrics 2018;18:155–165. doi:10.1111/ psyg.12319

8. Kyle SD, Sexton CE, Feige B, Luik AI, Lane J, Saxena R, Anderson SG, Bechtold DA, Dixon W, Little MA, Ray D, Riemann D, EspieCA, Rutter MK, Spiegelhalder K. Sleep and cognitive performance: cross-sectional associations in the UK Biobank, Sleep Medicine 2017; 38: 85-91.

9. NakakuboS,MakizakoH,DoiT,Tsutsumimoto K ,Lee S, Lee S, Hotta R, Bae S, Suzuki T, Shimada H.Impactofpoorsleepquality andphysicalinactivityoncognitivefunctioninco mmunity-dwelling olderadults.GeriatriGerontolInt.2017;17(11):18 23-1828.

10. Choi E,Wan E, Kwok JYY, Chin W, Lam C. The mediating role of sleep quality in the association between nocturia and health-related quality of life. Health Qual Life Outcomes 2019; 17: 181.

11. Dzierzewski JM, Dautovich ND. Who Cares about Sleep in Older Adults? Clin Gerontol. 2018 Mar-Apr;41(2):109-112. doi: 10.1080/07317115.2017.1421870.

12. Park JH, Yoo MS, Bae SH. Prevalence and predictors of poor sleep quality in Korean older adults. Int J Nurs Pract. 2013;19:116-23

13. Zhu X, Hu Z, Nie Y, Zhu T, Chiwanda Kaminga A, Yu Y, Xu H. The prevalence of poor sleep quality and associated risk factors among Chinese elderly adults in nursing homes: A cross-sectional study. PLoS One 2020 May 15; 15(5):e0232834. doi: 10.1371/journal.pone.0232834.

14. Li L, Li L, Chai JX, Xiao L, Ng CH, Ungvari GS, Xiang YT. Prevalence of poor sleep quality in patients with hypertension in China: A meta-analysis of comparative studies and epidemiological surveys. Front Psychiatry 2020 Jun 30;11:591. doi: 10.3389/fpsyt.2020.00591.

15. Grandner MA, Patel NP, Gehrman PR, Xie D, Sha D, Weaver T, Gooneratne N. Who gets the best sleep? Ethnic and socioeconomic factors related to sleep complaints. Sleep Med. 2010 May;11(5):470-8. doi: 10.1016/j.sleep.2009.10.006.

16. Smagula SF, Stone KL, Fabio A, Cauley JA. Risk factors for sleep disturbances in older adults: Evidence from prospective studies. Sleep Med Rev. 2016 Feb;25:21-30. doi: 10.1016/j.smrv.2015.01.003.

17. Marr NC, Van Liew C, Carovich TF, Cecchini GA, McKinley LE, Cronan TA. The effects of racial/ethnic minority status on sleep, mood disturbance, and depression in people with fibromyalgia. Psychology research and behavior management 2020; 13:343–353.

18. Jean-Louis G, Magai CM, Cohen CI, Zizi F, von Gizycki H, DiPalma J, Casimir GJ. Ethnic differences in self-reported sleep problems in older adults. Sleep 2001 Dec 15;24(8):926-33. doi: 10.1093/sleep/24.8.926. PMID: 11766163.

19. Johnson DA, Jackson CL, Williams NJ, Alcántara C. Are sleep patterns influenced by race/ethnicity - a marker of relative advantage or disadvantage? Evidence to date. Nature and science of sleep 2019;11: 79–95.

20. European Union, 2014. Roma Health Report Health status of the Roma population. Data collection in the Member States of the European Union. ISBN 978-92-79-37904-8 DOI 10.2772/3140.

21. Gecková AM, Babinská I, Bobáková D, Veselská ZD, Bosáková L, Kolarcik P, Jarcuska P, Pella D, Halánová M,HepaMeta T. Socioeconomic characteristics of the population living in Roma settlements and their association with health and health-related

behaviour. Cent Eur J Public Health 2014; 22(Supp):57-64

22. Hajioff S, McKee M. The health of the Roma people: A review of the published literature. J Epidemiol Community Health 2000;54:864–869.

23. Özvurmaz S, Asgarpour H, Güneş Z. Yaşlılarda uyku kalitesi ve yaşam kalitesi arasındaki ilişki: Kesitsel bir çalışma.Medical Sciences (NWSAMS) 2018;13(3): 72-79, DOI: 10.12739/NWSA.2018.13.3.1B0053

24. Buysse DJ, Reynolds CF 3rd, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh sleep quality index: A new instrument for psychiatric practice and research. Psychiatry Res. 1989 May;28(2):193-213. doi: 10.1016/0165-1781(89)90047-4. PMID: 2748771

25. Ağargün MY, Kara H, Anlar Ö. Pittsburgh uyku kalitesi indeksi'nin geçerliği ve güvenirliği. Turk Psikiyatri Derg 1996; 7:107-11.

26. Wu W, Wang W, Dong Z, Xie Y, Gu Y, Zhang Y, Li M, Tan X. Sleep quality and its associated factors among low-income adults in a rural area of China: A population-based study. Int J Environ Res Public Health. 2018 Sep 19;15(9):2055. doi: 10.3390/ijerph15092055.

27. Madrid-Valero JJ, Martínez-Selva JM, Ribeiro do Couto B, Sánchez-Romera JF, Ordoñana JR. Age and gender effects on the prevalence of poor sleep quality in the adult population. Gac Sanit. 2017 Jan-Feb;31(1):18-22. doi: 10.1016/j.gaceta.2016.05.013.

28. 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 May 14;40:e2018018. doi: 10.4178/epih.e2018018. PMID: 29807410; PMCID: PMC6060346.

29. Chen X, Wang R, Zee P, Lutsey PL, Javaheri S, Alcántara C, Jackson CL, Williams MA, Redline S. Racial/Ethnic differences in sleep disturbances: The multi-ethnic study of atherosclerosis (MESA). Sleep. 2015 Jun 1;38(6):877-88. doi: 10.5665/sleep.4732.